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Lean UX:
Applying Lean Principles to Improve User Experience

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Preface

The biggest lie in software is Phase Two.

If you've spent any time building digital products in the last 20 years—regardless of your role—you've felt the sting of this lie. You set aside features and ideas for the next phase or work and then they are gone—never to be heard from again. As a designer, I've had hundreds, if not thousands, of wireframes and workflows end up in this same bucket.

But did these ideas disappear because they were flawed? Did the features that shipped actually meet customer and business goals? Or did the team simply run out of time? They never got to Phase Two.
In *The Lean Startup*, Eric Ries lays out his vision for how to ensure the ideas that have the most value get the most resources. The method Ries promotes relies on experimentation, rapid iterations of ideas, and evolutionary processes. The entire concept of Phase Two becomes moot.

The junction of Lean Startup and User Experience design -- and their symbiotically beneficial coexistence -- is **Lean UX**.

**What is Lean UX and how is it different?**

The Lean principles underlying Lean Startup apply to Lean UX in three ways. First, they help us remove waste from our UX design process. We move away from heavily-documented handoffs to a process that creates only the design artifacts we need to move the team's learning forward. Second, they drive us to harmonize our "system" of designers, developers, product managers, quality assurance engineers, marketers and others in a transparent, cross-functional collaboration that brings non-designers into our design process. Last, and perhaps most important, is the mindset shift we gain from adopting a model based on experimentation. Instead of relying on a hero designer to divine the best solution from a single point of view, we use rapid experimentation and measurement to learn quickly how well (or not) our ideas meet our goals. In all of this, the designer's role begins to evolve towards design facilitation—and with that we take on a new set of responsibilities.

Besides Lean Startup, Lean UX has two other foundations: Design Thinking and Agile development philosophies. Design Thinking takes a solution-focused approach to problem-solving, working collaboratively to iterate an endless, shifting path toward perfection. It works towards product goals via specific ideation,
prototyping, implementation and learning steps to bring the appropriate solution to light. Agile re-focuses software development on value. It seeks to deliver working software to customers quickly and to adjust regularly to new learning along the way.

Lean UX uses these foundations to break the stalemate between the speed of Agile and the need for design in the product-development lifecycle. If you've struggled to figure our how UX design can work in agile environments, Lean UX can help.

Lean UX breaks down the barriers that have kept software designers isolated from real business needs on the one hand and actual implementation on the other. Lean UX not only brings us to the table – it brings our partners in business and technology to the whiteboard to work with us on the best solutions in an ongoing way.

I once had a large pharmaceutical client who hired the agency I worked for to redesign their e-commerce platform with the goal of increasing revenues by 15%. I was the lead interaction designer on our team. In the vacuum of our office, we spent months researching the current system, supply chain, competitors, target audience and contextual use scenarios. We researched personas and assembled strategic models. I designed a new information architecture for the product catalog and crafted a brand-new shopping and checkout experience.

The project took months. And when the work was complete, we packaged it all up into a Powerpoint deck. This was a formidable deck – and it had to be, considering the $600k price tag! We went over to the client's office and spent an entire eight-hour day going
over each and every pixel and word in that deck. When it was over, the client clapped. (They really did). We were relieved. They loved it. And we never looked at that deck again.

Six months after that meeting, nothing had changed on the client's site. I don't think they ever looked at that deck again, either.

The moral of this story: Building a pixel-perfect spec might be a route to rake in six-figure consulting fees, but it's not a way to make a meaningful difference to a real product that is crucial to real users. It's also not the reason that any designer got into the product design business. We got in to build valuable products and services, not to write specs.

Some teams I work with today create entirely new products or services. They are not working within an existing product framework or structure. In "green-field" projects like these, we are simultaneously trying to discover how this new product or service will be used, how it will behave and how we are going to build it. It's an environment of continual change, and there isn't a lot of time or patience for planning or up-front design.

Other teams work with established products that were created with traditional design and development methods. Their challenge is different. They need to build upon existing platforms while increasing revenue and brand value. These teams usually have more resources at their disposal than a ground-floor startup, but they still have to use their resources efficiently—figuring out the best way to spend those resources to build products and services their customers actually want.
As I've learned to practice Lean UX, I've had to overcome the feeling that I was showing work that was "ugly," "unfinished" or "not ready." Working this way requires the support of a high-functioning team. You need to know—as a team—that you're not going to get it right the first time and that you’re all working together to iterate your way forward. I want you to gain that confidence, too. Within the pages of this book, I've distilled the insights and tactics that have allowed me to create real success for product and business teams—and real satisfaction for customers.

Who is Lean UX for?

This book is, first, for interaction designers who know they can contribute more and be more effective with their teams. But, it's also for product managers who need better ways to define their products with their teams and to validate them with their customers. It's also for developers who understand that a collaborative team environment leads to better code and more meaningful work. And, finally, it's for managers—managers of user-experience teams, project teams, business lines, departments and companies—who understand the difference a great user experience can make.

What's in It for You?

The book is set up in three sections. Section I provides an overview and introduction to Lean UX and its founding principles. I lay out the reasons the evolution of the UX design process is so critical and describe what Lean UX is. I also discuss the underlying principles you’ll need to understand to make Lean UX successful.

Section II focuses on Process. Each chapter takes a step in the Lean UX cycle and details clearly how to do each step and why it’s important. I also share examples of how I and others have done these things in the past.
The last part of the book, Section III, tackles the integration of Lean UX practices into your organization. I also discuss the role of Lean UX within a typical Agile development environment. Finally, I discuss the organizational shifts that need to take place both at the corporate level, the team level, and at the individual contributor level for these ideas to truly take hold.

My hope is that this book will deliver a wake-up call to user experience designers still waiting for "Phase Two." While the book is filled with tactics and techniques to help evolve your processes, Lean UX is, at its core, a mindset. As you travel down this path, I'd love to hear about your successes, challenges and failures so that we can keep that mindset current, relevant and productive. Email me with your thoughts at jeff@jeffgothelf.com. I look forward to hearing from you.

[Jeff]

P.S. - For the purposes of this book, the terms Interaction Design and UX design are used to denote all the fields and labels that currently reside under the User Experience and Design umbrella. (If, Dear Reader, you call your specialty User Interface Design, Information Architecture, Experience Architecture or any of the myriad names currently floating about, know that they are explicitly included in these terms.)
CHAPTER 3

Vision, Framing & Outcomes

"If it disagrees with experiment, it's wrong."

- Dr. Richard Feynman

Traditionally, UX design projects are framed by requirements and deliverables. Teams are given requirements and expected to produce deliverables. Lean UX radically shifts the way we frame our work. Our goal is not to create a deliverable. It's to change something in the world--to create an outcome. We start with assumptions
instead of requirements. We create and test hypotheses. We measure to see if we’ve achieved our desired outcomes.

This chapter digs into the main tool of outcome-focused work: the hypothesis statement. The hypothesis statement is the starting point for a project. It states a clear vision for the work and shifts the conversation between team members and their managers from outputs (e.g., "We will create a single sign-on feature") to outcomes (e.g., "We want to increase the number of new sign-ups to our service.")

The hypothesis statement is a way of expressing assumptions in testable form. It is composed of the following elements:

- Assumptions -- a high-level declaration of what we believe to be true.
- Hypotheses -- more granular descriptions of our assumptions that target specific areas of our product or workflow for experimentation.
Outcomes -- the signal we seek from the market to help us validate or invalidate our hypotheses. These are often quantitative but can also be qualitative.

Features -- the product changes or improvements we believe will drive the outcomes we seek.

Personas – models of the people for whom we believe we are solving a problem.

Let's take a look at each one of these elements in further detail.
Assumptions

The first step in the Lean UX process is to declare your assumptions. Every project starts with assumptions, but mostly we don’t acknowledge this fact. Instead, we try to ignore assumptions, or worse, treat them as facts. Declaring your assumptions allows your team to create a common starting point. By doing this as a team, you give every team member -- designer and non-designer alike -- the opportunity to voice his or her opinion on how best to solve the problem. Going through an assumptions declaration exercise gets everyone’s ideas out on the whiteboard. It reveals the team’s divergence of opinions and also exposes a broad set of possible solutions.

Let's take a detailed look at one way to run the assumptions exercise.
METHOD: Declaring Assumptions

Who: Declaring assumptions is a group exercise. Gather your team, making sure that all disciplines are represented -- including any subject matter experts that could have vital knowledge about your project. For example, if you're handling a frequent customer complaint, it might be beneficial to include a customer service representative from your call center. Call center reps speak to more customers than anyone else in the organization and will likely have insight the rest of the team won't.

Preparation: Give the team advance notice of the problem they will be taking on. This gives everyone a chance to prepare any material they need or do any research before you begin. Important things to prepare in advance include:

Anlaytics reports that show how the current product is being used
Usability reports that illustrate why customers are taking certain actions in your product

Information about past attempts to fix this issue and their successes and failures

Justification from the business as to how solving this problem will affect the company's performance

Competitive analyses that show how your competition is tackling the same issues

**Problem Statement:** The team needs to have a starting point for the exercise. I've found it helpful to start with a problem statement. (See the template for this statement below.) The problem statement gives your team a clear focus for their work. It also defines any important constraints. You need constraints for group work. They provide the guard rails that keep the team grounded and aligned.
Problem Statement Template

Problem statements are made up of three elements:

1. The current goals of the product or system
2. The problem the business wants addressed (i.e., where the goals aren’t being met)
3. An explicit request for improvement that doesn’t dictate a specific solution

Template:

[Our service/product] was designed to achieve [these goals].

We have observed that the product/service isn’t meeting [these goals] which is causing [this adverse effect] to our business. How might we improve [service/product] so that our customers are more successful based on [these measurable criteria]?
For example, here is a problem statement we used to begin a project at The Ladders:

Our service offers a conduit between job seekers and employers trying to hire them. Through our service, employers can reach out to job seekers in our ecosystem with employment opportunities. We have observed that one critical factor affecting customer satisfaction is how frequently job seekers respond to employer messages. Currently, job seekers are replying to these communications at a very low rate. How might we improve the efficacy of our communication products, thus making employers more successful in their jobs and job seekers more satisfied with our service?

Problem statements are filled with assumptions. The team's job is to dissect the problem statement into its core assumptions. You can do that by running the Assumptions Exercise, below. Note that some teams—especially teams starting from scratch—may not have a clear problem.
statement. That’s OK. You can still use the exercise below. You’ll just have to expect that it may take longer to reach consensus on some of the questions.

**Running The Exercise: Business Assumptions Exercise**

I like to use this worksheet (created by my partner Giff Constable) to facilitate the assumptions discussion. There are many ways to complete this worksheet. You can answer the questions as a team, simply discussing each answer. Or you can run a structured brainstorm / affinity mapping exercise for each question. However you do it, remember that it’s important to give everyone a chance to contribute. Also, don’t worry if you get to the end of the exercise without clear agreement on all of the answers. The goal is to collect statements that reflect what you and your team *think might be true*. If you have strong disagreement on a point, capture the different perspectives.
Assumptions worksheets

Business Assumptions:

1. I believe my customers have a need to:

2. These needs can be solved with:

3. My initial customers are (or will be):

4. The #1 value a customer wants to get out of my service is:
   They can also get these additional benefits:

5. I will acquire the majority of my customers through:

6. I will make money by:

7. My primary competition in the market will be:
   We will beat them due to:

8. My biggest product risk is:
   We will solve this through:

9. What other assumptions do we have that, if proven false, will cause our business/project to fail:

User Assumptions:
1. Who is the user?

2. Where does our product fit in their work or life?

3. What problems does our product solve?

4. When and how is our product used?

5. What features are important?

6. How should our product look and behave?

You may discover that some of these questions don’t apply to your project. That’s OK—you can adapt the questions to your situation as you see fit. If you’re early in the life of your product, you’ll probably spend more time on the business assumptions. If you’ve got a mature product, you’ll probably focus your energies on the user assumptions. The point is to cast a broad net and look for assumptions in all dimensions of your project.

When you’ve completed the exercise, you will have a list of assumptions statements. Your next step is to prioritize these assumptions.
**Prioritizing Assumptions:** The reason we declare our assumptions at the start of our work is so that we can identify project risks. Now that we have a list of assumptions, we need to figure out which ones are the riskiest ones—so that we can work on them first. Lean UX is an exercise in ruthless prioritization. Understanding that you can't test every assumption, how do you decide which one to test first? I like to create a chart like the one below and use it to map out the list of assumptions. The goal is to prioritize a set of assumptions to test based on their level of risk (*How bad would it be if we were wrong about this?*) and how much understanding we have of the issue. The higher the risk and the more unknowns involved, the higher the priority is to test those assumptions.

This does not mean that assumptions that don’t make the first cut are gone forever. Keep a backlog of the other assumptions
you’ve identified so you can come back to them and test them if and when it makes sense to do so.

**Hypotheses**

With our prioritized list of assumptions in hand, we’re ready to move to the next step: testing our assumptions. To do that, we transform each assumption statement into a format that is easier to test: the hypothesis statement.

Generally, hypothesis statements use the format:

*We believe [this statement is true]*.
We will know we’re [right/wrong] when we see the following feedback from the market:

[qualitative feedback] and/or [quantitative feedback] and/or [key performance indicator change].

You can see that this format has two parts. A statement of what you believe to be true, and statement of the market feedback you’re looking for to confirm that you’re right.

Expressing your assumptions this way turns out to be a really powerful technique. It takes much of subjective and political conversation out of the decision-making process and instead orients the team towards

It’s not all numbers

It’s worth noting that there’s been a lot of backlash in the design world about measurement-driven design. The argument is that by reducing every design decision to factors that can be measured, we take the delight and soul out of our products. I actually agree with this perspective, which is why I think it’s so important to include qualitative feedback in your success criteria. Are people delighted by a design? Do they recommend your product to their friends? Do they tweet about it? When you look for success metrics, remember that it’s not all numbers.
feedback from the market. It orients the team towards their users and customers.

**Sub-hypotheses: breaking it down into smaller parts**

Sometimes—if not most of the time—you will discover that your hypothesis is too big to test with one test. It will contain too many moving parts, too many sub-hypotheses. When this happens, I find it helpful to break the hypothesis down into smaller and more specific parts. And though there are many ways to do this, for product work I have found that this format is very helpful:

> **The importance of benchmarks**
>
> Remember, none of your metrics will be meaningful if you don't have a benchmark in place prior to writing your hypotheses. That benchmark -- the current state of the metrics you're using to determine your idea's success -- needs to be captured ahead of time to ensure the team knows what it's targeting.

We believe that
Excerpt from: Lean UX (Draft Version)

[doing this/building this feature/creating this experience]

for [these people/personas]

will achieve [this outcome].

We will know this is true when we see

[this market feedback, quantitative measure, or qualitative insight].

The first field is completed with the feature or improvement you're considering making to your product. The second field describes exactly which of your target customers will benefit from this feature. The last field speaks to the benefit those customers will get from that feature. The final statement ties it all together. This is the statement that determines whether your hypothesis was true. What market feedback will you look for to indicate that your idea is correct? This could be quantitatively measured usage of a feature. It could be an
increase in a business metric or it could be a qualitative assessment of some sort.

Let's take a look at an example of how this works by going back to the problem statement we look at earlier from TheLadders:

*Our service offers a conduit between job seekers and employers trying to hire them. Through our service, employers can reach out to job seekers in our ecosystem with employment opportunities. We have observed that one critical factor affecting customer satisfaction is how frequently job seekers respond to employer messages. Currently, job seekers are replying to these communications at a very low rate. How can we improve the efficacy of our communication products, thus making employers more successful in their jobs and job seekers more satisfied with our service?*
I mentioned earlier that the assumption that recruiters would use another channel to engage with candidates was not proven and needed to be tested. How would we write the hypothesis for that statement? Let’s take our template and fill it out:

We believe that

creating an efficient communication system within TheLadders experience

for recruiters and employers

will achieve a higher rate of contact success and an increase in product satisfaction.

We will know this is true when we see an increase in the number of replies from job seekers to recruiter contacts AND an increase in the number of messages initiated by recruiters in our system.
Completing your hypothesis statements

To create your hypothesis statements, you will need to start assembling the building blocks. You are going to want to put together a list of outcomes you are trying to create, a definition of the personas you are trying to service, and a set of the features you believe might work in this situation. Once you’ve got all of this raw material, you can put them all together into a set of statements. Let’s take a closer look at each of these elements.

Outcomes

When you’re creating hypotheses to test, you want to try to be very specific regarding the outcomes you are trying to create. I discussed earlier how Lean UX teams focus less on output (the documents, drawings, even products and features that we create) and more on the outcomes that these outputs create. Can we make it easier for people to log into our site? Can we encourage more people to sign up? Can we encourage greater collaboration among system users?
Together with your team, look at the problem you are trying to solve. You probably have a few high-level outcomes you are trying to create. (Increasing sign-ups, increasing usage, etc.) Consider how you can break down these high-level outcomes into smaller parts. What behaviors will predict greater usage? More visitors to the site? Greater click-through on email marketing? Increasing number of items in the shopping cart? Sometimes, it’s helpful to run a team brainstorm to create a list of possible outcomes that you believe will predict the larger outcome you seek.
In this example from Giff Constable, an executive leadership team brainstormed and then voted on which KPI's the company should pursue next. After consolidating down to the list shown in the photo, each executive was given 4 M&M’s. As long as they managed not to eat their votes, these executives were able to vote with candy for each metric they felt was most important. Ties were broken by the CEO.
Personas

If your team already has a well-defined set of personas, the only thing you need to consider at this point is which ones you will be using in your hypothesis statements. If you don’t have personas yet though, this section will tell you how we like to create personas for the Lean UX process.

Proto-personas: Designers have long been advocates for the end user. Lean UX is no different. As we make assumptions about our business and the outcomes we’d like to achieve, we still need to keep the user front and center in our thinking.
Most of us learned to think about personas as a tool to represent what we learned in our research. And it was often the case that we created personas as the output of lengthy, expensive research studies. The problem with personas that are created this way is that we think this is the only way that we can create personas. And we tend to regard them as untouchable because of all of the work that went into creating them.

In Lean UX, we change the order of operations in the persona process. When creating personas in this approach, we start with assumptions and then do research to validate our assumption. Instead of spending months in the field interviewing people, we spend a few hours creating proto-personas. Proto-personas are our best guess as to who is using (or will use) our product and why. We sketch them on paper with the entire team contributing—we want to capture everyone’s assumptions. Then, as we learn from our ongoing research we quickly find out how accurate our initial guesses
are and how we'll need to adjust our target—and thus our design.
Using proto-personas.

A team we were working with in New York was building an app that improved the Community Supported Agriculture (CSA) experience for New York City residents. CSA is a program that allows city residents to pool their money and purchase an entire season’s worth of produce from a local farmer. The farmer then delivers his crops, weekly, to the members of the CSA. Many subscribers to the CSA are men and women in their late 20’s and early 30’s who need to juggle a busy work life, an active social life and a desire to participate in the CSA.

The team assumed that most CSA consumers were women who liked to cook. They spent about an hour creating a persona named Susan. But when they went out into the field to do research, they quickly learned that the overwhelming majority of cooks, and hence potential users of their app, were young men. They returned to the office and revised their persona to create Timothy:

Timothy proved to be a far more accurate target user. The team had not wasted any more time refining ideas for the wrong audience. They were now focused on an audience that, while still not perfect, was far more correct than their initial assumptions.
Persona format:

We like to sketch proto-personas on paper using a hand-drawn quadrant. (Or try folding a sheet of paper into four boxes.) The top-left quadrant holds a rough sketch of the persona, and his or her name and role. The top-right box holds basic demographic information. Try to focus on demographic information that predicts a specific type of behavior. For example, there may be cases where the persona’s age is totally irrelevant while their access to a specific device, like an iPhone, will completely change the way they interact with your product.
The bottom half of the proto-persona is where we put the meat of the information. The bottom-left quadrant contains the user's needs and frustration with the current product or situation, the specific pain points your product is trying to solve, and/or the opportunity you’re trying to address. The bottom-right quadrant contains potential solutions for those needs. You’ll use the bottom right to capture feature and solution ideas.

**Persona creation process:** As with the other elements of the hypothesis statement, we like to start the persona creation process with a brainstorm. Team members offer up their opinions on who the project should be targeting and how that would affect their use of the product. Once the brainstorming is complete, the team should narrow down the ideas to an initial set of 3-4 personas they believe are most likely to be their target audience. Try to differentiate the personas around needs, and roles, rather than by demographic.
Features: Once you have a list of outcomes in mind, and have set a focus on a group of users, it's time to start thinking about what tactics, features, products and services you can put in place to achieve them. This is typically the part where everyone on the team has a strong opinion—after all, features are the most concrete things we work with, so it’s often easiest for us to express our ideas in terms of features. Too often though, our design process starts when someone has a feature idea, and we end up working backwards to try to justify the feature. In Lean UX, features exist to serve the needs of the business, the customer, and the user.

Feature brainstorming process: Employing the same techniques described earlier, we like to create feature lists by brainstorming them as a team. We’re looking for features we think will drive customer behavior in the desired direction. Have each team member write each idea, using a thick Sharpie,
on a post-it note. When time is up, ask everyone to post their notes to the wall have the group arrange them into themes.

**Assembling your sub-hypotheses:**

With all of your raw material created, you’re ready to organize this material into a set of testable hypotheses. We like to create a table like the one below and then complete it by using the material we’ve brainstormed.

<table>
<thead>
<tr>
<th>We will</th>
<th>for</th>
<th>In order to achieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>[create this feature]</td>
<td>[this persona]</td>
<td>[this outcome.]</td>
</tr>
</tbody>
</table>
As you write your hypotheses, consider which persona(s) you're serving with your proposed solutions. It’s not unusual to find solutions that serve more than one at a time. It’s also not unusual to create a hypothesis in which one feature drives more than one outcome. When you see that happening, split the hypothesis into two parts—you want each statement to refer to only one outcome. The important thing to remember in this whole process is to keep your ideas specific enough so that you can create meaningful tests to see if your ideas hold water.

When your list of hypotheses is complete you’re ready (finally!) to move on to the next step: design. If you’ve done the process to this point with your whole team (and I strongly recommend that you do) you’ll be in a great position to move forward together. This process is a really effective way to create a shared understanding and shared mission across your whole team.
In this chapter we discussed how we can reframe our work in terms of outcomes. This is a vitally important Lean UX technique: framing our work with outcomes frees us (and our teams) to search for the best solutions to the problem at hand. We looked at the process of declaring outcomes. We start with the project's problem statements and then acknowledge our assumptions. We transform these assumptions into hypotheses. We learned how to write hypothesis statements that capture our intended features, audience, and goals and that are specific enough to be tested. We end up with statements that will serve as our roadmap for the next step of the Lean UX process: collaborative design.

In the next chapter we will cover what collaborative design is and how it differs from traditional product design. We’ll discuss specific tools and techniques that empower teams to design together and we’ll show you how designing together is the beginning of the hypothesis validation process.