

Lean **UX**

From our reading, “Lean UX – The Next Generation of User-Centered Agile?”, Lean UX is defined as an ultra-fast software development approach with an emphasis on user-centered design. It’s main influences stem from design thinking, Lean Startup method, and Agile development. Design thinking is an iterative process used to help a person creatively think and problem solve, involving experimentation, prototyping, and using feedback to redesign solutions (Razzouk & Shute, 2012). Lean Startup is a methodology for efficient and rapid product development based on the validated needs and interest of potential customers (Mueller & Thoring, 2012). Agile development is a group of “lightweight” methodologies for iterative software development with an emphasis on adaptability, collaboration, and skill-based team building (Cockburn & Highsmith, 2001). Through the combination of these product development methodologies, the Lean UX philosophy helps companies make products that satisfies customers as fast and with as little resources as possible.

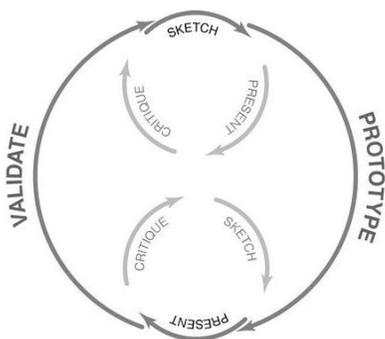


Figure 1: Visualization of Lean UX iteration.

Human-Computer Interaction (HCI) originally came to be as a combination of the software engineering and human factors

engineering disciplines of thought. It took the methodologies for software development and merged them with the concerns for usability (Carroll, 2007). HCI and UX both essentially operate under the same ideologies, however, those in academia tend to use the term ‘HCI’ while ‘UX’ is used in most business environments. Lean UX is very much related to HCI, and one could even say that it is a product of the practical application of HCI as a methodology in which HCI principles are used to deliver products that satisfy business objectives.

While there is an emphasis on efficiency and being a low-waste process, Lean UX pulls from nearly every discipline within HCI to accomplish its goals. User-centered design, being an important aspect of design thinking, Lean startup, and Agile development, is a cornerstone of Lean UX as the philosophy dictates that products should be created for markets and not with the intention of making a new market. This is by far a more efficient method of product development and is the preferred style of Lean UX. The heavy use of market research as well as user testing and feedback to facilitate the iterative nature of Lean UX draws from fields like psychology, sociology, and human factors. With its intended output being software products and services, computer science is another very extensively utilized field Lean UX uses under the umbrella of HCI.

From the infamous ‘waterfall’ development method in the 1970s, to Agile, and now Lean UX as an adaptation of Agile, software development has gone through many changes throughout the years (forgive

my gross oversimplification of the history of software development methodologies). It's only natural that, over time, new processes are invented to make previous methods more efficient and viable. Lean UX is very new and, despite evidence of UX being discussed with respect to Lean startup as early as 2012, it originated in 2013 after the publication of Gothelf's Lean UX book. Since then, the amount of evolution within Lean UX has been moderate, being such a new adaptation of Agile and Lean startup, which are already relatively fresh methodologies. This was shown according to an article by Aarlien and Colomo-Palacios titled, "Lean UX: A Systematic Literature Review" where they researched all the published articles on Lean UX from 2011 to 2019, finding 12 in total. 2018 had the most papers published at four for the entire year, showcasing a potentially growing interest academically, however, in 2019 only one article was published (Aarlien & Colomo-Palacios, 2020).

When it specifically comes to Lean UX, we had two articles assigned for reading in week 4. The first was "Why the Lean Start-Up Changes Everything" by Steve Blank, and the second was "Lean UX - The Next Generation of User-Centered Agile?" by Liikkanen, Kilpiö, Svan, & Hiltunen. When it comes to Lean User Research, we had two other readings in week 9, "Lean User Research for Agile Organizations" by Schön, Thomaschewski, and Escalona, as well as "Lean UX Research at Scale: A Case Study" by Krout, Carrascal, and Lowdermilk. We were also assigned a variety of videos about Lean UX to watch featuring speakers such as Marty Cagan, Jeff Gothelf, and Joel Califa. In addition to articles and videos, we also had

lectures from our professor, Matt Crawford. Outside of just Lean UX specific content, we had several articles assigned featuring aspects of Lean Startup and Lean UX like MVPs, MVUXs, and customer discovery.

Throughout the course content on Lean UX, we learned what it is, the philosophy behind it, the methodologies and key principles as outlined in the Lean UX manifesto, and the company adoption process (Liikkanen, Kilpiö, Svan, & Hiltunen, 2014). We covered how Lean UX compliments businesses- especially startups. We've seen how Lean UX has changed the language of the startup industry by placing value on customer feedback over product secrecy. By focusing on efficiency and market fit, Lean UX is also reducing the startup failure rate. It's also not just for startups, as the methodology is scalable to larger corporations for specific products and situations (Blank, 2013).

We also learned about Lean User Research's place within organizations as it refers to its implementation by UX designers and researchers. We learned that it's use is contextual and developing an agile mindset is key, as well as the fact that the success of its implementation is the entire organization's responsibility, and UX practitioners are needed to train and guide the rest of the company to focus on user feedback (Schön, Thomaschewski, & Escalona, 2020). The case study we read about the Digital Division at Microsoft applying Lean UX Research to organize their "Developer Day" event was also very interesting. From it we saw the power of Lean UX research as well as some of the issues they noticed that needed to be worked out: using a common language, providing teams with necessary support,

implementing lightweight tools, and gathering both representative and relatable data and sharing it with the rest of the organization.

The biggest name that comes to mind when Lean UX is brought up is Jeff Gothelf, coauthor of *Lean UX*, the book that brought Lean UX into the mainstream consciousness of the Lean Startup and Agile world. In week 7 of this course, we watched three lectures given by Gothelf in which he spoke about Lean UX, the 5 key tactics of how it will help organizations, an Ask Me Anything where he answered questions about Lean UX, and then an overview of the Lean UX Canvas and its 8 boxes, which we used to outline for our Product Discovery projects.

The image shows a screenshot of the 'Lean UX Canvas (v2)' form. It is a grid with 8 numbered boxes. The boxes are arranged in a 3x3 grid with the bottom-right cell empty. The boxes are numbered 1 through 8. The text in the boxes is as follows:

- 1 Business Problem:** What customer or user problem are you trying to solve? (Please describe the customer problem and how the data needs change in this market. (Please describe the competitive threat and business strategy.)
- 2 Business Outcomes:** What outcomes do you want to achieve? (What will you measure? How will you know you've achieved it? What will you do to achieve it? What will you do to measure it? What will you do to measure it? What will you do to measure it?)
- 3 Users:** Who are the users and customers that you focus on first? (Please describe the user and customer segments and their needs. (Please describe the user and customer segments and their needs.)
- 4 User Outcomes & Benefits:** What outcomes and benefits do you want to achieve? (What will you measure? How will you know you've achieved it? What will you do to achieve it? What will you do to measure it? What will you do to measure it?)
- 5 Solutions:** What solutions do you want to offer? (Please describe the solution and how it will solve the customer problem. (Please describe the solution and how it will solve the customer problem.)
- 6 Hypotheses:** What are the hypotheses that you want to test? (Please describe the hypothesis and how you will test it. (Please describe the hypothesis and how you will test it.)
- 7 What's the most important thing we need to learn first?:** What is the most important thing we need to learn first? (Please describe the most important thing we need to learn first. (Please describe the most important thing we need to learn first.)
- 8 What's the least amount of work we need to do to learn the next most important thing?:** What is the least amount of work we need to do to learn the next most important thing? (Please describe the least amount of work we need to do to learn the next most important thing. (Please describe the least amount of work we need to do to learn the next most important thing.)

Figure 2: Jeff Gothelf's Lean UX Canvas (v2)

As I mentioned above, there isn't a plethora of new articles about Lean UX quite yet, but in my research, I was able to find three interesting articles about or related to it. They covered communication strategies, the automated gathering of user feedback, and lastly, how Lean UX methodologies can be applied to teaching UX. In "Lean UX Communication Strategies for Success in Large Organizations" by Greg Nudelman, he explains ways to make Lean UX more

collaborative and productive, especially within pre-existing large-scale organizations. Nudelman outlined four ways to accomplish this: using a design framework to increase consistency and simplify communication, running multiple prototypes at different levels of fidelity to be used by teams for different needs in parallel, using methods to communicate designs that fit your audience, and leveraging Agile use cases to communicate personas, goals, functionality, and benefits for alignment between siloed teams (Nudelman, 2018).

In "Rapid Lean UX Development Through User Feedback Revelation" by Elberzhager, Holl, Karn, and Immich, the authors argue that user requirements and feedback suffer in the fast pace of Lean and Agile development. Feedback, being a proven source for improving software products, was targeted as potentially automatable. To try and fix this problem, they want to apply their previously created automated feedback method, called Opti4Apps, to lean development to improve the quality of early MVPs without sacrificing the speed of delivery. While contextual, it is certainly an interesting idea for improving the quality of products while still rapidly developing them.

In "Lean UX and innovation in teaching" by Tatiana Batova, the author explains how the foundations of Lean UX could be beneficial to teaching a UX course. Batova used several rounds of assigned designing and testing for students to try a research method, analyze the findings, and make design changes to a product. That redesign would then get used in the following week with a different research method, and repeated, practicing iterative design over a

short amount of time. They also used Gothelf's Lean UX canvas to hypothesize and prioritize assumptions about said products. Batova also emphasized the importance of cross-functional collaboration by mixing students of different majors and require them to discuss and agree on a specific problem to fix based on the previous week's research findings (Batova, 2016).

I'm currently aiming to graduate from Iowa State University's master of HCI program next summer, so learning about current UX best practices and methodologies was especially important to me. I've been applying left and right to UX internships, and I'm hoping to land one for this upcoming summer. For starters, I wanted to develop a proper understanding of what the day-to-day of a UX designer who works at a company that uses Lean UX might look like, because that could potentially be me within the next year. It's out of both curiosity for what my future could hold, as well as an interest in the current, up-to-date methods of UX. Also, UX got my attention a couple years ago as an industry and career I want to pursue largely due to its fast-paced nature and trailblazing research and practices. I really like that Lean UX seems to naturally compliment those aspects of the industry.

Especially with methodologies as complex as Lean and Agile, I feel like the more I know about them, the better off I will be in my career. The transition from Marketing and Design to UX in terms of my current work to an environment with Agile or Lean practices in place will be drastic and I think the more I know will ease the transition process in general. I've always gravitated

towards user-centered design in research and coursework, so adopting that aspect from Lean UX is something I would hope to take with me to an internship/job regardless of if they have adopted Lean UX or Agile or something else entirely. Keeping an iterative mindset, as well, is something I've learned quite a bit about through this course and my research on Lean UX. All in all, I'm happy to feel connected with the concepts and excited to put what I know into practice.

References

- A. Cockburn and J. Highsmith, "Agile software development, the people factor," in *Computer*, vol. 34, no. 11, pp. 131-133, Nov. 2001, doi: 10.1109/2.963450.
- Aarliien D., Colomo-Palacios R. (2020) Lean UX: A Systematic Literature Review. In: Gervasi O. et al. (eds) *Computational Science and Its Applications – ICCSA 2020*. ICCSA 2020. *Lecture Notes in Computer Science*, vol 12254. Springer, Cham.
https://doi.org/10.1007/978-3-030-58817-5_37
- Batova, T. (2016). Extended abstract: Lean UX and innovation in teaching. *2016 IEEE International Professional Communication Conference (IPCC)*.
<https://doi.org/10.1109/ipcc.2016.7740500>
- Blank, S. (2013). Why the Lean Start-Up Changes Everything. *Harvard Business Review*.
- Carroll, J. M. (2007). Hci models, theories, and Frameworks: Toward a multidisciplinary science. Morgan Kaufmann Publ.
- Elberzhager, F., Holl, K., Karn, B., & Immich, T. (2017). Rapid lean UX development through user feedback revelation. *Product-Focused Software Process Improvement*, 535–542.
https://doi.org/10.1007/978-3-319-69926-4_43
- Krout, K., Carrascal, J. P., & Lowdermilk, T. (2020). Lean UX research at scale. *Proceedings of the Conference on Mensch Und Computer*. <https://doi.org/10.1145/3404983.3405587>
- Liikkanen, L. A., Kilpiö, H., Svan, L., & Hiltunen, M. (2014). Lean ux. *Proceedings of the 8th Nordic Conference on Human-Computer Interaction: Fun, Fast, Foundational*.
<https://doi.org/10.1145/2639189.2670285>
- Mueller, R. M., & Thoring, K. (2012). DESIGN THINKING VS. LEAN STARTUP: A COMPARISON OF TWO USERDRIVEN INNOVATION STRATEGIES . *Leading Innovation through Design: Proceedings of the DMI 2012 International Research Conference*, 151–161.
- Nudelman, G. (2018). Lean UX communication strategies for success in large organizations. *Interactions*, 25(5), 80–82. <https://doi.org/10.1145/3236683>
- Razzouk, R., & Shute, V. (2012). What Is Design Thinking and Why Is It Important? *Review of Educational Research*, 82(3), 330–348. <https://doi.org/10.3102/0034654312457429>
- Schon, E.-M., Thomaschewski, J., & Escalona, M. J. (2020). Lean User Research for Agile Organizations. *IEEE Access*, 8, 129763–129773.
<https://doi.org/10.1109/access.2020.3009101>