**Lean Startup**

**Quote:**

“For long-term change, experiment immediately.” Eric Ries, serial entrepreneur and author of the [Lean Startup](http://theleanstartup.com/book), [Ries, E., *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*, p. 59, Crown Business Publishing, 2011] [for D6, how-to]

**Intro:**

Lean Startup represents a framework for developing solutions through small scale tests, regular end-user engagement, and continuous iterations. This approach can be adapted and applied to bring tangible impact on a broad array of missions and agency-specific contexts. Pioneered by educator and serial entrepreneur Steve Blank, Lean Startup is both a structured process and a conceptual framework for improving the effectiveness and efficiency of problem-solving.

The idea of a “blueprint for innovation” might sound paradoxical at first. But those most familiar with Lean Startup have called it the “**scientific method for evidence-based innovation**” because of its structured, testable principles. [Andrea Kates, “[Evidence Based Innovation](http://videos.ypoinnovationweek.com/entrepreneurship-and-innovation-summit-evidence-based-innovation),” Innovation Summit, online video.] Philosophically, the concepts are deeply aligned with and central to the various approaches to evidence-based decision-making, including the tiered approach of testing, piloting, and scaling up promising solutions. [crosslink tiered evidence grantmaking / evidence based policy content]]

With an emphasis on extensive customer feedback and iterative prototyping, the Lean Startup principles promote a deeper understanding of the problem at hand and the challenges of deploying a solution. The value of this approach is broadly and deeply useful for Federal work, regardless of mission focus. “Despite the methodology’s name, in the long term some of its biggest payoffs may be gained by the *large* [entities] that embrace it,” observed Steve Blank. [Blank, S., “[Why the Lean Startup Changes Everything](https://hbr.org/2013/05/why-the-lean-start-up-changes-everything/ar/1)”[,](https://hbr.org/2013/05/why-the-lean-start-up-changes-everything/ar/1) Harvard Business Review, May 2013.] By prototyping approaches that are responsive to stakeholder needs and incorporate feedback from user experiences, agencies can “fail small, and fail fast” when experimenting with new programs and scale-up only the strongest and most effective idea [Chopra, A., “[Open Innovator’s Toolkit](https://www.whitehouse.gov/sites/default/files/microsites/ostp/openinnovatortoolkit_nstcmemo.pdf),” NSTC, February 8 2012].

**Why:**

Built from Toyota’s Lean approach to manufacturing, some of Lean Startup’s language reflects its origins in the private sector – but the core principles translate to public sector work. This is not about merely adopting Silicon Valley buzzwords; the term “startup” is used as a shorthand descriptor for a way of working that uses hypothesis-driven, incremental steps with “build, measure, learn” feedback loops to continually create improvements. [[crosslink OODA content below]] By emphasizing flexibility, pragmatism, and experimentation, “the method allows organizations to learn as quickly as they can about what works, so that they can build and scale successful programs while avoiding huge up-front investments that might lead in the wrong direction.” [Blank, S. et al, “[Lean Experimentation for the Social Sector](https://ssir.org/podcasts/entry/lean_experimentation_for_the_social_sector_build_smart_to_learn_fast),” Stanford Social Innovation Review, August 22, 2016.] Lean Startup offers a genuine framework for understanding the problems and needs of beneficiaries and stakeholders. By understanding their stakeholders, deployment issues, costs, resources, and ultimate mission value, agencies can rapidly iterate on solutions that best align to stakeholder needs.

Adopting effective Lean Startup techniques can:

* Break the status quo and overcome obstacles with effective change management processes
* Build an entrepreneurial mindset and agency culture that’s responsive to stakeholders by design
* Generate new ideas for improvement and build capacity for translating ideas into action.

**How:**

At their core, Lean Startup methods are about applying a collaborative, team-based approach team-based approach to accelerated problem solving. The mindset stresses the importance of challenging assumptions and reacting quickly to new information, using hypothesis development and testing as part of “customer discovery.” With its emphasis on the end-user, it has considerable overlap with human centered-design principles, which stress empathy, iteration, collaboration, nonlinearity, making, and a bias toward action. [crosslink HCD content]] Lean Startup seeks a deep understanding of a problem, then builds and iterates a solution. Lean Startup can be brought to bear on a range from activities, including program creation and management, procurement, and grant making. [crosslink further elaboration in D3: Use cases]

**Lean Startup’s Four Steps: [**[**2 min video overview**](https://videos.files.wordpress.com/6f5VMvrR/what-is-customer-discovery_dvd.mp4)**]**

* Step 1: Break down your grand vision into component parts, and sketch out your hypothesis
* Step 2: Test the problem
* Step 3: Test the solution
* Step 4: Verify or pivot
* (Step 5: Iterate the loop as necessary)

**Case Study:**

[**Hacking 4 Defense**](http://www.h4di.org/)

[Case sourced from Blank, S., personal communication with Policy Design Lab, January 5th, 2017.]

**Summary:** Hacking for Defense (H4D) aims to increase the speed at which national security organizations solve mission-critical problems by enabling the DOD and intelligence community to tackle hundreds of critical national security problems each year. H4D is a university-sponsored class that allows students to develop a deep understanding of the problems and needs of government sponsors in the Department of Defense and the Intelligence Community. In a short time, students rapidly iterate prototypes and produce solutions to sponsors' needs.

**How it works:**

The class uses the identical Lean Startup principles and I-Corps methodology as the NSF program. The difference is that the Federal “Problem Sponsors” are partnered with students who are eager to harness their skills to address national security issues. Sponsors work closely with and guide their students while they utilize lean business practices to rapidly create and deploy solutions. This give sponsors a low risk connection to a pool of highly-qualified and engaged talent. By watching the students operate at speed agency sponsors gain a startup’s sense of urgency and efficient use of resources to address the nation’s emerging threats. They see how to rapidly iterate prototypes to produce solutions to operational needs in an extremely short time. Sponsors also become connected to other innovators in the Department of Defense and Intelligence Community.

Deployment of Hacking for Defense (H4D) begins with a robust problem definition and evaluation process to select challenge candidates for the subsequent H4D sprint process. A non-profit, [H4Di](http://www.h4di.org) has been set up as a single point of contact to curate and distribute problems to all the participating universities.

H4Di works with “problem sponsors,” representatives of national security organizations identify a problem to be solved. Agencies work directly with senior leaders in their organizations to ensure there are sufficient resources allocated to support the testing, deployment, and scaling of the most promising results from the H4D process. Each problem is then vetted, scoped, and translated by H4Di to ensure that problem can be accessible to non-governmental technologists in an unclassified environment while at the same time remaining relevant for addressing the root issue.

All H4D problems are scrubbed down to an unclassified level as students and most faculty will not possess a security clearance. Oftentimes, an analogous problem environment that is commonly understood by commercial users is used to substitute for a classified problem.

Examples of problems vetted by H4Di and given to the universities can be seen here:

* <http://hacking4defense.stanford.edu/dodic-problems.html>
* <http://www.hacking4defensegu.com/dodic-challenges/#dodic-challenges-1>
* <http://jacobsschool.ucsd.edu/hackingfordefense/fall2016problems.shtml>

**Key accomplishments (Impact):**

For Federal agencies, H4D allows problem sponsors to increase the speed at which their organization solves specific, mission-critical problems. For universities, it keeps their programs attached to real-world problems and provides students with an experiential opportunity to become more effective in their chosen field, with a body of work to back it up.

The first Hacking for Defense class was offered March-May 2016 at Stanford University.

The first 2½ day class for new educators and sponsors was held September 7-9 2016.

To date 17 universities have committed to offer the class.

Currently H4D is being taught at:

* UC San Diego: <http://jacobsschool.ucsd.edu/hackingfordefense/>
* Georgetown University: <http://www.hacking4defensegu.com/#welcome>
* Stanford University: <http://hacking4defense.stanford.edu>
* University of Pittsburg: <http://www.engineering.pitt.edu/hacking4defense/>
* James Madison University: <http://jmuxlabs.org/hacking-for-defense/>
* Boise State University: <https://cid.boisestate.edu/venturecollege/hacking-for-defense/>

The national scaling of the class is being funded by the National Defense University.ther Ns.

For agencies interested in using the "Hacking for X" framework, questions to consider when selecting internal challenges most likely to benefit:

* Can the problem be clearly articulated
* Is the problem critical?
* Can success criteria be clearly defined?
* Can the sponsor devote adequate time to weekly interaction with student teams who are engaged in the problem-discovery and solving process?
* If a student team came up with a prototype solution could it be deployed in the agency/to beneficiaries within 1-3 years?
* Is there authority to both address the problem and implement any resulting solutions?

Wanting to learn more? [Read here](http://www.h4di.org/government.html).

**Read more:**

* Steve Blank’s [blog entries related to Hacking for Defense](https://steveblank.com/category/hacking-for-defense/).
* Steve Blank’s [blog entries related to Hacking for Diplomacy](https://steveblank.com/category/hacking-for-diplomacy/).
* “Hacking for Defense: A Handbook for Innovation Insurgents,” by Steve Blank, Joe Felter, and Peter Newell, Wiley & Sons, Inc is scheduled for publication in fall 2017.

**Next Steps/Checklist:**

**Relevant Policies:**

**Additional Resources:**