Human-Centered Policymaking

What Government Policymaking Can Learn from Human-centered Design and Agile Software Development

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Mina Hsiang realized she had a problem in the winter of 2015. After helping rescue the troubled HealthCare.gov two years prior, she now had an arguably thornier challenge at the Center for Medicare and Medicaid Services (CMS), the trillion-dollar federal agency that pays medical bills for over 50 million Americans. CMS Administrator Andy Slavitt had decided to partner with Mina and her team of in-house digital experts—called the U.S. Digital Service—to help prevent a similar problem from happening again.

The Medicare Access & CHIP Reauthorization Act of 2015 (MACRA) had recently passed, and Mina and her team were charged with helping make it a success in real life. MACRA's intent was to pay doctors based on the quality of the care they provide to Medicare patients, not just the number of procedures they performed—a concept known as value-based healthcare. CMS had to figure out how to educate millions of physicians and healthcare providers about new rules, and simultaneously build a user-friendly set of online tools that would allow healthcare professionals to sign up for the program and quickly input accurate data.

In the back of her mind, Mina knew that this huge, operationally complex endeavor was ripe for the same types of issues that plagued Healthcare.gov. When HealthCare.gov launched in 2013, the rollout initially failed and became front-page news. The different technology components that made up the overall website didn't work together properly, and on the day of launch, only eight people out of hundreds of thousands successfully applied for healthcare. Now, CMS had 18 months to define the specifics of MACRA, educate the medical community about those specifics, and also build and launch the required technology to implement the intent of the legislation.

The overall aim of the MACRA legislation was clear, but the path was fraught with operational unknowns. Taking a lesson from HealthCare. gov, Mina was convinced that CMS couldn't just ask a team of contractors to build the entire solution at scale. *She didn't even know what MACRA policy would look like at scale!* Instead, Mina felt CMS would need to take an iterative approach to understand the needs of doctors

and other users, develop and test rough prototypes, learn from feedback, and adapt as necessary. Since the rules that governed the program (and the website) were in the process of being written, the CMS team would need to be iterative in both policy and website development.

Mina, a MIT-trained mechanical engineer with an MBA from Harvard Business School, and a former venture capitalist and healthcare IT executive, knew that human-centered design and agile software development are common practices in private sector product teams, particularly when the "right implementation" is uncertain. But in 2015, there were very few examples of human-centered design and agile software development applied to government programs at scale. Not to mention, Mina's plan to apply these principles during actual policymaking was something completely foreign to government. But still, maybe her fundamentally different approach *could* avoid a HealthCare.gov type of disaster?

A Brief History of Agile and Human-Centered Design in the Public Sector

The Agile Manifesto was developed in 2001 by 17 software programmers on a three-day retreat in Snowbird, Utah. The Atlantic's Caroline Mimbs Nyce tells the story—The Winter Getaway That Turned the Software World Upside Down—about how these industry veterans were determined to articulate a better way to develop software.

The Agile Manifesto, and the subsequent growth of agile software development practices, is a recognition that building software is (often, but not always) best done iteratively, with small teams. Frequent iteration around a minimum viable version of a full product can be more effective than a detailed, multi-year plan. Software that puts human needs and their feedback at the center of the development process is usually better than software built from massive requirement documents. The authors of the Manifesto wrote that they value:

> "Individuals and interactions over processes and tools,
>
> - Working software over comprehensive documentation,
>
> - Customer collaboration over contract negotiation, [and]
>
> - Responding to change over following a plan."

Human-centered design (HCD) is a complementary discipline that has its roots in industrial design, the discipline that crafts physical products like phones, guitars, and potato peelers. It leverages the qualitative research methods honed in the social sciences—such as ethnography, contextual inquiry, and targeted observations and interviews—to better understand people and interactions. HCD also considers environments, processes, systems, and tools outside of the digital realm. Practitioners often map out customer "journeys" to understand customer experiences across an entire

system or ecosystem, not merely a single interface or piece of software. As in agile software development, practitioners of human-centered design iteratively develop solutions to the challenges they uncover, and they rigorously test their solutions with real "users."

In the private sector, agile methods and human-centered design are sometimes used separately, but are increasingly being combined to develop holistic solutions to complex problems.

Bringing these principles into government was part of the ethos of several new groups created in the Obama Administration. The United States Digital Service (USDS), launched in 2014 in the Executive Office of the President, has focused on improving government digital services in partnership with a handful of cabinet departments. 18F, another digital service unit, is housed in the General Services Administration and helps agencies build and buy software using Agile principles.

USDS's origin story comes from within an implementation disaster—the botched rollout of HealthCare.gov in 2013. The original Affordable Care Act website and underlying infrastructure were developed as a traditional government IT project, with dozens of vendors working independently and coordinating primarily through government requirements documents. The vendors integrated their pieces together just before launch, which made it impossible to conduct an end-to-end test of the entire system.

During the HealthCare.gov rescue operation in late 2013, Mina was initially asked to "identify and oversee key metrics for the operation," but she soon became the de facto product manager for the whole software system. This included identifying and prioritizing issues that needed fixing, and coordinating dozens of vendors and internal groups to debug, develop, and deploy code effectively. It also meant mapping out each step of the user journey, and ensuring the entire product functioned effectively. By coordinating all of these elements, and setting up a system of operations, she played a vital oversight role the initial HealthCare.gov project sorely missed. Clear overall objectives, ruthless prioritization, constant iteration, and internal transparency were keys to the team's success.

The failure and subsequent rescue of Healthcare.gov helped illuminate the need for a team of technologists, product managers, and designers inside the White House, and in August 2014 the U.S. Digital Service was formally launched. Proposals had been under development for years, but unfortunately it took a crisis to get the new unit launched. The demand for additional technology talent in government was clear, and both USDS and 18F grew rapidly in the last few years of the Obama Administration. The launch of new intuitive, user-friendly websites, like the College Scorecard and Vets.gov, helped USDS and 18F win plaudits from the public, government, and private-sector partners.

More recently, the VA has successfully merged Vets.gov into a relaunched VA.gov, a simplified single website designed around the needs of Veterans. Since VA.gov relaunched in November 2018, the VA has seen disability compensation submissions rise by 27%, pension submissions increase by 59%, and a 479% increase (684,000 total) of veterans updating their personal profiles. *For the most part, USDS, 18F, and agency projects remain firmly within the realms of technology deployment and IT procurement, but the approaches they embody could similarly benefit the policymaking process.*

MACRA and Putting Users First

When Congress passed MACRA in 2015, the law required CMS to write rules and develop the IT systems that would achieve the value-based healthcare principles in the legislation. This is common to federal agency rulemaking: Congress will pass legislation, which authorizes a government program and requires certain agencies to write one or more regulations (the implementation strategy) within a certain deadline. The agency must then:

1. Define how the program will work in detail;

2. Write and publish a proposed rule;

3. Ask for public comment from anyone across the country;

4. Consider the feedback and publish a "final rule" - the finalized regulation.

In the best-case scenario, Congress will specify key desired outcomes, and leave implementation details to the agencies. In less ideal scenarios, Congress will pass a bill with details which conflict with the objective, or which are not reasonably implementable. *MACRA fell somewhere in the middle, with clearly stated outcomes and some specific implementation guidelines.* For example, Congress was explicit in MACRA about how quality measurement ought to work, and set forth the statistical distribution (i.e. the bell curve) of CMS payments to providers.

The first step for Mina and her team was convincing CMS leadership that user feedback was critical to help the agency navigate this ambiguous situation. The team got to work, going to the field to watch clinic quality managers do their work on existing quality programs, and bringing their challenges and comments back to CMS leadership. Providers detailed the anxiety caused by their inability to find out at the time of submission whether their data had been submitted correctly. And when they did find out, it was often a full year later, at which point their payments had been modified and they would be unable to fix them. Moreover, the peer comparison data analysis providers would get back was basically useless at that

point—a year after the measurement they couldn't really adjust programs to try and improve the results. Other physicians explained that they were too confused about the program, and who it applied to, so they were going to cross their fingers and hope they wouldn't be penalized too much for doing nothing. For most providers, these user challenges were so extensive that they required additional personnel or vendors just to deal with data collection and submission.

Mina used this feedback from doctors in the field to convince CMS Administrator Slavitt that an iterative, user-centered approach was important for both the implementation and the policy itself. With the goals of high participation, performance improvement, and low burden (especially for small practices and rural doctors), Slavitt tasked the agency to use agile methodologies to support those goals. And he positioned Mina and her team to guide the way.

MACRA: Human-Centered Policymaking in Practice

Based on the timeline of MACRA, CMS had 18 months to define the specifics of the new program, conduct a public awareness campaign with the public and physicians, and build the technical platforms and operational work necessary to administer the program—including a new data collection system and a physician-facing website. In essence, CMS had to educate millions of physicians and healthcare providers about new rules they were creating, which would affect the physician's pay. And at the same time, CMS needed to build a user-friendly set of online tools that would allow healthcare professionals to find out if they were required to participate, sign up for the program, and quickly input accurate data.

Mina assembled a temporary USDS team for a "discovery sprint"—a two-week-long exercise involving interviews and observation where they sought to understand agency project goals, objectives of the proposed rule, the mechanics of implementation, and most importantly, what end-users would count as success. The team also pointed out known risks of the current plan, recognizing that quicker iteration and test cycles would

help mitigate many of them. Faster iteration, in their analysis, would also manage unknown risks by allowing them to be uncovered and ideally addressed before they became serious problems.

The team then wrote a report outlining the following recommendations:

1. Create a management team with decision and execution power;

2. Clearly define a small number of key objectives; and

3. Use processes that are iterative and based on true outcomes to drive the work.

Based on the discovery sprint report, CMS leadership asked USDS to commit a team to participate over the course of the next year to help implement the recommendations. Mina knew that for the program to be successful in the long term, the work needed to be owned by the teams who would be the long-term owners of the program—but the discovery sprint had highlighted some key leadership challenges. A critical ingredient to agile is a leadership team who can evaluate information and results and quickly make decisions and adjustments. This type of leadership structure is in stark contrast to the usual hierarchy and decision-making in government.

Mina worked with CMS leadership to create a core leadership team that met three times per week with the mandate of steering the program to a specific set of outcomes. They identified and filled several specific roles that usually do not exist for CMS programs, including designating a program CEO (filled by CMS Chief Medical Officer Kate Goodrich), a Chief Technology Officer (initially shared between USDS's Joe Crobak and Lucas Brown, but then transitioned over time to CMS technology executive Steve Davidson), and a Chief Product Officer (filled by CMS Analytics Director Adrien Abrams). Mina personally took no title, since the program needed to be owned by core CMS functions, but instead took on the role of coach and facilitator. The other critical meeting was a once-a-week check in with agency leadership.

This mode of operation was foreign to CMS but familiar to Mina and her team, and they helped CMS adjust to this new organizational structure. USDS team members filled in certain key roles on an interim basis but primarily lent expertise to the CMS executives who had ultimate responsibility for the program. USDS was there to help the team work iteratively, to keep information and data moving vertically, to keep user needs at the center of their decision-making, and to help the CMS teams overcome structural barriers to decision-making.

After getting internal alignment around a concise set of goals and priorities, the team went into the medical community to watch how doctors worked with the existing quality program systems, and ask for some feedback. This was unlike any approach CMS would traditionally take for a project like this. The entire leadership team participated in roundtable discussions with quality managers from physician offices, who had detailed comments on the existing programs, including what was working well and what wasn't. Based on this research, the team put together paper mockups of a website for physicians to submit data about the quality of care, to obtain rapid feedback. They began testing those mockups with doctors, and quickly learned that some of their fundamental assumptions were flawed.

Early on, it became apparent that there wasn't a consistent understanding of who MACRA targeted or what it even addressed. Adding to the confusion, the law separated physicians into different practice types, and treated them differently, but most physicians did not know which practice type they fell under or how to figure it out. Furthermore, the CMS teams realized that the groups were not mutually exclusive—some physicians could qualify for two or more different categories. As a result, many physicians were planning to simply not participate in MACRA because they felt, in the words of one, "it will just be complicated and expensive." Physician engagement was a key objective of the team, and therefore this confusion needed to be addressed immediately.

Under normal rulemaking and subsequent implementation, these structural issues would have been discovered too late to fix the actual rule. But, because of early-stage prototyping and testing with actual prospective users, CMS

was able to tackle some of these fundamental issues before final MACRA rulemaking, and before investing a lot of time building the website.

To address some of the physician confusion, the program needed a way to define the different group types, and a tool for physicians to figure out which category they fall into, and instructions about what they needed to do from there. Rapid iteration and testing also helped the MACRA team understand other critical factors that were then written into the final rule and additional future rules. For example, physicians valued getting instant feedback that their data submission had gone through successfully. One told the team: "I'm in a cold sweat for weeks, wondering 'did it go in correctly?' If not it could ruin my business!". Similarly, physicians needed timely feedback on quality performance so they could adjust how they treated their patients in the near term.

Launching MACRA

Over the last few months of 2016, Mina and the MACRA team worked with hundreds of physicians and experts to turn legislative principles and countless hours of testing and research into 1) a set of rules for industry and 2) working software that let physicians and their staff input health care quality data and get instantaneous feedback on both how they were using the software and how they would do in the program. One doctor, midway through a test of the new website, confided to Mina that based on news reports about the paperwork burden MACRA would create, he had been considering leaving the profession entirely. Once he saw firsthand that CMS was committed to making it simple and easy, he realized that he wanted to continue his career in medicine.

In October 2016, CMS concurrently released the final rule and the first iteration of the website. CMS made clear that more tools would be coming out, and that functionality would change on a rolling basis—a critical expectation management technique when building agile software.

The healthcare industry reacted more favorably than anyone at CMS could have imagined, with strong accolades on social media. One Chief Medical Officer (CMO) said in an email to CMS leadership *"This is the most useful tool I have seen CMS develop for physicians in my 9 years as a regional CMO. Congratulations to all who had a hand in this."* Partner organizations also reached out to compliment CMS on their process and new tools. This positive feedback was critical to continued buy-in on the process from the CMS team—important because agile requires ongoing work. In addition to building goodwill among the CMS team, USDS believed collecting this positive feedback generated political will for similar agile and design-led interventions in the future.

Since the initial MACRA implementation, the agency has continued to take a human-centered approach to subsequent policy changes, including putting proposed website changes in the federal register for official comment—showing how the program will change for doctors who have to submit data. With strong leadership from the Director of the CMS Center for Clinical Standards & Quality Kate Goodrich, and Mina's successor, Digital Service Director Shannon Sartin, CMS continues to write simpler rules, guided by real end-user behavior and feedback.

The embrace of human-centered design at CMS was helped by the surge of USDS designers at the agency—including Benno Schmidt, Kayenda Johnson, and Stephanie Nguyen, all of whom were instrumental in MACRA implementation. They worked with various teams at CMS, and over time, transitioned design functions over to contractors supporting implementation. Schmidt and Johnson, inspired by the mission and the people at the agency, became career employees at CMS with a mandate to bring human centered policy and design to programs across the agency.

The MACRA story would also not have been possible without the leadership of the policy executives inside the agency. CMS policy leads Molly MacHarris and JP Sharp, working closely with Natalie Kates at USDS, decided to incorporate human-centered design into the rule-making process and worked to get CMS lawyers comfortable with this new approach.

Delivering change in government is difficult, especially for a large, complicated program like MACRA. Working together, a team of motivated career officials, agency appointees, and USDS experts were able to successfully apply human-centered policymaking to this project. But perhaps more importantly, they were also able to win converts to their methods and laid the groundwork for long-term cultural change across the agency. Under CMS Administrator Seema Verma, confirmed in March 2017, the agency has continued to incorporate technical expertise and design-thinking in policymaking.

If a government agency as complex and large as CMS—processing more than one trillion dollars in payments every year—can adopt an agile and human-centered design approach to make government work better for doctors, patients, and taxpayers, other government agencies can too.

Conclusion

Why should policymakers pay attention to the MACRA story? At first glance, Mina's story might just be characterized as private sector expertise helping fix a complex government program. But the story is more significant than that. MACRA appears to be one of the first large-scale case studies in the United States of a public sector agency creating policy using human-centered design and iterative software development techniques—what some in the field are starting to call "Human-Centered Policymaking."

Today, leading government agencies are adopting agile and human-centered design practices to design and build digital services. However, the creation of executive branch policy (i.e. how public servants write rules and regulations to implement legislation) has been less of a focus of reformers, and far slower to change. Policy is typically written by agency specialists, with formal feedback loops that favor industry associations and written feedback that often include little or no feedback from the lived human experience. But just as iterative strategy is critical to success in the technology industry, iterative policy development will increasingly be critical to the outcome of government initiatives. MACRA is a great example of what Code for America founder Jen Pahlka calls "Delivery-Driven Policymaking" because feedback from the field is quickly incorporated into the design of the program.

Appendix 1: Principles for Successful Human-Centered Policymaking

Human-Centered Policymaking—putting human needs and real human behavior at the center of rulemaking and testing iteratively implementations of rules—can make government work better. We would suggest a few key elements to keep in mind when considering a shift to Human-Centered Policymaking:

When the Desired Outcome Is Known but the Implementation is Unclear, Iteration Can Help

If Congress or a legislative body has identified clear policy goals but hasn't specified how to achieve them, consider using a human-centered policymaking approach. It offers the benefit of letting a government agency learn about users and adapt throughout program or service design. Testing early implementations and incorporating feedback of actual users will ensure the final rules are based on real data about how humans interact with the program, ideally across all channels (e.g. government offices, call-centers, and digital services).

Policy Development Can Benefit From User Research

While much of the digital services movement globally has been focused on building better services under existing legislative constraints, human-centered design and agile approaches can also improve policies that govern underlying programs. A human-centric approach to formulating policy, if done well, can create space for real citizen input into the policy-making process. For example, rather than just asking for written comment on a written rule, policy-makers can also interview and field test how a prospective rule would impact affected people in the real world.

Prioritize Project Objectives

Part of the challenge implementing complex projects with multiple stakeholders and multiple teams is that there can be too many executives, with too many priorities. One of the most important tasks that USDS accomplished in the MACRA implementation was getting lots of turf-conscious departments to agree on a small set of clear objectives. This allowed everyone to understand what the overarching

priority was, and even if they disliked a decision, they could see why it was the right one to make. No matter the project, a set of agreed objectives can unify teams and drive projects towards success.

Show, Don't Tell

Agile process can help government operate more efficiently by structuring shared work around the actual products and services they plan to deliver. Mina didn't want teams to present Powerpoint slides about a long-duration project plan with future features that had never been tested. Instead, Mina and her team pushed CMS teams to come to meetings with rudimentary demonstrations of what they were building—or even proposing to build—and with feedback from users whenever possible. This tactic ensures that strategic decisions and governance is driven by a common understanding of the underlying digital service, including how real people will use it in the field.

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