BACKCHANNEL

Putting the IT In City

How Boston's tech department and parking officials fixed the nightmare known as "Moving Day"

Susan Crawford, Dec 18, 2015

Putting the IT In City

In**Boston, September 1 is known as "Moving Day,"** and it can be hell on wheels.

On that day each year, more than half of the city's leases turn over and students return to campus, disgorging thousands of moving vans into the streets at once. It's an annual nightmare for residents and local officials charged with keeping the city running smoothly. But this year, something remarkable happened that not only took out much of the pain—it also showcased how technology can be successfully harnessed to address deceptively complex government customer service problems.

The hero was Boston's IT department, rising from its traditional roots to do what smart, connected corporations do all the time—employing cutting-edge tech to solve problems. Because of this, in the fall of 2015, something shocking happened: the system worked. In collaboration with other city departments in order to make life better for citizen, empowered Boston bureaucrats implemented a streamlined online moving van permit process. And demonstrated how enlightened tech can help cities improve the lives of its citizens.

It began with the kind of promise that politicians make all the time. When Boston Mayor Marty Walsh came into office in January 2014, he made a commitment to making permitting in Boston an easy, clear, and predictable experience. And one of the very worst permit experiences in Boston at the time had to do with Moving Day in September.

In the past, if you wanted to responsibly reserve a place for your moving van on the street outside your new apartment—and avoid either illegally double-parking or parking inconveniently far away—you had to come in person to Boston City Hall and stand in line to talk to two separate city agencies.

First, employees of the Transportation Department, using both their long experience in the city as well as a number of databases, would decide whether whether your desired space created a conflict with any other planned use of the street. Was roadwork scheduled on that block for that day and time? Was the street too narrow for a moving van? Then, after you had waited in that line and had gotten your space approved for moving day, you had to walk down long corridors towards a second line, and a second wait, in order to talk to the Public Works Department to pay your fee and pick up a printed sign.

In prior years, all of this meant that people needing a moving van permit during busy move-in times were being subjected to two-hour (or longer) waits for a printed sign.

This government failure created a massive business opportunity for businesses that were willing to do the line-waiting for citizens. But for people who didn't want to hire a fixer, those lines looked like Bad Government made flesh. In particular, the moving van permit process was a terrible introduction to Boston for its student population: "Welcome. Here are your lines. Go wait in them."

During the tenure of Mayor Walsh's predecessor, Mayor Tom Menino, Harvard Kennedy School students proposed a re-engineering of Boston's entire permitting process—business licenses and construction permits as well as moving van permits—aimed at moving it online. But the proposal foundered: no one was in charge of managing the customer experience, the city departments liked their processes the way they were, and the back-office technology used by City Hall didn't allow for much modification. Most importantly, the proposed redesign was so detailed and complete that it became too complex to implement.

With Mayor Walsh's arrival and the subsequent appointment of [Jascha Franklin-Hodge] as the city's CIO in June 2014, the team inside the city's Department of Innovation and Technology (DoIT) regrouped. This time they started with a civic hackathon—a "HubHack"—held at District Hall in Boston's Innovation District in August 2014. One team came up with an aesthetically pleasing permit-tracking interface that allowed citizens to see where their permit request was in the city system—much as you might track a UPS package. A second team emerged with a citywide address search tool. A third team created a new interface for moving truck permits. DoIT decided to use all of these ideas (and, in some cases, the code behind them); the march toward revision of the moving permit process began.

By June 2015, the team had decided to use an existing product, Dynamic Portal, that the city was already using as part of its "tech stack." Dynamic Portal allowed users to interact with the city's back-end processing system online. That back-end processing system, a soup-to-nuts "full stack" system called Hansen, wasn't terribly flexible, but Dynamic Portal could act as a kind of skin that allowed access to the entrails of Hansen. While this wasn't the most elegant or flexible solution, it was good enough.

There were two difficult questions to answer, however: First, how would the tacit knowledge-based system of approving permits and avoiding conflicts be automated? And, second, could the work of the Public Works Department—handling payment and printing signs—be handled within that same online system?

The team didn't have much time. It was summer 2015, and the crush of Moving Day was coming right up. The answer: a minimally viable product based on the slicker online interface made possible by Dynamic Portal, the background work from the HubHacks, and an enormous amount of manual work by DoIT employees.

Those employees first had to learn what the Transportation Department people actually did when they considered permit applications. It turned out to be a pretty subtle operation. As Jascha Franklin-Hodge puts it, "When you really peeled back the process, you said, 'Oh, I see, somebody has to know that piece of information about this place or about this unique circumstance, and that isn't clearly documented in any online system.' And that's what gave Transportation the ability to make a smart decision."

At the same time, skilled Transportation Department employees wanted to make sure that permitting was done right because of all the cascading effects a mistake might cause. Franklin-Hodge is wholly sympathetic. "It's important for us to respect the knowledge that actually exists within these departments and within the people who do this work. Then we need to figure out,

'Okay, what's both a way we can build trust and comfort in a more automated approach, but also have a do-no-harm mentality? Can we use the automated tools as a guide for a person to say, 'This needs some level of human scrutiny?'" He points out that "the thing a non-expert can do is more likely to be automatable than the thing that truly requires an expert." So DoIT took a cautious approach to moving van permitting.

In cooperation with the Transportation Department, DoIT decided to have its own employees pre-screen standard moving van permit requests—one day, two parking spot requests account for more than two-thirds of moving van permit applications—using a very conservative approach. Any potential conflicts and any nonstandard requests were taken right to the Transportation Department. This would shift the burden of process change largely to the shoulders of DoIT's staff rather than the customer-facing departments.

As Matthew Mayrl, Boston's Deputy CIO, notes, the DoIT staff learned from the process: "For the first couple of days when these were coming in online we reviewed every permit with the Transportation Department, to make sure they didn't raise any flags." As they learned more about the streets of Boston, the process became more effective and more automated: "Eventually, in our manual review of the conflict list we called out those that were clearly not going to be a problem. We brought to the Transportation Department only the ones we really needed to deeply consider."

At the same time, DoIT greatly simplified the questions asked of permit applicants through the system's user interface—getting just the minimum data needed to contact the applicant. Payment and other messaging cues—"Your application is going to need additional review," for instance—were added to the interface.

As it turned out, the Public Works Department was delighted to play ball when it came to moving payment for moving van signs to an online process. They had traditionally been severely overtaxed by the late-summer spike in moving van permit requests, and wanted people to have a better customer experience. For them, this was a matter of personal and professional pride. To test the interface, DoIT put up a physical kiosk during the summer of 2015 outside the Transportation Department so that it could watch what happened when users tried to apply "online."

CIty Hall to Go truck (Courtesy City of Boston)

After the trials with the physical kiosk, the DoIT team used the lovable City Hall To Go repurposed food truck to do test runs of the full online experience. They put a sign up outside City Hall: "If you're here for a moving permit, turn around and go to the truck. It will be a shorter line. Try it out." Truck staff watched how people used the system and answered questions.

DoIT pushed the tests right up until the deadline of August 20—two weeks before September 1, so as to allow time for permit signs to be printed and mailed to applicants. And DoIT staff worked many nights and weekends in the permit war room, handling applications. "We aren't usually a customer-facing department," Kelly Mackey, a business analyst for the city, says, "so this is a new role for all of us."

The result: about 40 percent of permits applied for in the period right before September 1, Moving Day, were processed online. "It was incredible," says Franklin-Hodge.

People who missed the online deadline of August 20 still came in and applied in person, so there were still last-minute lines in City Hall. But they were far shorter than they would have been, and the online process was adopted easily by more than 1,200 people. Franklin-Hodge: "There were people who had been through the process before who really understood that this was an enormous upgrade in their experience. We had some people take pictures of themselves with their signs and say 'Thank you. Thank you.'"

What's next? DoIT expects that, over time, a far larger share of moving van permits will be issued online as the city moves away from the interim, heavy-DoIT-employee-manual-process solution it launched in time for this past fall towards a more automated system. The department would like to make it possible for citizens to print their signs at home. And next year they'll do a much more aggressive public information campaign alerting citizens to the online process.

Franklin-Hodge's hope is that more people will get permits—and resist parking illegally and irritating everyone around them—because it will be so much easier to get them using this system. "That has big benefits for quality of life beyond even the internal benefit of reducing the line," he says. And Boston is continuing to overhaul its entire permitting platform by making a couple of dozen permits available online in addition to moving van permits.

What are the lessons from Moving Day 2015? First, you don't need to build an entire system from scratch in order to move an offline system online. Boston was able to use its existing back-end system by layering a great user experience interface over it. For Franklin-Hodge, this means the city got to keep the benefits of integration, shared knowledge, common processes, and financial accountability that Hansen represents, while ensuring that both citizens and government employees had a better experience. Government vendors should take note: IT departments in City Hall will want to be able to use APIs rather than soup-to-nuts systems.

Second, Boston handled this process change by listening to its customers and city employees. DoIT was, in effect, acting as a management consultant. Franklin-Hodge says he's proud of his team and its mindset of "Look, this is about the customer." He continues: "This was never about technology. This was never about delivering a thing and saying, 'Well, it's there. We're done." He points to what DoIT learned: "We can put a computer in front of somebody who's waiting in line and say, 'Hey, can you help us build this experience?'" He adds that DoIT learned a great deal from the Transportation Department: "Thinking about all the subtleties of how you take a human-intelligence dependent process and responsibly automate that is a nuanced undertaking. We learned so much in the process of this," he says. And 90 percent of the project was business-process change—not technology. Now the project can be handed back to the Transportation and Public Works departments.

City employees have embraced DoIT's innovative approach. There is a fundamental respect embedded in DoIT's processes to which they're clearly responding. As Matt Maryl, deputy CIO, puts it, "I think for us the goal is to start from a place of recognition of the spirit of service that exists throughout City Hall and figure out how digital tools can extend that into the online realm. That change can make employees' jobs easier, and can make them even better at delivering good service experiences." Go, Boston.