



Building Digital Government Talent Pipelines

Recruitment and Retention for Digital Era Government

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Project Overview



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Code for Canada is a national nonprofit that enables governments to deliver better digital services and empowers communities to solve civic challenges. Their programs connect residents, government innovators and civic technologists, so they can work together to build a better nation.

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1.0 Executive Summary

The worldwide calls for the modernization and digital transformation of the public service not only persist, but grow. In response, many governments are gradually changing their culture, adopting new processes, and creating specialized units all in an effort to embrace digital.

These endeavours have been examined in detail by the other case studies in this series; the nature of public sector digital work, the challenges and opportunities of digital transformation, and key lessons learned from the successes and failures in advancing digital government.

This case study complements that research while focusing on the recruitment and retention of digital talent in the public sector, including what a digital talent pipeline to the government could be at the local, provincial and federal level. Insights were gleaned in particular from the Code for Canada Fellowship program that recruits tech and design professionals to work with government partners on a discrete project basis. This study looks at how these fellows were recruited, their experience, and what motivated recruits to stay in a public sector role after their Fellowship.



This case underscores what is possible when it comes to onboarding and implementing digital talent in government. It reviews the experience of four cohorts of Code for Canada Fellows and outlines opportunities and actions governments should consider to improve their exposure and efficacy in recruiting and retaining the talent needed to make digital government happen. Focusing on the barriers and enablers experienced by the Fellows and their decisions to remain in the public sector provides new insight into how tech talent can be recruited and what helps keep them working in the public interest.

2.0 Introduction

There are persistent concerns that the way governments have traditionally been organized and run is not well-suited to solving today's complex social challenges¹. One response to this trend has involved governments worldwide looking to digital transformation as a solution. However, it is not as simple as putting everything 'online' and there is no off-the-shelf app governments can simply download to reform government operations. Rather, transformation to digital forms of government requires a comprehensive organizational approach that involves fundamental changes to the way governments are organized, how decisions are made and how services are delivered².

After the release of high-profile strategies governments quickly come face to face with the harsh reality that outside of discrete units, they often lack sufficient in-house talent needed to fully execute. Unfortunately, recruiting and retaining competent digital staff has been a persistent challenge in the public sector. Studies in Canada have identified a public sector skills gap when it comes to competencies and talents required for digital government³. This highlights a pressing need to understand how governments can recruit and retain civic-minded digital, data and design technologists to help create and deliver digital era public services. Equally, there is an urgent need to ensure that tech talent, in Canada and abroad, are made aware of the opportunities to work on big and important challenges in the public sector.

Despite widespread agreement that there is a public sector digital deficit, and significant efforts by government and civic tech organizations to address it, there is little by way of analysis of existing and potential options to remedy it⁴. Recognizing the need and the unique role they can play, a range of civic tech organizations around the world have been collaborating with government, private sector and academia to advance the

1 Novek 2021; McGuinness and Shank 2021

2 Clarke 2019; Mergel et al., 2019

3 Roy et al., 2019; Cukier 2019

4 Mergel et al., 2021





public interest through the application of technology for civic good⁵. Founded in 2017, Code for Canada (C4C) was established to demonstrate what is possible in Canada when technology and government work in unison. From the beginning, Code for Canada's goal was to tap the Canadian tech and design community's energy for working on things that matter and channel it towards building a more prosperous, equitable and sustainable country. One way in was the Code for Canada Fellowship program. This case study examines the C4C Fellowship program over a four year period from 2017-2020 and focuses on:

1. recruitment of Fellows to the C4C Fellowship program,
2. Fellowship experiences,
3. the retention of Fellows in the public sector.

The study used an exploratory qualitative approach that relied on document and data analysis from existing C4C materials, complemented by 14 qualitative interviews with C4C Fellows in 2021. Participants were selected to ensure representation from each of the cohorts. Those who did not pursue public sector work directly after their Fellowship were excluded. Fellows were asked a standard set of questions in online interviews that lasted approximately one hour. Interviews were recorded and transcribed with the online transcription software Otter⁶. Interviews were stored and labeled in consider.ly⁷, where the tagged data was organized into insights and matched to the corresponding research questions.

The analysis of existing documents and the empirical data collected speak to barriers and enablers related to both the initial recruitment of Fellows, their experiences as Fellows related to their ability to do digital government work, and what motivated their decisions to stay on in a public sector post Fellowship. Key enablers mentioned include making a public impact at scale, employment security and remuneration, and professional development opportunities, while main identified blockers are arcane and slow human resources practices, the size and complexity of government, a lack of executive support and teams' limitations in timely release of the work.

These and other findings are reviewed below and then a detailed set of recommendations is outlined. These range from improved marketing and promotion of opportunities within government, suggestions for government human resource practices, and how to nurture and facilitate the ability of recruits to do digital work once onboard.

We call on governments to think and act boldly in building new tech talent pipelines and point to some concrete and practical options to move quickly. The promising news is that almost all Fellows noted that the ability to make a difference - to have real impact on significant challenges - was a key motivator. This case study outlines ways in which the government can leverage that spirit and reduce the barriers to entry for civic-minded technologists to enter government and work in the public interest.

⁵ Harrell 2020

⁶ An AI-powered transcription service; see <https://otter.ai/>

⁷ a qualitative data analysis tool; see <https://consider.ly/>

3.0 The Public Sector Digital Skills Gap

While both the public and private sectors face significant digital skills shortages, the public service has a unique set of challenges in recruitment and retention of digital talent, including recruitment practices, working conditions, and market competition⁸. The widening skill gap between the public and private sectors seemingly confirms that the private sector is more successful in recruiting digital talent⁹.

Constrained by complex regulations and agreements, hiring practices in the civil service can be overly formal and often include requirements that limit the applicant pool¹⁰. Applicants often have to submit extensive resumes with strict requirements, fill out lengthy background checks and face minimal communication during the process. When highly qualified candidates do apply, the lack of expertise in house among government departments make it difficult to properly evaluate these candidates. So, while private sector best practices dictate the time between application to offer is no longer than 30 days, the average time to hire in government roles is over 100 days, and many processes take much longer¹¹.



Additionally, there's a common view that the public service offers a less attractive and desirable work environment for digital professionals. Government projects often require a strict hierarchy of approvals, multiple (and necessary) checks and balances, and feature risk-averse mindsets in leadership¹². This leads

⁸ National Audit Office, 2015; Mastracci, 2009

⁹ Lerner, 2021

¹⁰ Cukier, 2019

¹¹ Anastaoff et al., 2018

¹² Clarke, 2019



to the impression of public service as tedious, slow-moving and laden with bureaucracy - the opposite of what's promised at most modern technology companies today. As a result, many digital professionals believe their access to sought-after working conditions - such as modern tools, flexible work styles, and the ability to make a real impact - is limited, making them less likely to apply and even less likely to tolerate the setbacks and requirements of the hiring process¹³.

The convoluted job classifications and unclear path for career advancement is another significant barrier to recruitment. Digital public servants often face unclear classifications and career paths, lack of competitive compensation, and inability to access professional development opportunities needed to keep their skills current¹⁴. While private sector companies can use attractive compensation policies to attract talent, public service departments are limited by inappropriate staffing bands and salaries¹⁵. Job classifications in the public sector often fail to reflect the full range of digital roles and skills required for digital government objectives¹⁶. Thus, even applicants who overcome hiring hurdles and are successfully onboarded into digital government work then need to consider if it makes sense for them to stay in the public service.

Slow hiring practices, traditional work environments, and lagging compensation systems are resulting in a talent deficit in government that makes it increasingly difficult for the public service to recruit and retain the necessary people for digital transformation and build capacity to deliver on digital services to meet resident needs. But even if governments were to clear all those hurdles, simply hiring a legion of developers or user experience (UX) designers would not provide the catalyst for digital transformation. Lack of digital expertise at the senior leadership level creates a barrier to implementing new ways of working. Insufficient culture change, project management expertise and relationship management have led to failures in large-scale technology projects¹⁷.

To bridge the gap between the needs of residents and the capacity of government, organizations, such as Code for Canada, have emerged with the mandate to support digital transformation in the public sector by building capacity from within. The Code for Canada Fellowship provides an alternative method to recruiting and retaining tech and design talent into government. The Fellowship program foregrounds experiential learning to build internal government capacity, get leadership buy-in to use modern digital tools and methods, and provides an entry for tech and design professionals to test out a career in the public service and experience working at the scale of government.

13 Anastaoff et al., 2018

14 National Audit Office, 2015

15 Cukier, 2019

16 Canada, Parliament, House of Commons, 2019

17 Cukier, 2019; Clarke 2019



4.0 Code For Canada: Background and Fellowship Program

Code for Canada (C4C) was founded in 2017 as a non-profit organization with a mission to help government organizations build more digital capacity and tech communities build more civic capacity. At the time, the civic tech movement had been established years earlier and global residents had formed hundreds of groups worldwide to channel their technology and design skills into projects that serve the public interest. C4C represented a major step forward in Canada by creating an institutionalized vehicle to build bridges between the civic tech community and Canadian governments at all levels.

As Gabe Sawhney, Code for Canada’s co-founder pointed out:

“There’s an enormous desire in Canada’s tech and design communities for opportunities to work on the things that matter, to apply their skills to complex and meaningful issues – like the ones governments work on every single day.”¹⁸

Inspired by the success of other national civic tech organizations, C4C developed a mandate to:

- Attract highly skilled digital talent to the public sector.
- Equip public servants with new skills and digital tools, enabling them to deliver more effective and efficient services to Canadian residents and businesses.
- Create opportunities for collaboration and knowledge sharing between government, the tech sector and the grassroots civic tech community.



The C4C Fellowship is not just another tech vendor project, where code is thrown over the fence for government teams to maintain and sustain. Rather, Fellows work shoulder-to-shoulder with their host team throughout the entire engagement -- modelling how modern, digital tools and principles, like human-centred design, agile, user research and testing, are applied to a real project.

**- Dorothy Eng
Executive Director,
Code For Canada**

¹⁸ <https://codefor.ca/blog/its-time-for-code-for-canada/>

“Technology and design can make meaningful differences in Canadians’ lives, but technology is only as good as the people who make it.”¹⁹

To achieve these goals, C4C launched with three programs based on best practices established by the global “Code for” community:

- A Fellowship program that embedded teams of three professionals with strong tech, design and data skills into government departments to work on specific projects.
- A community network program to support the creation and growth of grassroots civic tech groups in cities across Canada.
- A suite of education and training workshops to help governments, community groups and entrepreneurs learn how to put technology and design to work for the public good.



The main objective of the Fellowship was to “show what’s possible” in government and to enable public servants to build digital capacity internally. Although developing a digital product has always been front and centre in Fellowship projects, with government organizations explicitly expressing a need for “a new digital tool”, the last four cohorts have demonstrated that meaningful digital transformation requires capacity building and culture change, not simply new products.



In Dorothy Eng, C4C’s Executive Director’s words,

“The C4C Fellowship is not just another tech vendor project, where code is thrown over the fence for government teams to maintain and sustain. Rather, Fellows support government teams to build internal knowledge, skills and capacity, to prepare them to develop more digital solutions beyond the fellowship.”

Fellows spend significant time and energy, not only building a product, but bringing agile practices to their government organizations and establishing a “working in the open” culture amongst their teams.

¹⁹ *ibid*

With such a formidable mandate, the success of the Fellowship program relied firmly on the quality of its Fellows, resulting in a strong focus on effective recruitment. From the first cohort, C4C put Diversity, Equity and Inclusion (DEI) at the forefront of recruitment practices²⁰. Research into DEI best practices for tech recruitment, resulted in a recruitment process that included targeted outreach to diverse meetups, equity networks, and tech groups using relevant and accessible language for people outside of the public sector. The inaugural cohort was well received by the public sector and after expanding the program to municipal, provincial and federal government organizations, C4C kicked off recruitment for the second cohort. Soon, the Fellowship turned into Code for Canada’s flagship program and C4C has successfully delivered five cohorts of Fellowship to date. However only Cohorts 1-4 are the subject of this study.

4.1 Fellowship Overview

While the Code for Canada Fellowship²¹ is always evolving to better meet its mission, it was originally designed as a 16-month journey, comprised of three stages:

- Recruitment & Scoping
- Placement
- Transition

The following diagram demonstrates the duration of each stage and its sub-components:



In the early cohorts, C4C’s core team leveraged their professional networks and relationships to pitch the Fellowship idea to several government organizations to secure placements for incoming Fellows. Recent cohorts have secured government partners through referrals from previous partners as well as leveraging civic tech and recruitment events. Defining and scoping the projects has always been a co-creation process between C4C team and government partners.

²⁰ <https://medium.com/code-for-canada/https-medium-com-code-for-canada-diversity-and-inclusion-at-code-for-canada-d92290523eca>

²¹ <https://codefor.ca/Fellowship/>



Once the government partnership is secured and the project is midway through scoping, the C4C team launches the recruitment of prospective Fellows by advertising the positions widely. Recruitment always ran on a very tight schedule yet the rigour of the process was never overlooked and it included several rounds of non-technical and technical interviews and assessments.

Fellowship recruitment brings a team of three fellows (a UX designer, a developer, and a product manager) on board. Teams are assigned to different projects and spend the next 10 months working in close collaboration with their government colleagues to design and develop digital solutions.

4.2 Bringing Tech Talent to Government: The C4C Fellowship

For most Fellows, the Fellowship is their first opportunity to work in public service. It provides an opportunity to work in government, familiarize themselves with its bureaucratic machinery, learn more about digital transformation and decide whether they are interested in a public sector career or not. As we explore below, the motivation for choosing to remain in the public sector varies among Fellowship alumni. Table 1 provides an overview of four cohorts from 2017-2020, and demonstrates that the retention rate has increased with Fellows continuing to work on public sector challenges after their Fellowships.

Table 1 - Code For Canada Fellowships & Public Sector Retention 2017-2020

Cohort	Government Partners	Total # of Fellowship Teams	Total # of Fellows	Retention Rate
1	<ul style="list-style-type: none"> Canadian Digital Services, Government of Ontario 	2	6	33%
2	<ul style="list-style-type: none"> Transport Canada, Public Service Commission of Canada, Toronto Transportation Services 	3	9	44%
3	<ul style="list-style-type: none"> Public Services & Procurement Canada, Toronto Shelter Support & Housing Administration Canada Energy Regulator, Public Health Agency of Canada 	4	12	83%
4	<ul style="list-style-type: none"> Transport Canada Surface Security, Transport Canada Marine Safety Unit, Measurement Canada, Ontario Ministry of Agriculture & Rural Affairs 	4	12	75%

Source: compiled by authors based on C4C data and interviews.

5.0 Findings

Interviewing Fellows who remained in the public sector provided an opportunity to explore their experiences in, and preconceived notions about, the public sector and develop recommendations for public sector recruitment and retention. Given the diversity of Fellows' technical expertise, soft skills, and familiarity with the government's bureaucratic machinery, we collected a rich range of insights regarding Fellowship recruitment, placement experience, and retention. Having analyzed the insights from all 14 interviews and the overarching themes, we synthesized the findings in three sections below. Each section touches on motivation, barriers and enablers associated with digital talent recruitment, joining the digital government transformation movement, and staying on board after their Fellowships.

“

I don't think that I would have ended up in government without Code for Canada.²²

5.1 Recruiting Digital Talent into Government

Finding and recruiting the right digital professionals for the Fellowship is a crucial step. To ensure Code for Canada's recruitment efforts were reaching a broad audience, the recruitment team posted in diverse areas and proactively reached out to targeted communities. In the interviews with Fellowship alumni, we noticed that after the first cohort the alumni and their network of supporters became integral to recruitment. Of the 14 interviews, four Fellows clearly stated that they only applied after hearing personal testimony from colleagues or friends who were connected to Code for Canada. Inviting past Fellows as guest speakers to the Fellowship recruitment events and Open Houses has become a common practice in later cohorts.



A consistent theme across each cohort is that none of the interviewed Fellows had previously considered a public sector career prior to joining the Fellowship. One Fellow stated, “I don't think that I would have ended up in government without Code for Canada.”²² For some, the Fellowship was an ideal opportunity to learn about working in government because the temporary nature of the contracts provided Fellows with a chance to work in public service without enduring the

²² Cohort 3, Interviewed on Jun 16, 2021

long process of public sector hiring processes. Others saw an opportunity to become regular government contractors and familiarize themselves with the requirements of working with the public sector.

Fellows at different stages of their careers often had different motivations for applying to the program. Mid-career professionals with 5-10 years of experience in the private or non-profit sectors were looking for a change. Fellows newer in their careers were drawn by the opportunity to gain experience and to better understand their long-term career aspirations. One Fellow who was previously self-employed enjoyed the stability the Fellowship offered without being tied to a long-term contract. Many were drawn to the impact-driven nature of the Fellowship projects. Those looking for a change from private sector work were driven by a desire to work on mission-driven projects. The ability to contribute to government modernization to benefit millions of residents resonated with Fellows who didn't want to take the startup or large tech company route. One Fellow recalled, "I got funnelled pretty early ... down the [Silicon] Valley path. It was way easier and way more lucrative for me to look for another private or startup job than it was to look into government job boards... [but] I have pretty much made a personal commitment that I'm never going to work for [large tech] companies because of ethical concerns."²³

One of the barriers faced during recruitment was potential candidates being unwilling to move across the country for a 10-month contract opportunity. However, since the pandemic, the C4C Fellowship has become a remote-work opportunity that has enabled Fellows to collaborate with their government partners regardless of location. Another barrier faced by Fellows from earlier cohorts was an occasional mismatch of skills to the technical challenge at hand. Code for Canada's initial technical assessment method for candidates was iterated upon and later cohorts were much less likely to face similar technical learning curves.

5.2 Supporting Digital Transformation in Government

5.2.1 Challenges of the Fellowship Program

One of the biggest challenges Fellowship teams faced was around the lack of cross-departmental communication in government departments. Fellowship teams begin their projects with a discovery phase. Through user research, environmental scans, contextual knowledge and consulting with subject matter experts, they're able to understand the problem space more

²³ Cohort 3, Interviewed on Jun 16, 2021



holistically. However, every cohort reported facing communication silos within their departments that created barriers to doing effective discovery work.

Some teams faced communication gaps between policy teams, subject matter experts and the IT department, with varying levels of support and buy-in. Other teams were isolated from internal department staff and had difficulties connecting and working with their government counterparts in IT. In some other departments, Fellows sensed their ‘outsider’ status gave them ‘liberty’ to move around and make cross-departmental connections. However, in the absence of strong work relationships, the hierarchical structure, particularly in larger government organizations, rarely allowed the Fellowship core team to sit at decision making tables, and the project was primarily led by those with little to no understanding of agile working practices or the Fellowship process.²⁴



Many Fellows were entering the public service for the first time and experienced culture shock in how different the working environment was from the private sector. In early cohorts, Fellows reported feeling less prepared for the relationship-building work required to be effective. One Fellow commented, “When you’re new to government, you don’t get how decisions are made. And there’s no way to learn until you experience it.”²⁵ Used to the flexibility and access to cutting edge tools in the private sector, many were surprised by the “many regulations in place around what tools can and can’t be used in government.”²⁶ Even with updated onboarding practices to address this, some Fellows were still surprised by the political environment and couldn’t anticipate the amount of stakeholder management their roles would involve.

“

...halfway through the Fellowship, we realized that ‘cultural transformation’ is the basis of digital transformation²⁷.

The lack of organizational buy-in from all levels across the department was often a barrier to Fellow’s attempts at digital transformation work. One Fellow recognized that they were expected to “bring ‘technical transformation’ whereas halfway through the Fellowship, we realized that ‘cultural transformation’ is the basis of digital transformation.”²⁷ Even if select teams or leaders were supportive, with only 10 months

²⁴ Cohort 2, Interviewed on Jun 29, 2021

²⁵ *ibid*

²⁶ Cohort 4, Interviewed on Jun 22, 2021

²⁷ Cohort 1, Interviewed on Jul 8, 2021



in the Fellowship program, many Fellows found it difficult to build trust with all the relevant internal stakeholders and bring them onto these new ways of working. For many teams, “human barriers were the biggest barrier [they] experienced.”²⁸

The lack of government precedent around user-centred design, iterative working, and building prototypes often hindered progress as risk averse decision makers were unfamiliar with these ways of working. Government partners often had a mixed understanding of digital ways of working. For many public servants engaged in digital work, agile had become a ‘buzzword’ – everyone used it but they all meant different things²⁹. Government partners often believed themselves to be agile but were still engaging in waterfall practices. Fellows trying to introduce agile or iterative working were often met with resistance from their government teams. One Fellow noted, “when something goes wrong, it gets everyone worried and hesitant to continue.”³⁰

5.2.2 Enablers of Fellowship Project Success

The main enabler for digital transformation in the Code for Canada Fellowship cohorts was holding the ‘Fellow badge’ -- a status that according to some Fellows gave them the freedom to question the status quo and attempt to shake some of the legacy work practices and hierarchies in the organization. “In some ways, the three of us as a [separate] team was really wonderful, because we had so much freedom to focus on our own work timebox and not to get drawn into all the other bureaucratic [matters]... that would have taken [us] away from our main project.”³¹ Another Fellow added “a big part of Fellowship was having the freedom to move around and talk to different people in different teams”³² -- something that government organizations are not always accustomed to.

²⁸ Cohort 3, Interviewed on Jun 16, 2021

²⁹ Cohort 4, Interviewed on Jul 6, 2021

³⁰ Cohort 2, Interviewed on Jul 6, 2021

³¹ Cohort 3, Interviewed on Jun 16, 2021

³² Cohort 1, Interviewed on Jul 6, 2021

“

a big part of Fellowship was having the freedom to move around and talk to different people in different teams³²





Government partners brought on Fellows with the expectation that their work and ideas would be new and innovative, therefore Fellows were often given more freedom to question methods and take larger risks compared to their public servants counterparts. For some departments, contractors and outside talent was trusted more than employees. These Fellows reported a better relationship and access to senior management, however, once Fellows were hired on as staff this special consideration went away. One Fellow noted, “We were very listened to as Fellows. We met with the ADM on a monthly basis... But as soon as I became an employee, I felt completely blocked off, disenfranchised, not listened to, kind of put in a corner”³³. Fellows often leveraged their special access to senior leadership as a conduit for junior public servants to speak about their ideas for change. In later cohorts, Code for Canada’s reputation helped give the Fellows’ work and ideas credibility with their government partners as well.



Additionally, some Fellows acknowledged that the size of the government organization can be a factor in advancing digital transformation goals. As one Fellow noted, “one of the main barriers was the scale of the organization and the team we were put on... [we felt] like a small fish in a big pond,”³⁴ whereas in their view, Fellows of the same cohort placed in a smaller organization had more opportunities to make an impact. Fellows embedded in larger organizations had the opposite experience – they struggled to make their voices heard and felt their contributions weren’t making a difference.

When government partners championed their Fellowship team, Fellows were able to more easily overcome barriers. Access to subject matter experts, support from senior management, and visibility with a departmental senior executive, like an ADM³⁵ or a Divisional General Manager, helped them get the “green light to do whatever it took to get the job done”³⁶. While support from senior management didn’t solve all their challenges and blockers, it provided Fellows the freedom to experiment and take necessary risks during their project. In probing the correlation between project scoping and senior management’s buy-in, it is evident that the Fellowship projects that were more rigorously scoped by both the IT and the business teams prior to the placement kick-off, received better support from senior management.

³³ Cohort 2, Interviewed on Jun 29, 2021

³⁴ Cohort 3, Interviewed on Jun 16, 2021

³⁵ Assistant Deputy Minister

³⁶ Cohort 2, Interviewed on Jun 29, 2021



5.2.3 The Experiences of Digital Talent in Government

The Code for Canada Fellowship model helped demonstrate to government partners the benefits of a multidisciplinary team structure. Teams “operated in a pod of three and demonstrated how much value and how quickly [they] could deliver value in that environment”³⁷. Following the Fellowship, some departments replicated the team structure for their digital departments.

The team-based model also allowed Fellows to have a support system. One Fellow remarked, “it would have been a lonely trip if we were not put in a cohort system”³⁸. Early onboarding and team building activities helped build a strong bond between Fellows, with many saying they helped each other to get through hard times during their fellowship. While earlier cohorts faced some interpersonal conflicts, Code for Canada’s evaluation and placement methods matured and led to more effective teams. When one Fellowship team was offered the opportunity to stay on in government but on separate teams, the Fellows fought to stay together.

While Fellows worked together to tackle their project, each member typically had their own area of expertise that was leaned on more or less depending on the phase of the project. Often developers felt they weren’t using their skills effectively during discovery, but were overloaded with coding tasks as the project entered prototyping phases. Some felt the Fellowship was “designed around the product manager role” and some non-product manager Fellows found it harder to build relationships with key stakeholders and government partners³⁹.



I started my Fellowship with a mentality that the government has a very hostile and uncooperative workplace culture. It was the opposite. I worked with so many great professionals who made themselves available and provided valuable feedback on my work.⁴⁰



For many Fellows, their experience working in government through the Fellowship changed their views on public sector work. Because they were embedded in departments, they were better able to understand the decision making processes within the public service. Working side by side with public servants, Fellows learned the importance of communicating technical concepts to non-technical colleagues. They leveraged these skills to build relationships and trust with their government partners. While many

³⁷ Cohort 4, Interviewed on Jun 18, 2021

³⁸ Cohort 1, Interviewed on Jul 6, 2021

³⁹ Cohort 3, Interviewed on Jul 7, 2021

started the Fellowship with a pessimistic view of working in government, most were pleasantly surprised by the openness and support from their government partners. “I started my Fellowship with a mentality that the government has a very hostile and uncooperative workplace culture. It was the opposite. I worked with so many great professionals who made themselves available and provided valuable feedback on my work”⁴⁰. On the flip side, the Fellows’ work on building capacity and demonstrating digital ways of working helped build trust with government partners and create allies in their work.



5.3 Retaining Digital Talent in Government

5.3.1 Shrinking the Talent Pool: Barriers to Retention

More than 75% of Code for Canada Fellows typically stay on in government, whether it’s continuing in the same department or moving elsewhere in the public sector. Still, many surfaced barriers that would prevent their peers from considering a similar move to public service, such as bilingual requirements and inaccurate role classifications.

While bilingualism is important for federal public servants, it can significantly shrink the candidate pool and limit career progression. Most senior and executive-level positions in the federal public service have bilingualism as a requirement. While some Fellows were willing to take on language training to meet the standards, many viewed this as a barrier to their career advancement within the public sector. Those interviewed observed there were only a few tech-literate, bilingual directors in the public service who were frequently moved between departments, interrupting momentum and making digital transformation even more difficult.

Across all levels of the public service, inaccurate job titles and requirements limited Fellows’ ability and willingness to stay on. Following the Fellowship, many Fellows were given titles and job descriptions that failed to accurately reflect their role due to a lack of recognized digital and agile job titles in government. “In the organization chart, the kind of box you can have is already predetermined... I’m pretty sure my box was something like an analyst or something super generic and irrelevant to what I was doing.”⁴¹ Title concerns go beyond vanity; traditional classifications in the public sector can impede candidates from doing the work they are qualified for. A product manager Fellow reflected on their title, “the language we use affects

⁴⁰ Cohort 4, Interviewed on Jun 22, 2021

⁴¹ Cohort 2, Interviewed on Jun 29, 2021



our mental models and really limits the things we can do.”⁴² Other classifications have strict education requirements that may not reflect the Fellow’s abilities. For many digital professionals, traditional education and university degrees are no longer the only paths to mastery and professional success. Many qualified developer Fellows didn’t have a traditional computer science university degree, but are self-taught and informed by many years of industry experience. Despite their proven abilities, they fail to qualify for a Computer Systems (CS) classification, prohibiting them from federal employment.



the “Fellowship set a good precedent. It showed what’s possible to senior management, and the project got extended.”⁴⁴

5.3.2 What Enables Digital Talent Retention

The Code for Canada Fellowship model was an effective method of bringing digital professionals into the public sector. Many Fellows hadn’t previously considered a career in government or wouldn’t have gone through the outdated requirements of public sector hiring. Having heard from colleagues regarding the rigorous and lengthy hiring process for public sector roles, some Fellows remarked, “I would have never gone through government job boards.”⁴³ For those undecided about pursuing a career in the public sector, many indicated that the C4C Fellowship allowed them to ‘test the waters’ of working in government. Working as an embedded team gave Fellows a chance to learn about government structure and make informed decisions about their career paths.

For public sector leaders who were less familiar with digital transformation or needed buy-in from executives, the “Fellowship set a good precedent. It showed what’s possible to senior management, and the project got extended.”⁴⁴ Code for Canada was able to assist the government departments that wanted to continue to benefit from Fellows post-Fellowship, but couldn’t recruit internally, by facilitating an “extension”. If and when government partners were able to secure approvals and funding for an in-house team, Code for Canada was able to smoothly transition Fellows into full-time public sector staff. Alternatively, for those who recognized their potential for continued public service early on, their position as a Fellow allowed them to negotiate their retention with government partners proactively. Fellows worked closely with their government counterparts and were able to prove their abilities during the Fellowship.

Length of extension contracts were a retention enabler, depending on the Fellow’s interests and career stage. Some enjoyed the job security of an ‘indeterminate contract’ (a full time permanent position in government) and found benefits in a stable team environment. Others

⁴² Cohort 3, Interviewed on Jun 16, 2021

⁴³ Cohort 3, Interviewed on Jun 16, 2021

⁴⁴ Cohort 4, Interviewed on Jun 18, 2021



who were less certain about their preferred long-term career trajectory valued shorter-term contracts. These contracts gave Fellows more time to consider their next move while also allowing them to stay on the same team and continue their project post-Fellowship.

5.3.3 Retaining Public Digital Talent

While many would not have even considered joining the public sector prior to this experience, many Fellows have now decided on a career in the public service, quoting a variety of motivations: impact, growth, and security among them.

For many Fellows, the primary motivation for staying in government was similar to why they joined in the first place – the ability to work on impactful projects that would improve lives for residents at scale. “What we do affects the entire country from coast to coast to coast.”⁴⁵ Given the opportunity to use their skills to work on purpose-driven projects, Fellows wanted to work on projects and “[develop] services that actually work for people that meet the needs of those we serve.”⁴⁶

Career growth and mobility impacted Fellows’ willingness to stay as well. Once Fellows were hired into government positions, their in-demand skills allowed them to move between departments and positions – “when you have the skills, every team needs you.”⁴⁷ Fellows were more willing to stay in departments that were agile-ready, had support systems for digital teams, and senior leadership buy-in for agile ways of working. These teams often had senior staff with expertise that enabled Fellows’ continuous learning.

The job security and working conditions of the public sector also appealed to many. For Fellows who were previously self-employed, they appreciated the stability of public sector work and felt it contributed to their improved mental health and quality of life. For those joining from the private sector, the work-life balance enjoyed in public service was a motivating factor for staying.

For Fellows who did decide to stay, they were genuinely humbled by the calibre of and enthusiasm of the people that they worked with. Fellows enter the public service believing they will be bringing new ideas and ways of working to public servants. Yet, many Fellows found themselves also learning from their partners and the subject matter experts in government.



What we do affects the entire country from coast to coast to coast.⁴⁵

45 Cohort 4, Interviewed on Jun 18, 2021

46 Cohort 4, Interviewed on Jun 16, 2021

47 Cohort 3, Interviewed on Jun 16, 2021

6.0 Recommendations

The barriers and challenges to doing digital government work are well known by now. This case has confirmed many of them while also clearly demonstrating ways through, evidenced by the enthusiasm of C4C Fellows for the work and mission of public service. It has made clear there are those who are willing and able to overcome the hurdles to digital government.

We call on governments to be bold when acting on digital transformation. The time has come for governments across the country to invest in digital and to build effective digital talent pipelines. Digital government presents a huge untapped opportunity for those willing to do more on the recruitment and retention fronts. We believe it is possible for governments to better reach digital talent where they are and bring them into public service. We also believe there are ample opportunities for governments to build the structures and practices within the public sector that will incentivize talent to stay once they are in place.

Below are a series of recommendations based on the findings from this case study's interviews and Code for Canada's experiences with previous cohorts of Fellows.

6.1 Funding Digital Transformation

Any changes in the current digital talent recruitment or digital capacity-building practices will need to consider resources. Whether through additional allocations or redirecting existing funds, the following recommendations aim to support digital transformation at all three orders of government.

Create a digital talent opportunity fund

Funding digital talent recruitment can be burdensome, especially for smaller organizations and local governments. By pooling financial resources and creating a central digital talent opportunity fund at federal, provincial and municipal levels, smaller government entities can also



embark on bringing on the talent required to modernize their practices..

Additionally, a central opportunity fund can invest in digital capacity building of current staff, empowering them to gain foundational digital skills, such as agile certifications, allowing them to become digital champions in their units. Public servants hold a great wealth of institutional knowledge and subject matter expertise. By investing in their digital professional development we can modernize the public sector more effectively than simply adding net-new headcount.



Leverage existing mechanisms by funding digital opportunities

While advocating for establishing a central digital HR hub (see recommendation below) and a central digital talent opportunity fund are big bold ideas, they take time to implement. Meanwhile, there exists a suite of options that governments could adopt now:

- Funding a dedicated ‘digital’ stream within the existing [Canada’s Free Agents program](#).
- Creating and funding opportunities to recruit mid to senior-level digital talent through the ‘[interchange](#)’ or ‘exchange’ programs and mechanisms already in place at the federal level.
- Co-develop digital talent recruitment campaigns with provincial and municipal government associations, such as the Federation of Canadian Municipalities.
- Leverage existing leadership recruitment programs (such as [Recruitment of Policy Leaders](#) and [Advanced Policy Analyst](#) or [Manitoba’s Leaders in Training Program](#)) to target and recruit more digitally-minded leaders.



6.2 Central support of digital transformation

While each Fellowship experience is unique, interviews with Fellowship alumni aligned on the positive impacts of having support from senior management as well as a digital champion to act as an ally or mentor. Scaling this insight could look like the establishment of a central support agency where agile-ready government teams can pool their digital resources and talents and share them across the board. Since many

government organizations are early in their digital transformation journey, a digital transformation hub at all three levels of government could provide both professional development opportunities to current staff as well as supporting the design and delivery of other goals and projects. The benefits of a central digital transformation hub are listed in more detail below.

Create a central HR hub for managing digital talents

Existing human resources (HR) practices can be a barrier for digital talent recruitment and building digital capacity across teams. Since reforming government HR practices to accommodate digital workstreams requires comprehensive studies and an extensive budget, we recommend creating one central HR hub that could recruit, train, and facilitate the exchange of talent among various government departments depending on the needs and scope of the work. There is significant operational precedent for this with the federal government’s Free Agents program⁴⁸.

A central HR hub can facilitate the assignment of a multidisciplinary team if that’s what the organization needs, as well as help manage the assignment of digital talent to projects more effectively and efficiently. Some Fellows felt the 3-person multidisciplinary pod structure allowed them to deliver value quickly so that “... it was a no-brainer for the senior management to say hey we want to replicate this.”⁴⁹

“I think a lot of the groundwork [for building an agile team in our government organization post-Fellowship] was laid out during our Code for Canada Fellowship experience.”⁵⁰

“I think a lot of the groundwork [for building an agile team in our government organization post-Fellowship] was laid out during our Code for Canada Fellowship experience.”⁵⁰



On the other hand, some developers expressed that their workload was distributed unevenly throughout their 10-month journey. While in the early months, it felt they may have time to spare, once project scoping, and user research were finalized, some developers experienced excessive workload. A HR hub savvy with digital projects could help mitigate this, bringing the right skills in at the right time.

48 https://wiki.gccollab.ca/Canada%27s_Free_Agents

49 Cohort 4, Interviewed on Jun 18, 2021

50 Cohort 4, Interviewed on Jun 18, 2021

Establish a need assessment framework for all digital teams

When embarking on a digital transformation journey, the first challenge that many government teams face is “where to start.” While no one can prescribe a one-size-fits-all solution, having a needs assessment framework in the hands of leaders particularly in the early stages, can help them explore their unique circumstances, resources, opportunities, limitations and digital capacity deficit while crafting a roadmap.

Create communities of practice

Across the public sector, at all levels of government, folks are doing similar work and facing similar challenges. Communities of practice provide a space for those with similar roles and mandates to discuss common issues, share their learnings, and co-create resources. One Fellow remarked that an enabler of her work was being able to connect “peer to peer, across projects ... being able to see what [others are] doing and how did [they] approach this problem or challenge.”⁵¹

Prepare government leaders with digital ways of working

Digital transformation is incredibly difficult in government without the support of executive leadership in each department. However, there is a digital knowledge and skills gap at the leadership level. As one Fellow explained, “The biggest challenge that I experienced was a lack of understanding on the part of [my government team] in terms of what a UX designer role is and how it can support the product development.” Digital professionals must spend time and effort to justify their work, limiting their ability to do the work.

In advance of bringing on digital teams, the central digital hub (see recommendation above) can provide digital capacity building for leaders and decision-makers and familiarize them with digital tools and concepts. This will enable them to learn about the benefits of digital work and become digital champions in their department, rather than creating blockers

⁵¹ Cohort 4, Interviewed on Jun 30, 2021



for digital teams. Code for Canada has delivered [custom training for government leaders](#) around agile methodology and other digital concepts for this same purpose.

Create working groups to engage CIOs and exiting IT teams

Our interviews show that engaging existing IT teams is imperative to fostering digital transformation. It is crucial to recognize that governments have a large number of information, communications, and technology (ICT) professionals who are proficient, hardworking, and who do more than simply keep computers operational. They often face the uphill challenge of working in departments, agencies, and units where technology is dated, resources are slim, and government bureaucracy limits their ability to be effective⁵². Additionally, ICT, policy and business professionals struggle with a shared gap in digital competencies including user research, product development and product management. Without a shared vision and shared understanding of the ‘why’ and ‘how’ of agile practices among all staff in the organization, any digital transformation efforts might result in more friction and less team synergy.



6.3 Modernize HR Practices in the Public Sector

Public servants, their institutional knowledge and their expertise are one of the greatest resources that the government holds. Digital transformation relies heavily on the governments’ human resources departments and their ability to build digital capacity in existing teams through professional development and recruitment of new talent. Below is a list of recommendations to transform HR practices and make them agile-ready.



Modernize job titles and classifications

The government needs to modernize existing classifications to effectively deploy technical staff to interdisciplinary teams. Until then, existing classifications risk constraining the type of work technical staff may undertake.

Governments also need to take a fresh look

⁵² Craft et al. 2021; Mergel et al., 2019



at what new classifications are required to effectively recruit and put digital talent to work. Necessary positions such as UX researchers or product managers are often hired into the public sector via imperfect classifications with unclear career ladders. For digital talent to be motivated and successful in their current and future roles, they need accurate job titles and descriptions. For example, product managers in the public sector are often given the title ‘project manager’ or ‘business analyst,’ which poorly defines their purpose, skills, thereby limiting their scope of work.

Update requirements and credentials to match position needs

Developers and UX designers commonly prepare portfolios of their work for job applications. However, public sector hiring practices often include a standard cover letter and resume process. These outdated practices not only limit the ability of hiring managers to properly assess candidates’ abilities, they can also discourage interested candidates from applying by creating unnecessary hurdles.

Qualified digital professionals without formal education can be excluded from public sector roles despite years of experience and proven ability. Governments should review their educational requirements to ensure they are not a barrier and that employers can hire based on experience and proven ability.

Offer flexible work policies and contracts

During the COVID-19 pandemic, governments had to adjust working practices, demonstrating the feasibility of working remotely for countless public servants. This negated a longstanding hurdle for the Code for Canada Fellowship by allowing successful Fellowship candidates to work-from-home rather than relocate to their government partners’ headquarters.

For some digital workers, duration is as important as location. Fellows were mixed in their preference for indeterminate contracts or short-term contracts. One Fellow said, “I intentionally didn’t pursue a long-term position so that I can find the right team and right project within the government.”⁵³ Public sector hiring managers should be prepared to negotiate and accommodate the different needs and goals of digital candidates.

Create a public sector guide for digital talent

The style, pace and culture of public sector working environments are significantly different from what most digital professionals are used to in the private sector. A government-created guide to navigating the public service can prepare incoming digital professionals with the tools and knowledge to overcome barriers and do digital work in a public sector environment. Code for Canada covers this topic in their Fellowship onboarding program.

53 Cohort 4, Interviewed on Jun 16, 2021

Make digital recruitment a priority recruitment program

Governments must look for opportunities to leverage existing recruitment programs for digital government. General recruitment campaigns should include a ‘digital’ talent category and recruitment stream. Targeted recruitment campaigns should be mandated to help identify and recruit digital leaders into government. Similar mechanisms already exist, like those for students, those for elite recruits like the Recruitment of Policy Leaders and Advanced Policy Analyst Programs in the Government of Canada, and provincial internship programs such as the Transportation Engineering Development Program and Environment, Conservation and Parks Engineering Development Program in Ontario.



Set public recruitment targets and report on progress annually

Governments at all levels can publicly set targets (no matter how small) around the number and types of digital roles the public service is aiming to recruit each year. By reporting on these targets annually, governments are held accountable to invest in digital talent.

Be intentional about recruiting a diverse digital workforce

Public sector recruitment practices can (and should) foster equity - both in digital and non-digital roles. For the purposes of digital government, hiring with a Diversity, Equity, Inclusion (DEI) lens brings digital talent with diverse lived experience on board, ultimately representing the diversity of service users and enabling government teams to move past ‘designing for users’ towards ‘designing with users.’



To reach diverse digital talent, hiring managers need to be more proactive in reaching candidates where they typically job hunt. Many public sector opportunities are not being widely promoted beyond government channels. When recruiting for the Code for Canada Fellowship, C4C targets communities in a variety of places, including Slack groups, ‘Meetups’, social media, and various job boards.

7.0 Conclusion: Making Outsiders Effective Insiders

Governments are facing major talent shortages across a number of functional areas, including digital. The research for this case revealed that much still remains unknown about why digital professionals join the government and what makes them stay on. Governments need to engage in conversations with staff and partners to better understand what motivates and sustains digital talent in government. Most Fellows indicated that they had not previously thought about working in government – and this is a significant problem for public sector organizations. They need to do more to actively reach out and compete for digital talent.

The C4C Fellowship was never intended as a solution to government capacity issues. Rather, it was a demonstration of the possible – that a viable path exists to recruit digital professionals and put them to work in service of the public interest. The ‘show and tell’ approach has proven successful with governments at all levels who experience the concrete benefits of having digital professionals collaborate with government partners. It has also resulted in over three-quarters of all C4C Fellows staying on in a public sector role. Scaling up the C4C model may help bring more digital talent to the government, but federal, provincial, and local governments can do more to tip the scales.



Many in the digital government transformation space will recognize the blockers and challenges outlined above. Overly bureaucratic structures, confusing and cumbersome human resources practices, uneven executive understanding and support for digital government, and friction with existing IT staff and processes are well-known digital government challenges. This study provides a fresh perspective about what Fellows did and recommend doing to overcome these barriers, or at least manage through them. A consistent finding was that being an ‘outsider’ helped. Being a C4C Fellow allowed recruits to circumvent blockers and overcome constraints that often hampered their public service partners. Paradoxically, many Fellows also noted being an outsider was also a barrier to advance digital government work. Fellows did not

always understand government processes, know the key players, and were unfamiliar with how best to deliver and advance their projects. Several recommendations above are aimed at improving the onboarding and transition of new digital professionals, while others are aimed at helping executives and their teams get ready to put those talents to work.

Several Fellows pointed to the short ‘tour’ like approach as allowing them to experiment and test the waters of working in government. Others pointed to the security of government work as a motivator, which suggests that governments can use a mix of assignments and permanent opportunities to drive digital talent recruitment. Working in the public interest on defined problems and projects was a consistent motivator. Governments need to exploit this. The recommendations advanced above speak to a range of opportunities. Modernizing HR Practices in the Public Sector and more effectively promoting public sector work for digital professionals and helping them make the transition through onboarding and training are examples. Others like launching new classifications, dedicated elite recruitment campaigns, and assigning digital champions are more ambitious. Governments have levers to pull and in some cases need to create new ones to help bring outsiders inside government and to ensure digital talent is put in the service of the societies biggest challenges.





Glossary of Terms

Agile

The original definition of Agile roots in the Agile Manifesto⁵⁴, where a team of developers established a set of principles to guide software development projects and their collaboration with the business team, and respond more effectively to the ever-changing needs of end-users. However, in the context of this case study, Agile refers to adopting an iterative, user-centred approach where members of multi-disciplinary teams work collaboratively in short sprints to explore the problem space, define the problem, conduct user research, prototype, test and iterate until the end users' needs are fully met.

Agile Readiness

In the context of this paper, Agile Readiness is measured by the extent with which an organization is willing to adopt a user-centred, iterative approach in their strategic planning, to transform the organizational culture, team structures, practices and routines so that the work is defined around problem space and the solutions are only designed with (and not for) the end-users.

Digital Transformation

Digital Transformation is a pathway to enable the public sector to 'work digitally' so that more personalized and responsive services can be designed with and delivered to residents. As Tom Loosemore (2016), the author of UK's first Government Digital Strategy points out, working digitally means "Applying the culture, practices, processes and technologies of the internet era to respond to people's raised expectations." Digital Transformation builds a truly joined-up and interoperable data ecosystem that improves the way the government collects, uses and shares data in order to provide residents with tailored and responsive public services.

Onboarding

C4C Fellowship placements start with a 4-week long onboarding. After accepting an offer letter and signing the agreement, the new cohort of Fellows go through an intensive onboarding process that provides an overview of the Fellowship journey to new Fellows and also covers a combination of technical (such as human-centred design, data privacy, storytelling, and sprint planning, etc.) and some non-technical topics (such as public sector 101, agile in government, negotiation, equity and digital justice, etc.). Additionally, onboarding activities foster team-building among Fellows as well as their government core team.

54 <https://www.agilealliance.org/agile101/the-agile-manifesto/>



Placement

Placement in the context of this case study refers to the 10-month Fellowship where Fellows form a team of three (including a developer, a UX designer, a product manager), are embedded in a government organization and assigned to a well-scoped project. All C4C Fellowship placements kick off with a 4-week long onboarding which is discussed below.

Recruitment

Recruitment is the process of seeking out, finding and hiring candidates for a specific position. The recruitment includes the entire hiring process from defining the job competencies, posting the job ad publicly, selecting a candidate pool, conducting interviews and technical assessments, until extending the offer letter to the successful candidate(s).

Retention

Retention in the context of this case study refers to keeping the tech talent in the public sector whether in the same government organization as assigned during the Fellowship, or elsewhere in municipal, provincial or federal governments.

Tech Literacy

It points out the knowledge, skills and experience held in government organizations at all levels to develop and maintain tech products.



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