

U.S. Chamber of Commerce  
Technology  
Engagement Center

# Government Digitization: Transforming Government to Better Serve Americans



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# Introduction

Government understands the importance of modernizing and digitizing. In an era of rapid digitization, the U.S. government has made little progress in updating its IT systems and processes to improve efficiency and access to the American people. Many government IT systems lag far behind the private sector. A more data-driven digital infrastructure will enable government systems to be more resilient, inclusive, and informed. It also will enable the U.S. to respond quickly and effectively to future crises as well as better serve Americans’ daily needs.

Numerous government functions are still conducted through outdated and inefficient processes. In our increasingly digital and mobile world, Americans expect government to keep up with the amenities and benefits of the on-demand economy and digitized information collection systems that provide a much more accessible, cost-efficient, and user-friendly experience.

The Paperwork Reduction Act (PRA)<sup>1</sup> was signed into law in 1995 and governs how federal agencies collect information from the public. One of its primary goals is to calculate “burden hours” and costs of government processes in order to reduce its toll on the public. These numbers are publicly displayed on federal forms. Nevertheless, despite laying the groundwork for more government awareness and accountability, the PRA neither takes into account current technologies nor provides guidance on modern data collection.

To hasten the adoption of digitized information collection, Congress passed the 21st Century

Integrated Digital Experience Act (IDEA) in 2018, which aimed to improve the digital experience for government customers and reinforces existing requirements for federal public websites. Yet progress has been stalled. Because no statutorily required guidance has been issued to help implement the law, agency implementation has been inconsistent.<sup>2</sup> According to a survey of a random sample of government forms, fewer than 2% were fully compliant with the act.<sup>3</sup>

Only about 20% of the more than \$90 billion of the U.S. government’s annual IT spending is devoted to modernization.<sup>4</sup> The 2018 Modernizing Government Technology (MGT) Act sought to improve on this by establishing a fund within the Department of the Treasury for federal agencies to apply for loans to update their outdated systems. Congress appropriated \$1 billion to the fund through the American Rescue Plan. However, the allocations so far have mostly focused on cybersecurity and not on updating federal legacy systems,<sup>5</sup> and there is still a long way to go.

According to McKinsey,<sup>6</sup> government digitization, using current technology, could generate \$1 trillion in additional growth worldwide. Not only would digitizing government services better serve Americans, it would also cut costs, increase efficiency, and build resilience.

America leads the world in technology and innovation. Government should capitalize on these resources and collaborate with the private sector to bring its services into the 21st century.



# Four Benefits of Digitizing Forms

## Serving Americans

Digitizing government forms to meet the needs of the public should be paramount for policymakers. An easier, more efficient, and less burdensome citizen experience would help increase trust in the government, especially when that trust is near historic lows.<sup>7</sup>

Today, citizens expect to be able to engage with government through modern means, including smartphones and computers. Reports have found that 85% of Americans own a smartphone, with 27% of adults in low-income households being smartphone-only internet users.<sup>8</sup> Moreover, the pandemic-propelled shift to remote work is greatly accelerating the digitization trend throughout the country.

An example of the change in how citizens interact with government is in the shift from paper filing to e-filing tax returns. In 2001, only 30% of Americans e-filed their taxes. By 2021, as technology quickly developed, that number rose to over 95%.<sup>9</sup>

It is government's responsibility to meet its constituents in how they want to and expect to engage. Nearly 85% of Americans indicate that they hold government to the same, or higher, standard as their commercial providers.<sup>10</sup> While citizens' satisfaction with digital services has improved as government has embraced more digital solutions, 4 in 10 citizens are still not satisfied.

## Reducing Costs

Beyond poor service, using outdated and manual processes cost Americans an estimated \$117 billion and government agencies an estimated \$38.7 billion every year.<sup>11</sup> Using hard copies requires substantial worker hours to capture and process the information and often creates bottlenecks. Digitizing these forms would reduce costs in materials and required staff hours.

At the federal level alone, government agencies combined spend nearly \$143 billion on information collections every year. In the 12 months prior to August 30, 2022, across all federal agencies, there were 9,858 unique forms and over 106 billion forms processed.<sup>12</sup>

Modernizing these systems would not only improve service, security, and efficiency, but it would save money for government agencies and, by extension, taxpayers.

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**\$143 billion**  
on information collections every year.

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## Increasing Efficiency

Over the previous year, about 10.5 billion hours were spent by the public on government paperwork.<sup>13</sup> Adopting digitized processes would greatly reduce turnaround times for government services, the amount of “burden hours” on citizens, and the amount of tedious manual labor by government employees. The turnaround times for filing taxes, for example, varies widely depending on the method of submission. For taxpayers who file their returns with a paper check, the wait time is between four and six weeks. In contrast, taxpayers who file their returns electronically and request a direct deposit, the wait time is 21 days or less.<sup>14</sup>

In 2021, paper returns took at least eight months to process,<sup>15</sup> and that backlog cost the IRS \$3 billion in interest. According to IRS Commissioner Chuck Rettig, “We are a paper-based organization operating in a digital world economy.” The agency’s paperwork burden poses a significant negative impact on the annual processing of tax returns.

For employees, according to a survey of local government leaders,<sup>16</sup> one of the top obstacles is too much manual work. Reducing manual processes would free workers to invest their time in higher-value work that directly supports the mission of their team and agency. According to the General Services Administration (GSA), if the government achieved only 20 hours of workload elimination per employee, the net capacity gained would be worth \$3 billion.<sup>17</sup>

## Building Resilience

When the COVID-19 pandemic hit, many government agencies struggled to provide services. They faced a frantic push for digitization so that they could accommodate telework for their staff and perform their basic functions virtually. The difficulty of this transition created massive delays and backlogs in service requests that are still being processed today. However, COVID-19 only exposed and exacerbated a fundamental weakness—the federal government has fallen so far behind the private sector in IT modernization that it is still employing decades-old technology that makes it less able to effectively adapt. Digitizing commonly used forms will enable government to be more agile and resilient to future crises and unforeseen conditions.

The agencies that were more modernized weathered the challenges of the pandemic much more effectively than those that were not. For example, the Small Business Administration, whose IT system controls access to applications was 17 years old and ranked among the top 10 critical federal legacy systems most in need of modernization before the pandemic,<sup>18</sup> had its E-Tran website crash<sup>19</sup> as it tried to roll out the Paycheck Protection Program.

On the contrary, the Department of Transportation was able to get its workforce 100% telework ready in just five days, building on the network consolidation and modernization work that the agency started two years before the pandemic.<sup>20</sup> Although the number of travelers plummeted, this work readiness enabled the agency to maintain critical support for delivering essential food, supplies, and medical equipment.

During the pandemic, millions of Americans faced illness, unemployment, food insecurity, and financial instability. An improved ability for government to accelerate research on, gather data from, and quickly respond to disasters and pandemics could aid Americans in receiving the assistance they need in a timely manner.

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it less able to effectively adapt.

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# By the Numbers

## Government-wide totals<sup>21</sup>

Active Forms	9,881
Annual Responses	106,696,738,848
Annual Hours	10,257,745,867
Annual Cost	\$142,976,881,142

There have been  
**4.78 billion visits**  
 to government websites in the 90 days  
 between June 1, 2022, and August 30, 2022.<sup>24</sup>

## Agencies that generate the most paperwork<sup>22</sup>

The Office of Information and Regulatory Affairs (OIRA), established by Congress in the 1980 Paperwork Reduction Act, reviews government collections of information from the public, reviews proposed drafts and final regulations under Executive Order 12866, and

develops and oversees the implementation of government-wide policies in the areas of information policy, privacy, and statistical policy.<sup>23</sup> Below are the annual statistics broken down by agency as of June 2022:

### Most "Burden Hours" to the Public

Department of the Treasury	6.57 billion hours
Department of Health and Human Services	1.57 billion hours
Securities and Exchange Commission	294 million hours
Department of Agriculture	263 million hours
Department of Homeland Security	187 million hours

### Most Number of Forms

Department of Health and Human Services	1,242 forms
Department of the Treasury	1,838 forms
Department of Agriculture	553 forms
Department of Commerce	437 forms
Federal Communications Commission	436 forms

### Most Total Form Responses

Securities and Exchange Commission	41.49 billion responses
Federal Trade Commission	30.12 billion responses
Department of Health and Human Services	9.46 billion responses
Commodity Futures Trading Commission	5.1 billion responses
Department of the Treasury	3.79 billion responses

### Top Annual Costs to the Public

Department of the Treasury	\$41.9 billion
Securities and Exchange Commission	\$31.8 billion
Federal Acquisition Regulation	\$14.4 billion
Department of Homeland Security	\$7.4 billion
Environmental Protection Agency	4.0 billion



# Top Areas to Digitize

For government forms, there are four stages of digitization:



## Printable

The form is available to view and download online.



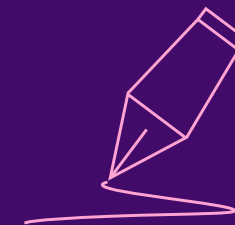
## Fillable

The form is editable online.



## Fileable

The form can be submitted online.



## Signable

The form can be signed digitally.

# Passport Applications (DS-11) and Renewals (DS-82)

Department of State, Bureau of Consular Affairs

Passport applications and renewals are important forms for Americans and frequently the top downloaded forms across all government domains.<sup>25</sup> Passports are required for international travel by air, sea, and land and can be used as an alternative form of identification.

During the pandemic, because passport applications and renewals relied on printing, in-person appointments, and mailing, processing times experienced significant delays. To handle sensitive documents, passport specialists needed to be physically present in the office, rendering the staff unable to telework.<sup>26</sup> In July 2021, the backlog amounted to between 1.5 million and 2 million applications, and wait times were around 12 to 18 weeks.<sup>27</sup> In late 2021, the turnaround estimates fell to 8 to 11 weeks for routine processing, which is still several weeks higher than the pre-pandemic average.

According to a report from the State Department's Office of Inspector General,<sup>28</sup> these issues can be attributed to delays with implementing the Online Passport Renewal system and related programs. In December 2021, President Biden signed an executive order to transform the federal customer experience, which named passport renewals, in particular, as an area for improvement.<sup>29</sup> While this is encouraging, there has been no timeline for execution or launch.

**Current Status**

Printable  Fillable  Fileable  Signable



## Annual Burden<sup>35</sup>

### Passport Application

\$207,192,150 15,604,583 hours

### Passport Renewal

\$166,646,559 4,301,111 hours

## Public Reporting Burden

Passport Application: Avg. 85 minutes per response<sup>36</sup>

Passport Renewal: Avg. 40 minutes per response<sup>37</sup>

# Green Card (I-485)

Department of Homeland Security, U.S. Citizenship and Immigration Services

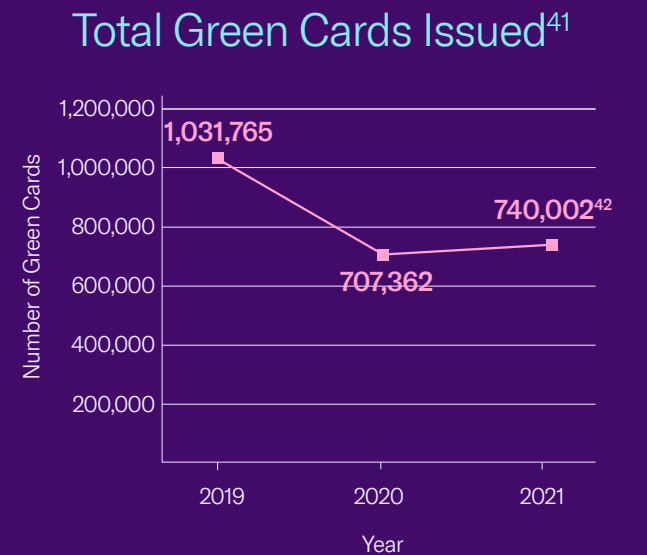
The Application to Register for Permanent Residence or Adjust Status, also known as applying for a green card, allows noncitizens to live and work permanently in the U.S. A person can be eligible under one of several categories, including through family, employment, refugee status, special immigrant status (e.g., religious worker, international broadcaster), human trafficking and crime victim status, and victim of abuse status.

Processing backlogs for these applications has been increasing since before the pandemic and worsened since 2020. Pending applications grew from 3 million in FY 2013 to 9.5 million as of February 2022.<sup>34</sup> The U.S. Citizenship and Immigration Services (USCIS) also reported 66,500 employment-based and 141,000 family-based green cards going to waste,<sup>35</sup> largely as the result of COVID-19 restrictions, staffing challenges, and restrictive executive actions.

Enabling the form to be fileable and signable would greatly reduce inefficiencies and enable the USCIS to tackle the backlog. Not only does this affect applicants and USCIS, but its broader impacts also include diminishing the U.S.' ability to compete with other nations for top tech talent.<sup>36</sup>

**Current Status**

Printable  Fillable  Fileable  Signable



## Annual Burden<sup>43</sup>

\$198,496,844 4,466,267 hours

## Public Reporting Burden

Estimated 6 hours and 25 minutes per response<sup>44</sup>



## U.S. Individual Income Tax Return (1040)

### Department of Treasury, Internal Revenue Service

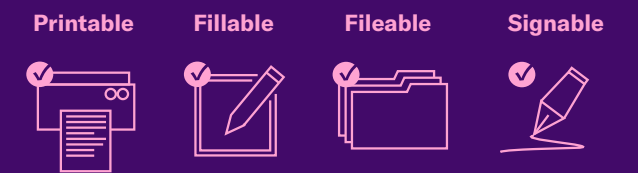
U.S. taxpayers must file an annual income tax return via form 1040. It is one of the more labor-intensive processes that workers in America must complete, with over 2 billion hours in reported burden to the public,<sup>41</sup> and it is by far the biggest source of revenue for the federal government.<sup>42</sup>

Although a fully digital process exists for filing individual income taxes and the vast majority of Americans e-file, the IRS' approach to paper returns is still driven by antiquated and non-digital processes. As of July 29, 2022, the IRS had 10.2 million unprocessed individual tax year 2021 returns, 8.4 million of which are paper returns waiting to be reviewed and processed.<sup>43</sup> Also, e-filed returns that register any issues default to a non-digital process that requires further communications to be mailed or faxed. In the current backlog, 1.8 million returns are a result of error correction or other special handling. As the IRS' Taxpayer Advocate Service reported, delayed refunds can have major impacts on taxpayers, as some include COVID-19 related relief, and others may provide critical funds for basic living expenses, employee payrolls, mortgages, or other loans.<sup>44</sup>

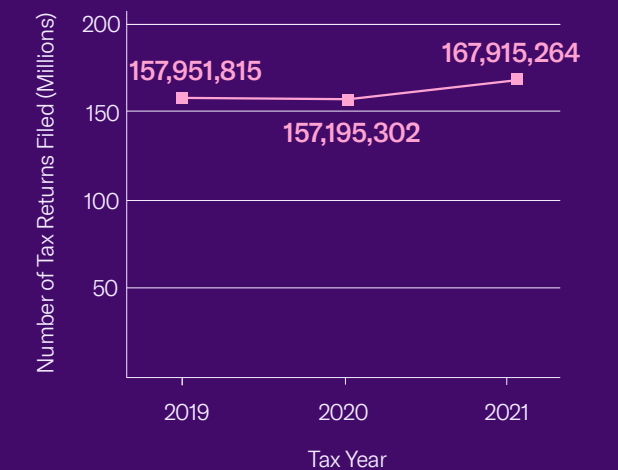
The process for paper tax returns begins with a 1970s-era machine that opens and sorts the mailed-in forms, the manufacturer of which no longer exists.<sup>45</sup> Employees then sort and place each return into separate batches, and red markers and colored papers are used to flag missing or incorrect information. An IRS employee must manually enter numbers from each document into the system, instead of employing scanning technology that could greatly shorten and improve the process. If at any point the taxpayer or an IRS employee makes a mistake, or if the decades-old IT system produces an error, employees must manually go in and fix the issues. The computer system runs on COBOL, a programming language that first appeared in 1959 and long retired by most companies and coders. The whole process can take more than six months.<sup>46</sup>

By digitizing paper records, employing scanning technology, and leveraging electronic invoicing, the IRS would cut down dramatically on the backlog, reduce processing times, and save costs for the agency and the public.

### Current Status



### Total Individual Tax Returns Filed<sup>51</sup>



### Annual Burden<sup>52</sup>



### Public Reporting Burden<sup>53</sup>





# Petition for a Nonimmigrant Worker (I-129)

Department of Homeland Security,  
U.S. Citizenship and Immigration Services

Employers that want to hire a nonimmigrant worker to come to the U.S. to perform services or labor or receive training must file form I-129, the Petition for a Nonimmigrant Worker. Eligibility to start work on the job depends on approval of this form. Applicable visas include H-1B, H-2A, H-2B, H-3, L-1, O-1, O-2, P-1, P-1S, P-2, P-2S, P-3, P-3S, Q-1, and R-1. These range from highly skilled specialty professionals and executives to seasonal agricultural workers to internationally recognized entertainers, artists, scientists, and athletes.<sup>50</sup>

Immigration is crucial for addressing the current unprecedented labor shortage in the U.S. Issuances of work-related visas dropped dramatically during the pandemic as posts were instructed to suspend routine visa services and provide only mission-critical and emergency services.<sup>51</sup> Like other services, this created a negative loop of pending cases,

increased processing times, and produced backlogs that the USCIS is continuing to deal with.<sup>52</sup> Despite taking measures to reduce the processing times, the standard I-129 form still requires two months for a decision.

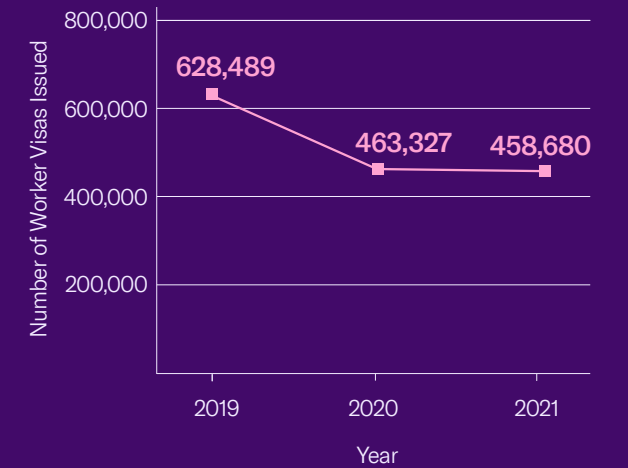
Digitizing would tremendously help tackle these compounding issues. Currently, the application requires U.S.-based employers that want to hire foreign workers to print their application along with supplementary forms and mail the package to one of several filing locations in California, Vermont, Nebraska, or Texas, depending on which nonimmigrant classification and action the petitioner is requesting and where the petitioner is located.<sup>53</sup>

Digitizing this application process would cut down on public “burden hours,” and shorten turnaround times for the processing of visas.

## Current Status

Printable    Fillable    Fileable    Signable

## Total Relevant Work Visas Issued<sup>58</sup>



## Annual Burden<sup>59</sup>

\$70,681,290    1,072,810 hours

## Public Reporting Burden<sup>60</sup>

Estimated at 2.34 hours per response

*Visa classification-based supplements range from an additional .34 (Q-1) to 2.34 hours (R-1).*

# Social Security Application (SS-5)

## Social Security Administration

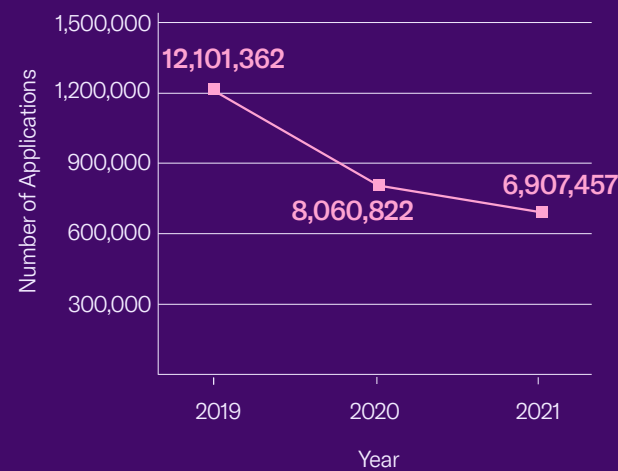
Social Security numbers are assigned to U.S. citizens, permanent residents, and temporary residents of the U.S. Individuals who have lost or damaged their cards, need to update or correct personal information, or request a new number must complete Form SS-5. For those who are simply applying for a replacement card and have a state-issued identification card, this process can be completed online. However, individuals who need to change their name because of marriage, divorce, court order, or any other reason must get a corrected Social Security number card, which cannot be completed online.<sup>57</sup> Applicants must visit their local Social Security Administration (SSA) office with printed documentation or mail it in to move the process forward.

As in other agencies, the pandemic exacerbated backlogs in services.<sup>58</sup> Even before the pandemic, Social Security faced a customer service crisis.<sup>59</sup> A name change is a fairly common process for Americans. On average, over 2 million Americans get married and around 800,000 get divorces or annulments each year.<sup>60</sup> On top of that, applicants may choose to change their information for a host of other reasons.<sup>61</sup> Nearly all name updates to government documents and accounts—an already laborious undertaking—depend on first being able to present a valid Social Security document. Digitizing this process would make the experience more efficient and customer friendly.

**Current Status**

Printable  Fillable  Fileable  Signable

### Total SSN Replacement Applications<sup>66</sup>



### Annual Burden<sup>67</sup>

\$0<sup>68</sup> 12,097,961 hours

### Public Reporting Burden

Estimated between 5 and 60 minutes per response<sup>69</sup>

# U.S. Customs Declaration (6059B)

## U.S. Customs and Border Protection, Department of Homeland Security

If you've traveled internationally, you've seen the 6059B form. It's a thin, blue strip of paper meant for individuals arriving in the U.S. to provide basic information on their identity and what they're bringing into the country, such as agricultural and wildlife products. Over 337 million responses are submitted each year. The document can be filled out before or during travel, but it must be printed and cannot be submitted online.<sup>66</sup>

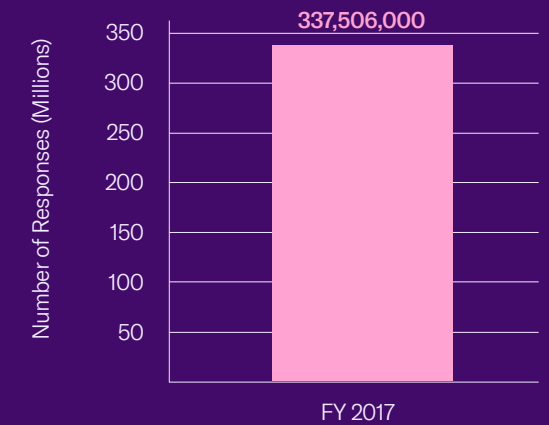
Americans with membership in the Global Entry program are allowed to complete the customs declaration form via a digital kiosk and do not have to use the paper form before arrival. This benefit is a major selling point for Global Entry's promise as "one of the fastest, most technologically advanced ways to speed international travel."<sup>67</sup> Extending this benefit to other travelers would improve the customer service experience for Americans and foreign visitors, reduce "burden hours" on the public, and help the travel industry recover from the pandemic.

In 2019, prior to the pandemic, international visitations to the U.S. totaled 79 million.<sup>68</sup> Although the travel and tourism industry was one of the business sectors hardest hit by COVID-19 restrictions, international arrivals have been growing, and Americans are eager to travel.<sup>69</sup> Enabling online signing and filing of the U.S. Customs Declaration form would enhance an already burdensome process and help the federal government reach its ambitious goal of welcoming 90 million international visitors annually by 2027.<sup>70</sup>

**Current Status**

Printable  Fillable  Fileable  Signable

### Annual Responses<sup>75</sup>



### Annual Burden

\$0 5,303,902 hours

### Public Reporting Burden

Estimated 4 minutes per response<sup>76</sup>

# Employment Eligibility Verification (I-9)

## U.S. Citizenship and Immigration Services, Department of Homeland Security

The I-9 form is used to verify the identity and employment authorization of individuals hired for employment in the U.S. For both citizens and noncitizens, all U.S. employers must complete the form for each person they hire for employment in the U.S. Both employees and employers must complete the form. The USCIS received 55.4 million annual responses to the form,<sup>73</sup> and it also ranks among the top downloaded forms across U.S. government websites.<sup>74</sup>

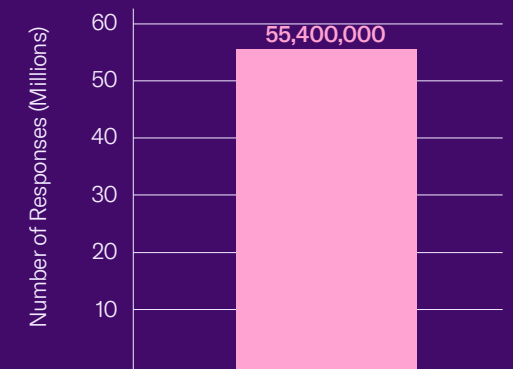
While the form is currently available to complete electronically and not required to be submitted to a government agency,<sup>75</sup> users must print a hard copy of the form, then sign and date it by hand where required. This process occurs twice—first when the employee finishes Section 1, then again by employers for Section 2. For reverification and rehires, the process repeats for Section 3. Section 274A also requires in-person, physical examinations of employment eligibility and identity documentation for employees. During the COVID-19 pandemic, the in-person inspection portion of the requirements was temporarily exempt for remote employees.<sup>76</sup>

Studies that analyzed the potential of remote work to persist after the pandemic found that about 20%–25% of the workforces in advanced economies could work from home between three and five days a week.<sup>77</sup> This represents a four to five time increase in remote work than before the pandemic. In this scenario, extending the COVID-19 flexibility on in-person inspections indefinitely would better accommodate Americans in their new work environments. Allowing a digital signature on the form would also reduce “burden hours” on the public.

### Current Status

<b>Printable</b>	<b>Fillable</b>	<b>Fileable</b>	<b>Signable</b>

### Annual Responses



### Annual Burden<sup>82</sup>

\$0	29,300,000 hours

### Public Reporting Burden

Avg. 35 minutes per response manually and 26 minutes per response digitally<sup>83</sup>



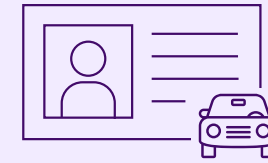
## Notarized Documents

Notarized documents are typically handled by local and state governments and include contracts, court filings, business licenses, home purchases, marriage and divorce documents, and wills. Most notaries perform functions on a part-time basis, and appointments depend on their availability. The majority of these processes are still not digitized and conducted in person. Not only do these factors add time and costs to an already burdensome process and lessen the customer service experience, but also unsustainable during a pandemic.

Remote online notarization (RON) addresses these issues and enables more efficient, convenient, and secure transactions. This new process takes place online with a live notary present virtually via videoconferencing and through one of many notary platforms. Leveraging RON benefits both individuals and businesses. Remote notarization enabled companies to continue operations and close transactions during the COVID-19 pandemic.

During the pandemic, nearly all states without a RON law adopted some form of remote notarization. Although many have made these laws permanent, others have neglected to do so after the state of emergency ended in their jurisdiction. As of early 2022, 37 states have enacted some form of permanent RON law,<sup>80</sup> enabling them to use audiovisual communications to complete notary acts, expedite turnaround times, enhance privacy and security, and preserve a recording for the record. In Congress, the Securing and Enabling Commerce Using Remote and Electronic (SECURE) Notarization Act was introduced in May 2021, which aims to permit immediate nationwide use of RON, and passed the House on July 27, 2022.<sup>81</sup>

As we deliberate the post-pandemic world, policymakers should fully embrace RON. Its convenience, added security, efficiency, and resilience provide major advantages to businesses, governments, and the American public.



## Driver's Licenses

In 2020, there were around 228.2 million licensed drivers in the U.S.<sup>82</sup> California, the most populous state, accounts for over 27 million licensed drivers, and in 2021, it had over 2 million license renewals and 2.7 million change of address transactions.<sup>83</sup> Although a sizeable majority of states allow renewals and changes of address to take place online, new applications and those seeking a name change are generally relegated to in-person processes. The vast majority of states require printing and filing the application for new driver's licenses to be in person, with only 18 states making their applications available to print online.<sup>84</sup> For name changes on licenses, 48 states require in-person appointments, with only 2 allowing mail-in. Among the in-person states, only 3 provide fillable forms online.

Aside from the application and renewal processes, a physical card that must be carried for identification is burdensome, particularly in the era of mobile payments and ticketing. As of 2021, more than 20

states have considered, tested, or launched digital versions of driver's licenses on smartphones.<sup>85</sup> States that have already launched mobile ID apps include Delaware<sup>86</sup> and Arizona.<sup>87</sup> Digitizing licenses would offer Americans more convenience in accessing their information, mitigate risks of losing or damaging cards, and increase safety and security in daily transactions. Some of these digital versions would also enable more privacy by only sharing pertinent data when scanned instead of displaying everything on a card. Moreover, they would be able to be updated in real time, dramatically shortening wait times for more traditional processes.<sup>88</sup>

Digitizing services would do more than cut costs and time; it would also ultimately provide a better customer service experience. Government has a reputation for red tape, long waits, and bureaucracy. Rather than wait in line at the DMV for hours or all day, Americans can use online systems to quickly address their needs.

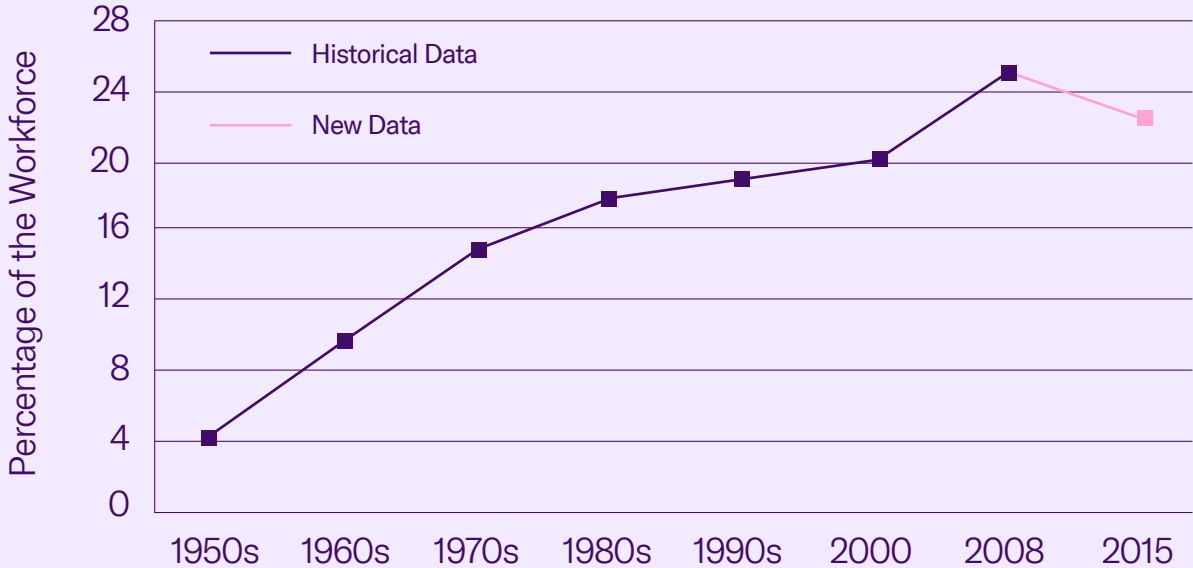
# Professional Licenses

The number of American jobs requiring an occupational license or government approval is 1 in 4, equating to roughly 40 million people.<sup>89</sup> These jobs range from physicians, attorneys, nurses, and teachers to truck drivers, security guards, and hair stylists.

In 2019, only 27 out of 50 states had the capability of digitally signing and submitting forms, and most states required submission of forms through mail.<sup>90</sup> Like the federal government, the pandemic forced a reckoning for state governments as disruptions with mailing delays, in-person trainings, examinations, and more made regular approaches to professional licensing ineffective.

Even though states have made progress in digitizing their licensing systems, there is room for improvement. Many states still have licensing boards without online application processes, and others require an initial paper application. By digitizing more professional licensing, states can provide more convenience for workers, help mitigate the stresses of the labor shortage, and aid economic recovery locally and nationally.

Share of U.S. Workers With an Occupational License



Note: Estimates for 1950–2008 are for workers with state licenses; estimates for 2015 include state, federal and local licenses.  
 Sources: The Council of State Governments (1952); Greene (1969); Kleiner (2006); Kleiner and Krueger (2013); Westat data; Bureau of Labor Statistics (2015); and Council of Economic Advisers calculations

# Case Study: e-Estonia

Imagine only needing three minutes to file your tax returns. That's the reality for citizens in Estonia.

In the global discourse on government digitization, Estonia is foremost on the list of the world's most digital societies. Ninety-nine percent of its public services have been digitized—health care, banking, taxes, policing, and more. Even voting has been conducted online since 2005, when Estonia became the first nation in history to offer internet voting in a general election.<sup>91</sup>

All these government services have been digitally linked across one platform called the X-Road. This data exchange platform connects public sector databases and registries, local municipalities, and businesses. When declaring taxes, data such as name, income, savings, and deductions are prefilled. At the doctor's office, no forms are needed as each patient's medical history is already digitally accessible to physicians.

To avoid vulnerabilities with centralized data storage, X-Road links individual servers through end-to-end encrypted pathways, letting information live locally.<sup>92</sup>

The e-Estonia system is centered around three principles.<sup>93</sup>

1. *Privacy and confidentiality of data and information:* The heart of this system relies on a strong digital identity issued by the state, mobile enabled, and compatible with other platforms. The security is compounded with a strong digital signature that is accepted, used, and legally binding in Estonia, as well as in the European Union.
2. *Once Only:* The system operates under the rule that government can neither ask for the same data more than once nor store it in more than one place. If you've already provided your marriage certificate to the registry, no other institution will ask for it again. In preparing applications, existing data is prefilled so that no single piece of information is entered twice.
3. *Ownership of data:* The system is based on individual ownership of the data, including the right to know what information is collected and who has had access to it. Inquiries about the information must be authorized and saved in a log file. The information accessed is specific to each inquiry and filtered so that no other data is accessible.



Embracing an e-government system not only produced a much more efficient system and citizen service experience, but it translated into significant savings. The use of X-Road reportedly saved the Estonian administration 820 working years compared with previous calendar years.<sup>94</sup> Using the digital signature also saves about 2% of the Estonian GDP each year.<sup>95</sup> In terms of costs, Estonia spends approximately 1.1% to 1.3% of the state budget on digitalization.<sup>96</sup> In comparison, Finland spends 1.4% and Denmark spends 2.4%.

The broader rewards of a digital governance system have been apparent for Estonia, which has transformed into a hub for tech entrepreneurship. Now, it boasts as the birthplace of companies like Skype and Timbeter. For a country of 1.3 million in population, Estonia's 25 most valuable tech companies were valued in 2021 at €21 billion, or around \$22.5 billion.<sup>97</sup>

With all this digital infrastructure in place, citizens had peace of mind in dealing with the pandemic. At the onset of COVID-19, Estonia appeared to have experienced one of the lowest levels of panic based on media coverage, panic buying, and other indicators.<sup>98</sup>

While Estonia's approach may not translate broadly to other countries—particularly those with significantly larger populations and more complex infrastructure and bureaucracies—it does serve as a source of inspiration and an example of the importance of modernizing public services. For democratic countries, the principles of information security, good governance, and privacy by design are largely universal, transferable, and adaptable.<sup>99</sup> The U.S. can use the e-Estonia model as a reference in bringing digital design thinking into the public sector.

# Case Study: Getting Married



So you just got married. If you're changing your name, you'll probably want to hold off on that until after the honeymoon, as you've got a lot of paperwork to deal with. Not only will the marriage certificate likely take a couple of weeks to arrive, but you will also need to update and reapply for a plethora of both federal and state government forms, many of which have specific time requirements for reporting and filing.

You'll need to get your marriage license and certificate. If you got married in a state without virtual services, you will have to print, complete, and sign an application for a marriage license before an appointment with the registrar's office. To obtain a certified copy of a marriage certificate, you will then need to complete another application. This is often a PDF form that you will have to print, fill, sign, and mail.<sup>100</sup> Depending on the state, licenses cost from \$18 to over \$100,<sup>101</sup> and certificates run from \$5 to \$26 for the first copy.<sup>102</sup> Because many other processes to change a name require the marriage certificate, often by mail, it's best to get at least two copies to speed things up.

If you are changing your name, you will need to get a new Social Security card. This is a legal requirement. You will need proof of your identity on hand, sometimes proof of your U.S. citizenship and the marriage document. Then, you must fill out and print form SS-5—

the application for a Social Security card. Contact your local SSA office or card center and figure out your submission options.<sup>103</sup> Typically, this requires going in person.

If you're a naturalized U.S. citizen, you may also want to update your certificate of naturalization so that it matches your new legal name. You will then need to use form N-565 to replace your current certificate. Although you can file this online, it costs \$555. If you have a green card, you'll need to use form I-90, the Application to Replace Permanent Resident Card. This process can also take place online, but it costs \$455 in form fees and \$85 in biometric services. If you're on a visa, you'll need to get a new passport with your home country and reapply for a new U.S. visa. This process can vary widely.<sup>104</sup>

In addition, you'll need to update your driver's license or state ID card. Most states require this process within 30 days of the name change. As mentioned, the vast majority of states require in-person appointments for a name change. Only a few states have the form available online in advance of your visit. Most likely, you will need original copies of documents that verify your new name and information, such as your new Social Security card, marriage license, proof of address, and current driver's license. Depending on the state, this costs between \$10 and \$89.<sup>105</sup>

You'll also need to update your vehicle title and registration information. To do this, you'll need to have proof of your name change through your new Social Security card. This process is similar to obtaining an amended driver's license, and though some states cover both, most have separate departments for licensing and motor vehicles. The process often involves another printed and signed application, and most states require in-person visits to update the information as well as a change fee.<sup>106, 107</sup>

Don't forget to update your passport. If you happen to have had your passport issued less than one year ago, you're in luck—the process is free. Nevertheless, you will need to fill out and print form DS-5504 and mail it along with your most recent passport, marriage certificate, and a color passport photo.<sup>108</sup> If it's been more than a year, you'll need form DS-82 instead, and you'll pay \$130 for standard processing and standard delivery on a passport book.<sup>109</sup>

If you have TSA PreCheck or Global Entry, you'll want to change your name for trusted traveler programs. TSA PreCheck membership requires the new details to match, or you won't be able to use the benefit

when traveling. The program, however, can accommodate changes through a call center or online.<sup>110</sup> Name changes in Global Entry require a visit to an enrollment center to update the information.<sup>111</sup>

It's also important to update your voter registration information. As of July 2021, 42 states and D.C. offer online registration.<sup>112</sup> If you live in one of the states without an online process, you'll need to fill, print, sign, and mail a form<sup>113</sup> along with other obligations like taking an in-person oath with an officiated officer and mailing copies of identification.

Once you've completed the major government forms and updates, you'll need to change your name on your bank accounts, credit union accounts, checks, credit and debit cards, and other financial information. Other personal accounts will need to be updated, including your file with your employer, professional licenses and associations, home mortgage or lease, insurance, investment accounts, utility accounts, and medical providers.

After all that, you're free to enjoy your new name and marriage. Congratulations!

# Policy Recommendations

## 1.

Congress should use its oversight authority to determine current impediments to agencies' effective modernization. Where current constraints lie, Congress should direct necessary funding for modernization.

## 2.

Congress should review and analyze all potential ways to fund needed IT modernization, such as developing capital working funds at agencies for the specific use of IT modernization.

## 3.

Congress should continue to appropriate necessary funding to the Technology Modernization Fund (TMF) to assist in updating outdated and inefficient IT systems.

## 4.

Federal agencies that administer funding for IT modernization to state and local governments should develop communication campaigns to educate localities about available funding opportunities like those in the American Rescue Plan.

# Conclusion

When the pandemic hit, government had to move quickly to adapt to the new environment. Agencies had to move their staff to telework, meet increased demands, and continue normal services and operations. This required an acceleration in implementing new systems. According to Government Executive, 97% of federal executives say it was an unprecedented stress test for their agencies.<sup>114</sup>

The stories of success and failure regarding how government dealt with COVID-19 are lessons in why it's important to finally bring our public sector into the 21st century. During the pandemic, outdated government systems wrought havoc on relief efforts across federal, state, and local governments. Many systems faltered in meeting the needs of Americans. For example, the IRS struggled to disperse millions of economic relief payments, and the Small Business Administration's E-Tran website crashed as it tried to roll out the Paycheck Protection Program. As Rep. Gerald Connolly, chairman of the Subcommittee on Government Operations, said at the July 2020 congressional hearing on federal IT modernization, "The public policy was there, but our IT systems often couldn't deliver. In other words, the fate of the world's largest economy rises and falls often with the ability of government IT systems to deliver in an emergency, and that should galvanize us all."<sup>115</sup>

Yet successes were apparent. When the New York Department of Labor's aged systems, which only allowed them to do an average of 10 emails an hour, failed to meet the 1,300% increase in unemployment claims, the department partnered with DocuSign to build a digital process.<sup>116</sup> This enabled the department to send out 570,000 unemployment certifications in under 72 hours.

The pandemic transformed how government executives thought about work, not only accelerating the pace of modernization but also validating its critical need. As we consider the post-pandemic era, we can't lose the momentum of this change. Digitization will enable government agencies to cut costs and increase efficiency every day. As we continue to deal with future crises and disruptions, digitization will build resilience into the federal system. Ultimately, if government can't perform its basic functions efficiently and effectively, it fails and loses the trust of the people who depend on its services. We must prioritize digital modernization so that government can continue to accomplish and improve on its ultimate goal—serving the American people.



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## About C\_TEC

Our nation's future economic success, growth, and competitiveness depend on a thriving and innovative technology sector. Every company is a tech company, and data-driven innovation is the foundation of businesses across the country.

The Chamber Technology Engagement Center (C\_TEC) tells the story of technology's role in our economy and advocates for rational policy solutions that drive economic growth, spur innovation, and create jobs.

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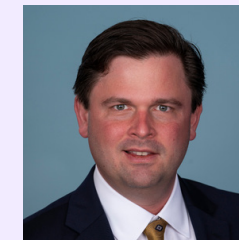
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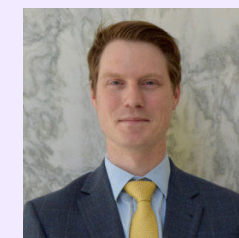
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