Envisioning a Federal Rules as Code Approach to Public Benefits Eligibility

Digitizing public benefits policy will make the biggest impact for administrators and Americans, but only if it happens at the highest level of government.

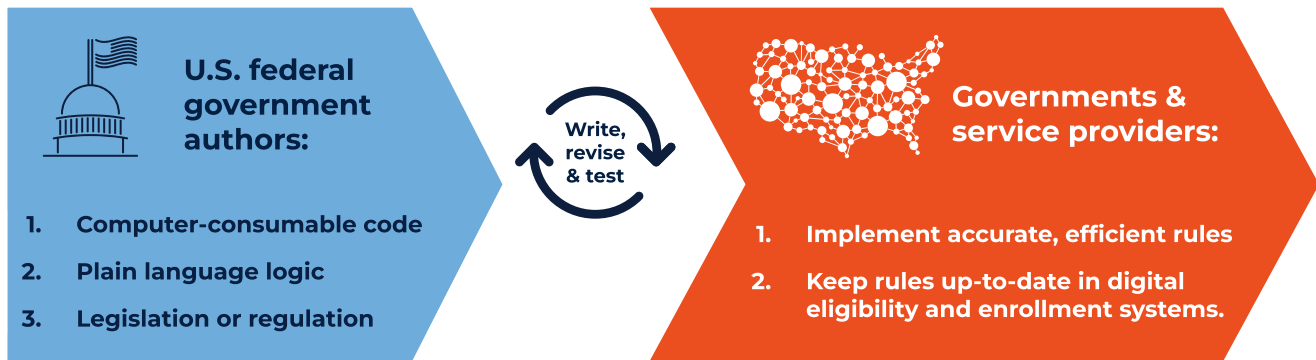## Imagine a rules as code approach if it was adopted by the U.S. federal government:

1.   Federal policy administrators and software developers working together to write official computer-consumable code versions of program eligibility requirements.

2.   The U.S. federal government would issue accompanying logic flows in plain language to make the code easier for non-technical stakeholders to understand.

3.   Stakeholders would review an adopted regulation, plain language logic flow and computer code side by side, knowing that every element is consistent, official, and ready for implementation.

4.   There would be a continuous cycle to write, revise, and test the rules to ensure accuracy.

5.   States, territories, tribes, counties, municipalities, and service providers could implement accurate, efficient rules and keep them up-to-date in their digital eligibility and enrollment systems.
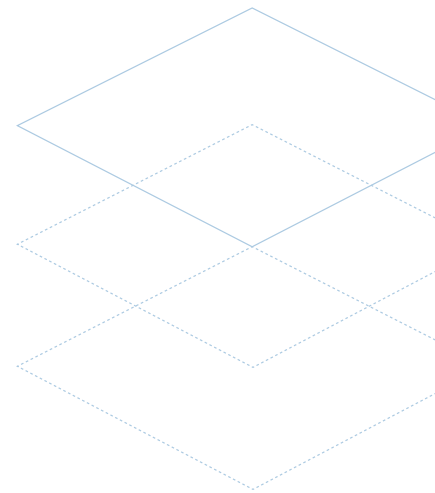
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U.S. federal government authors:

1. Computer-consumable code
2. Plain language logic
3. Legislation or regulation

Write, revise & test

Governments & service providers:

1. Implement accurate, efficient rules
2. Keep rules up-to-date in digital eligibility and enrollment systems.

Under this paradigm, incorporation of other technologies would help capture the full potential of rules as code, including tools such as:

+ **Code libraries** with open source versions of the rules for the core federally-funded safety net in a standardized data format. Each state could add its own specific eligibility requirements for the federal programs using the same data format. States, territories, tribes, counties, and municipalities could also add their own local programs in the shared format.

+ **Application programming interfaces (APIs)** to allow for direct integration of the rules including a managed flow for updates and testing. By creating rules and feeds across multiple benefits, it would become possible to call the rules—integrate them—into any front-end interface. Residents could be screened for and apply for every benefit they qualified for by asking for help a single time. This would create a true manifestation of the federal government's aspiration that there be "no wrong door" for service delivery.

+ **A business rules engine (BRE)** to centrally store and manage the rules and provide the integration point for APIs.

+ **Batch processes** to screen people who are already in government databases for additional benefits by running privacy-protected personal data against the eligibility rules as code available over APIs.

+ **Standardized data collection** for measurement and evaluation. This could be used to reduce disparities in access and utilization of services by marginalized populations and communities.

+ **New ideas and applications we can't yet imagine.** Using new tools will inspire additional creative innovation that will in turn make the social safety net even more efficient and accessible.

Is there a federal mandate to move rules as code forward?

Yes. More and more, the federal government is demonstrating thoughtfulness about how its programs and policies will be implemented in the digital age. There appears to be a growing recognition that an effective and interoperable backend is critical to—and inseparable from—successful policy. Two examples of this type of thinking are Section 1561 of the Affordable Care Act and President Biden's 2021 Federal Customer Experience Executive Order.
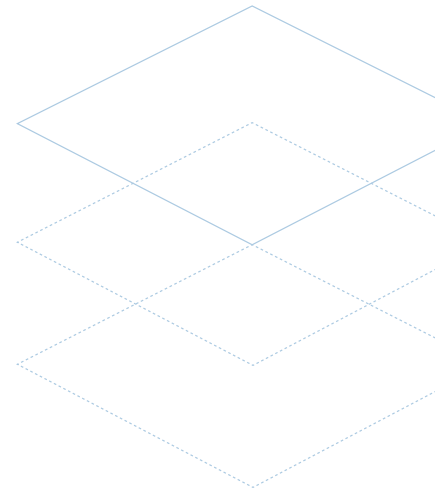
+ **Affordable Care Act**

   The 2010 Patient Protection and Affordable Care Act (ACA) calls for improved standards, protocols, and methods for verifying eligibility and simplifying enrollment in federal and state human services programs. The legislation was followed by a set of recommendations from the U.S. Department of Health & Human Services (HHS), in consultation with the Health Information Technology (HIT) Policy Committee and the HIT Standards Committee, including a recommendation that the federal government "maintain a repository of business rules needed to administer Affordable Care Act health insurance coverage options (including Medicaid and CHIP), which may include an open source forum for documenting and displaying eligibility, entitlement and enrollment business rules to developers who build systems and the public in standards-based and human-readable formats. To allow for seamless integration of all health and human services programs, business rules for other health and human services programs such as SNAP and TANF should be added to the repository over time." This recommendation, if fully implemented, would look much like the rules as code approach set forth above.

+ **President Biden's Federal Customer Experience Executive Order**

   The December 2021 Executive Order on Transforming Federal Customer Experience and Service Delivery to Rebuild Trust in Government presents a new opportunity to revisit and revise elements of delivering the social safety net to ensure more equitable and efficient delivery for Americans. The Executive Order directs federal leaders to support cross-benefit eligibility and enrollment and streamlining of state enrollment processes, and it points to technology as a key way to "modernize Government and implement services that are simple to use, accessible, equitable, protective, transparent, and responsive for all people of the United States."

   The Executive Order also directs the President's Management Council to identify specific "life experiences" when an individual is likely to have interactions with multiple agencies of the federal government, and then study how to make these experiences more human-centered and less burdensome. One of the life experiences that the Council chose was experiencing a financial shock and

becoming newly eligible for critical support. The Council set an ambitious goal that an American seeking services would be able to apply for the benefits they are eligible for in 20 minutes, enroll in 24 hours, and receive services within a week. Achieving this vision will require efficient enrollment processes and integration across multiple agencies—a profound shift in social service delivery. Translating benefit eligibility rules to rules as code could underpin the sea change by streamlining the creation and maintenance of digital benefits systems.

Proof Points—Benefits Eligibility Rules as Code Internationally and at Home

There is growing precedent for utilizing rules as code in government operations. Countries outside the United States, including Denmark, New Zealand, and France, have already taken steps to embrace the approach.

+ **Denmark**
  Anticipating the benefits of rules as code on the administration of social services, the Danish Agency for Digitalisation established a secretariat (department) in 2018. It guides policymakers in drafting legislation that is optimized to be digitized or translated into code in the future.
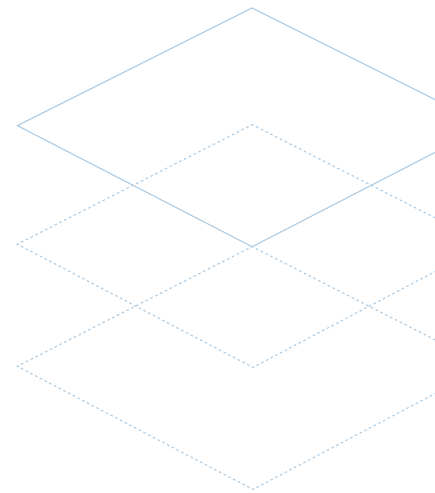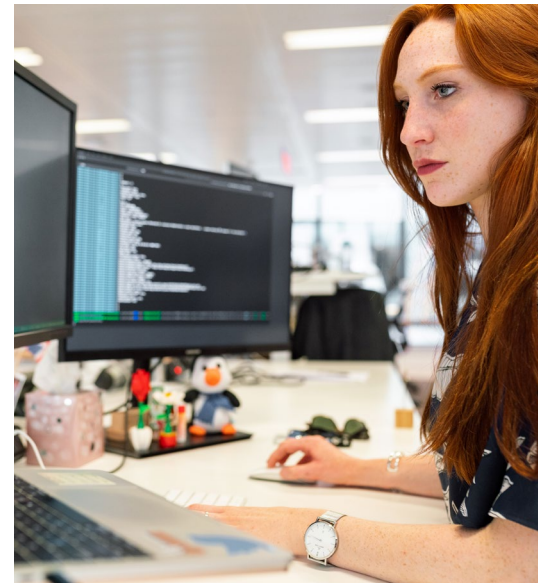
+ **New Zealand**
  In 2018, a multi-disciplinary group led by New Zealand government employees—including policy specialists, service designers, business analysts, legislative drafters, and software developers—developed an approach to policymaking designed so that human-readable rules would be written in tandem with machine-consumable code. Called Better Rules, this approach is designed to iterate and test for oversights or errors in rules before enactment. It also increases the fidelity between the intent of a rule and its implementation and makes the development of machine-consumable code from rules easier and more efficient to scale.

  One of New Zealand's applications of the Better Rules approach is the SmartStart website, which accesses a rules engine to inform New Zealand parents, expectant parents, and caregivers about the government-sponsored financial help and/or paid parental leave they may be eligible to receive.

+ **France**
  The French Government developed a free, open source platform and standard called Open Fisca in 2011. Developers can work with policy experts to translate rules into code on the Open Fisca platform or build applications that call coded rules in Open Fisca through a web API. They can also update these rules as policies and regulations change.

The platform has also been used to create multiple front-end applications for the public. These include the Mes Aides website, which lets French residents assess their eligibility for more than 30 public benefit programs and manage their program interactions. Mes Aides relies on benefit rules set by the French government and does not have to take into account state-level variations in benefit rules and implementation like those that exist in the United States. However, French jurisdictions can develop local applications or access custom-made extensions to Mes Aides for benefits that are only available locally.

Domestically, no state or federal governmental entity yet provides its benefits eligibility determination code in an open source format. However, a number of organizations are providing proof of concept for digitizing eligibility criteria and building tools with a people-first mindset. They are demonstrating how rules as code can make the benefits eligibility process smoother and simpler for residents and implementers as well as provide analysis of policy. For example:
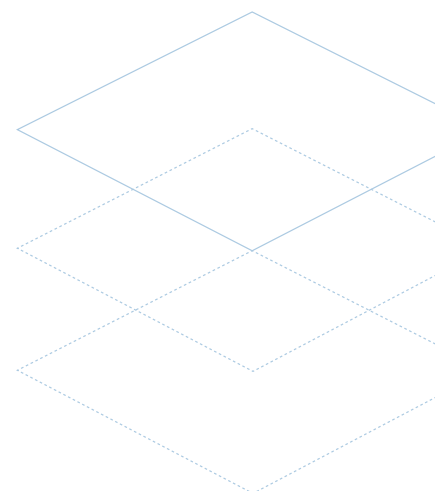
+ **Nonprofit: Benefits Data Trust**
  Benefits Data Trust has developed a suite of technology to support their contact center as they help residents screen for eligibility and apply for benefits. The code is dynamic. As the client answers questions, the screening tool continuously makes eligibility determinations and eliminates questions associated with programs that the client is ineligible for. This helps shorten the overall process, making it easier for everyone involved. The tools are supported by an API for eligibility rules, which enables integration of new use cases, such as integrating with a human services referral platform.

+ **Local Government: NYC Benefits Platform Screening API**
  The NYC Benefits Screening API provides open developer access to the machine-readable calculations and criteria for the more than 40 programs ACCESS NYC's questionnaire screens for. The API connects to the Drools-based rules engine—a business rules management system. The NYC Mayor's Office for Economic Opportunity also publishes a comprehensive guide to the information utilized to write rules, a chart to track eligibility categories by program, and a guide to the screener questions.

+ **Federal Government: 18F's Eligibility APIs Initiative**
  From 2017 to 2020 a team at 18F received multiple rounds of funding through 10x, the General Services Administration's (GSA) technology innovation fund. These grants were earmarked for exploration and to prototype how the federal government could communicate benefit eligibility rules as computer code for integration into state systems.

Under their Eligibility APIs Initiative, the team built a prototype API and calculator for the federal rules for Supplemental Nutrition Assistance Program (SNAP). The prototype model incorporates core federal rules and can include options for each state or territory through Broad-Based Categorical Eligibility. All of the code is open source and available for any federal or state agency or other organization to replicate or redeploy. Since its implementation, it has been reused and extended into several civic tech projects. The Eligibility APIs Initiative at 18F is an excellent prototyping example of what a full–scale rules as code service could look like.

+ **Partnership: Policy Rules Database by the Atlanta Federal Reserve and National Center for Children in Poverty**
The Policy Rules Database (PRD) is a collaborative effort between the National Center for Children in Poverty (NCCP) and the Advancing Careers for Low-Income Families Initiative at the Federal Reserve Bank of Atlanta. Their task: Gathering rules for major federal and state transfer programs and tax policies in one place.
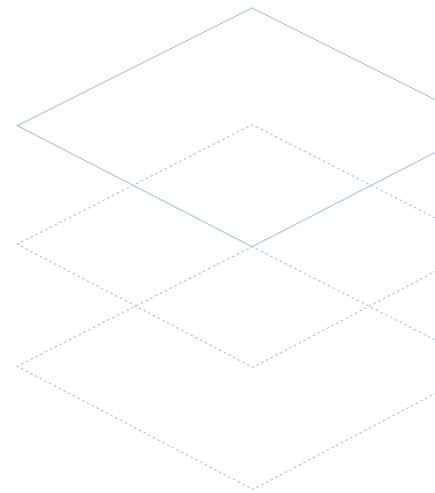
The PRD was designed to help researchers analyze the impacts of public assistance programs and tax policies and create policy simulations. The database rules can also plug into other informational tools, such as the PRD Dashboard to help users model the impacts of benefits cliffs. Because the team uses pseudocode to document rules in the database and the associated technical manual, it is easier for other teams to apply the rules to new projects, regardless of the programming environment they are working in.

This project is a great example of how rules as code work can be repurposed for multiple projects. The PRD has already been used in other tools, including MITRE's Comprehensive Careers and Supports for Households (C-CASH) Analytic Tool, which built an API and front end application to run eligibility scenarios across different U.S. counties and states.

Advancing Benefits Eligibility Rules as Code

The rules as code movement is nascent, but quickly growing and proving successful in other countries. It is imperative that the United States begin formalizing the adoption of rules as code for the safety net to lessen the gap between policy and service delivery in digital systems.

As part of the Digital Benefits Network at the Beeck Center, we invite continued conversation and collaboration to spark the next steps of this work.

+ **Join our community of practice**

The Digital Benefits Network hosts convenings to connect organizations advancing this work and chart a course together, including:

- Eligibility rules for states, territories, tribes, and local governments

- Eligibility rules for federal agencies

- Advancing an open source data standard and syntax for U.S. benefits eligibility rules

+ **Participate in research**

The Digital Benefits Network continues its research into benefits eligibility rules as code, with a focus on understanding barriers and enablers at every level of implementation. Topics of investigation include:

- How federal agencies and state and local counterparts communicate updates to rules and how tracking of updates could be automated

- Analyzing state, territorial, tribal, and local government eligibility and enrollment systems to better understand how these systems write, store, and utilize digitized rules, including where coded rules are used in automations to help advance determinations or make recommendations

- Further investigation into existing standards used in writing benefits eligibility logic and code, including drawing from adjacent use cases like tax and insurance policy and digitization

- Documentation of the processes used for writing rules into code in demonstration projects in the U.S. and internationally, including exploring the implications of ambiguous language in law, regulation, and policy for digitization into code

+ **Prove the concept**

The Digital Benefits Network is exploring how to create a proof of concept and build on the research and community. The anticipated pilot project will test a rules as code approach to multiple federal benefits programs in one or two states, territories, tribes, counties, or municipalities, with participation from one to two delivery organizations. The proof of concept will have built in measurement and evaluation to identify what works and can be scaled into a national approach including design, process, technical, and procurement recommendations.

ⓘ **Find Out More**

Read more about the path forward for a rules as code approach to benefits eligibility policy in the Beeck Center's February 2022 report Benefit Eligibility Rules as Code: Reducing the Gap Between Policy and Service Delivery for the Safety Net.

🖱 **Get in Touch**

Our Digital Benefits Network team is here to help!

Visit us at the Digital Benefits Hub

Please contact us with any thoughts, questions, or potential collaborations via email at digitalbenefits@georgetown.edu