Attachment 01

# About Rules-as-Code

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## What is rules as code?

Rules as code (RaC) is the process of taking legislation, regulations and policies and turning them into machine-readable code so they can be understood and interpreted by computers. The encoded legislation exists *alongside* the natural language version (it does not replace it) to facilitate digital service delivery.

## Why rules as code?

Turning rules into machine-readable code provides many benefits for government, citizens and broader society. RaC helps to reduce ambiguity, reduces the difficulty of interpretation and therefore makes it easier for citizens and organisations to comply with the rules. Importantly, it also leads to greater transparency in rules.

Encoding legislation into code can also identify gaps and inconsistencies in the original document.

For a full list of benefits, see the OECD's Cracking the code: Rulemaking for humans and machines (p.39 includes a benefits table).

## What type of legislation can be encoded?

For digital service delivery, rules (legislation, regulation or policy) that are prescriptive – as opposed to discretionary – are best suited to be encoded as code. And as the process for transforming existing legislation into code can be complex and time consuming, focusing on rules that can reduce the burden on citizens, create service efficiencies or automate processes will have the most immediate impact.

But it is worth highlighting that the New Zealand Service Innovation Lab found that discretionary rules can be written in code too. In fact, doing so was not overly more complex than encoding prescriptive legislation, and had flow-on benefits.

And while most rules will be encoded after the legislation is written, writing rules as code alongside the written legislation (ie. at the same time) is the most efficient approach and can significantly improve the quality of the written legislation.

## Who's using rules as code?

Many governments around the world are exploring and implementing RaC — although it's still definitely an emerging field.

France was an early adopter, creating the open source OpenFisca platform that can be used to support and create RaC.

New Zealand and Canada are also active in this space. Rules as code is part of NZ's Better Rules program, which brings a new approach to policy and legislation. RaC was also used in creating NZ's SmartStart, a portal for NZ parents that includes birth registration.

An example here in Australia is the NSW Government. They've created a digital version of the Community Gaming Regulation 2020 and have also produced assets on RaC, including:

- Machine readable rules (available via an API)
- Rules as Code emerging technology guide

More on NSW and rules as code

## Rules as code and the Observatory of Public Sector Innovation (OPSI)

The OPSI has a dedicated emerging tech project focused on rules as code. One of the outcomes of that project has been the recent release of OPSI's report, Cracking the Code. The report provides an introduction to RaC, including benefits, use cases, the effort involved, and general advice and guidelines.

It's an extensive report at over 100 pages, and the OPSI does provide a shorter 16-page report, Cracking the Code Highlights.

## Case studies

For RaC case studies please refer to the case study section in *Attachment 05 - About OpenFisca*. A list of these studies is shown here for reference:

- GovZero Aotearoa (New Zealand)
- Fair Trading New South Wales (Australia)
- Mes Aides (My Helpers) – Entitlements eligibility simulator (France)
- Lex Impact – Policy difference engine (France)
- Les meves ajudes (My Aides) – Entitlements eligibility simulator (Spain)
- Rapu Ture - Exploring the Rules (New Zealand)