

Rethinking regulation: Innovation for productivity and trust

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Regulation is very much unloved at the moment. It plays a vital role in protecting citizens, markets, and the environment — yet it is increasingly criticised as being too complex, prescriptive, and burdensome. Business leaders and other interest groups argue that excessive red tape stifles innovation, creates unnecessary compliance costs, and slows investment.

As the Australian Government hosts an Economic Reform Roundtable on the nation's sluggish productivity growth this week, regulation has again emerged as a central challenge. Yet past efforts to “cut red tape” or streamline processes have delivered only modest results overall. Given this challenge, it's time to explore how new and innovative approaches can help contribute to meaningful reform in the way regulations are designed, implemented and reported.

Critiques from across the spectrum

For decades, regulation has been attacked from the business sector, backed by neo-classical economists and conservative politicians. They argue that the volume and complexity of regulation create excessive compliance burdens, reduce business flexibility and act as a brake on economic growth and productivity.

More recently, regulation has also come under scrutiny from progressive voices. In their book [Abundance](#), Ezra Klein and Derek Brown highlight how well-intentioned rules can delay or block the supply of housing, renewable energy projects, and other essential infrastructure. They argue that regulatory systems must strike a new balance, safeguarding social and environmental outcomes while also enabling the timely and affordable delivery of critical goods and services.

The Productivity Commission's call for reform

The Productivity Commission has reinforced these concerns in its recent report [Creating a More Dynamic and Resilient Economy](#). It identifies regulatory reform as one of the two “big levers” to drive productivity growth (the other being tax reform).

The commission warns that Australia's growing regulatory burden is constraining productivity, and that policymakers and regulators “often give insufficient weight to growth and dynamism when creating and implementing regulation”. It calls for:

- Concrete reductions in regulatory burden in priority areas, with measurable targets.
- More rigorous scrutiny of proposed and existing regulations, assessing their impact on growth and dynamism.
- Improved capability within the public service, ensuring officials have the skills and accountability to manage regulatory costs and impacts.

The report also notes that while Australia has strong regulatory impact analysis procedures on paper, these are undermined in practice. Too often, rules are drafted in a prescriptive, rigid, and risk-averse way, with limited consideration of the costs imposed on business and the community relative to the risks addressed.

Beyond traditional reform: The case for innovation

While the commission's recommendations have merit, they rely heavily on reshaping existing bureaucratic processes in how regulations are drafted and operated. Many earlier government reviews have made similar recommendations: identifying priority areas for action, setting savings targets, striking a better balance between

benefits and costs to industry and calling for cultural changes within the regulatory agencies. Despite these earlier efforts, the commission itself acknowledges that the overall number of regulations and level of regulatory reporting burden have continued to grow.

The commission has given little attention to more fundamental innovations in how regulations are drafted, maintained, and reported. One promising avenue is the application of regulatory technology (regtech), particularly approaches such as Rules as Code (RaC) and Generative Artificial Intelligence (AI).

Rules as code: Making regulation machine-readable

[“Rules as Code”](#) involves drafting regulations in a form that is simultaneously human- and machine-readable, using formal logic and rule systems. Regulations are expressed in a precise format that can be translated into decision trees or declarative rules, while leaving value judgements to human decision-makers. This approach improves clarity, reduces ambiguity, and enables automation of regulatory reporting where appropriate through machine-readable rules.

Early RaC experiments required regulators to maintain two parallel versions of each rule — one in legal text and another in computer code. This was costly, complex, and relied on using specialist coders. More mature versions now integrate human and machine-readable drafting, reducing complexity and allowing existing legislative drafters to write and maintain RaC with minimal additional training.

Scepticism about RaC often reflects broader distrust of automated decision systems, shaped by the failures of programs like robodebt. Generally, such scandals are caused not by the underlying technology, but by flawed policy assumptions and unfair rules. Trustworthy RaC systems must therefore rest on sound, fair and ethical policies, and always preserve human oversight where regulations involve discretion or value judgements.

Pilots of RaC have been trialled in Australia and overseas. However funding for pilot programs has been extremely limited, with subsequent adoption being modest. Progress has been hampered by caution from regulators, reluctance among legal drafters to change established methods, and unresolved questions about the roles and responsibilities of regulatory agencies in implementing such systems.

Nonetheless, promising applications are emerging. CSIRO is working with the food sector to [automate compliance processes in meat processing](#), improving food safety while supporting export requirements. It is also developing risk-based assessment tools that, when integrated with RaC, allow for outcome-based regulation supported by trusted information — for example, replacing costly physical inspections with continuous monitoring using sensor and other data sources. Other pilots have been done in Australia and internationally to assist with public with eligibility criteria for social service and health benefits.

Another benefit is in regulatory drafting itself. RaC can detect inconsistencies between rules, highlight overlaps with related regulations, and support evidence-based compliance design. It can also provide quantitative insights into regulatory growth and patterns, as well as assist with modelling policy changes to regulations.

Generative AI and hybrid approaches

Generative AI, powered by large language models, offers complementary potential. These systems can:

- Summarise complex regulatory texts into accessible plain language.
- Assist with drafting supporting documents such as guidelines or applications.
- Assist applicants and regulators in identifying potential compliance risks.

However, AI has well-documented weaknesses. It can “hallucinate” rules or interpretations that do not exist, producing confident but inaccurate advice. Techniques such as domain-specific fine-tuning and Retrieval-Augmented Generation (RAG) can reduce but not entirely eliminate these risks. This highlights the importance of keeping humans in the loop, having transparent and explainable systems, and requiring expert human review of AI outputs.

Given these limitations, AI should not be seen as a simple stand-alone solution to address regulatory complexity and reporting burden. This is particularly relevant with [calls from Treasury](#) and other industry groups to use AI to streamline housing approvals in navigating the complex maze of development and building regulations managed by different government agencies and jurisdictions.

An emerging area of research is combining RaC with Generative AI. RaC provides precise, transparent and logical rule structures that can anchor AI outputs, mitigating hallucinations and improving reliability. In turn, AI can make RaC systems more accessible to diverse users by generating natural-language explanations of machine-readable rules, and supporting decision-making with regulations that require value-based assessment.

Towards a smarter regulatory future

Australia is again embarking on an effort to reduce regulatory burden. This time, success will require more than improving existing processes — it will benefit from piloting and scaling new technology-enabled approaches in addition to setting long-term goals, prioritising effectively and getting the balance right between benefit and risks. It will also require supporting institutional and cultural change in both regulatory agencies and the businesses and individuals they regulate. Technology-enabled approaches alone are not a magic-bullet solution, but any ambitious regulatory reform agenda will be weaker without them.

RaC and AI should be tested and operationalised in real-world deployments, particularly in sectors like housing, food, and renewable energy, where regulatory burdens are most acute. Demonstrating tangible benefits — clearer rules, reduced compliance costs, and more adaptive and ethical regulation — will be essential to building confidence and trust.

If approached carefully, these technologies can help Australia strike a new balance: regulation that continues to protect society and the environment, while also enabling the innovation and productivity needed for long-term prosperity.