



# A BETTER APPROACH TO AI IN GOVERNMENT SERVICES

By Trish Clancy, Adam Whybrew, Steven Mills, and Sylvain Duranton

**W**HAT IF, INSTEAD OF being known for red tape, government agencies won a reputation for green-lighting—as many have in implementing their stimulus initiatives related to COVID-19? What if, instead of imposing barriers and the same level of scrutiny on all, they eased access to services for the majority, offering speed and convenience, all at lower cost to taxpayers?

The questions are no longer theoretical. In areas as disparate as customs and tax collection, public-sector agencies are beginning to reap the benefits of AI, big data, and risk modeling to prioritize human review and speed processing. But the potential applications are far greater. The same risk-based approach could just as easily be expanded to such areas as welfare benefit applications and health care claims.

The holdup is not technological; it's in how the problem is framed. Traditional risk-based approaches seek the noncompliant and the fraudulent. But a risk-based approach that instead flags the known

“goods,” and leaves the other cases to human review, can offer governments and the public greater convenience and efficiency. Such a green-light approach can go a long way toward winning the public's trust in the use of big data and automation. Ultimately, such an approach can help governments make the most of public monies—spending less on processing and verification so that more can be spent on the actual delivery of citizen services.

## Why Risk-Based Triage Works

In government, automation and big data are generally viewed as a way to process larger volumes of business while applying the same level of scrutiny. The full benefits of process digitalization in transaction-based services can only be realized, however, when employees are not required to check every transaction. Programs that single people out for less favorable treatment are among those that can generate controversy and ill will. Systems based on light-touch risk-based models minimize screening for the 80% to 90% of the public who are in

compliance. Employee review focuses only on the 10% to 20% of cases for which the risk-based model cannot clear the transaction. To be sure, a certain amount of human verification will always be needed to evaluate edge cases and make the final determination of noncompliance or fraud. And organizations must take pains to identify and mitigate all potential sources of bias in their business processes—by identifying the bias in historical data, for example, and building machine learning models that are invariant to protected features such as race, sexuality, and gender.

Still, light-touch risk-based models offer many advantages. Used widely in lending and insurance and in select public-sector areas, risk-based triage identifies low-risk claims or applications that can be shunted into fast-track processing. This helps employees meet the demands of increasingly heavy volumes, speeds up processing, makes it easy for users, and frees up resources (funds or time) to focus on customers with complex needs. It also saves taxpayer money by catching fraud, waste, and abuse.

### Streamlined Lending, Fewer Whiplash Claims

Applications in the private sector are already yielding important benefits to companies and their customers.

Lending to small businesses, whose fortunes can quickly change, can be risky for banks. Each year, banks must review these customers' financial statements to make sure their businesses remain healthy and that they can comfortably service their debt. We've helped banks build models using data about their business customers' transactions—for example, the percentage of its overdraft a business has tapped in the past 30 days—to assess the risk of default on small-business loans.

Light-touch risk-based models warn of defaults much sooner than traditional approaches, often by more than a year. But the main benefit isn't in finding the risky customers sooner; for banks, that may

already be too late. It is in confidently flagging the low-risk customers (a group that accounts for more than 70% of customers) who can be put through a lighter annual review process. This not only reduces costs and simplifies processing but also produces fewer false alarms than the traditional, manual approach. In a similar vein, government agencies could perform better than they currently do with their human review methods.

Italy's insurance sector applied a risk-based triage approach to reduce fraudulent whiplash claims, which are commonplace, and avoided putting people through an onerous process. Auto insurers often require everyone involved in an accident to see the same doctor, so they can verify the consistency of the stories. Because the companies draw doctors from a limited pool, they can apply the experience from many other claims in assessing validity. But this approach is inconvenient for all parties; the individuals involved in an accident are subjected to medical testing that may not be necessary, and the insurance company must spend considerable time investigating and analyzing cases to come up with a determination.

We worked with an insurer to find an easier way to manage whiplash claims. Some cars are fitted with accelerometers (telematics, or "black box" devices), which record the forces in a car crash. By combining crash data with other data from claims it was possible to build a model that predicts the chance that whiplash-causing forces were present during an accident, even if no telematics device was installed. Only when analytics show that the chance was low are whiplash claimants required to go through the onerous same-doctor process. With the model, nearly 50% of claims can be accepted without the single-doctor protocol.

### Public-Sector Success Stories

Risk-based triage is, of course, already being applied in the public sector. In hospital emergency rooms, for example, medical professionals rely on it to decide who gets treated first and who can safely wait.

Municipal health departments apply it to prioritize restaurant inspections. We believe city and state or provincial governments can and should be using it for trade and business license renewals.

In Australia, the nation's Border Force uses a risk-based approach to process visa applications as well as people arriving at the border. Its system frees border officials from checking the documentation of lower-risk travelers, enabling the agency to more readily identify higher-risk travelers and those of indeterminate risk. Since the inception of this approach ten years ago, the Border Force has more than quadrupled the number of valid interceptions, without a commensurate increase in resourcing. The average Australian citizen, meanwhile, enjoys a more streamlined, efficient border crossing experience.

Globally, risk-based triage is used widely by tax agencies. Of the 16 countries that responded to an OECD survey in 2015, all but one were using advanced analytics to identify which taxpayers to audit.<sup>1</sup> Many responding countries were also using advanced models to target compliance activities—interventions to reduce late filing or nonpayment, for example—that would be expensive or impractical to apply to all taxpayers. The survey results indicated, and our modeling work has corroborated, that different models are needed to assess different risks. It's not possible to create a single risk score for a citizen or a business.

These are just a few of the public-sector applications for light-touch processes. We envision their use in processing of welfare and medical claims, subsidies to individuals or businesses, and requests for funding that require prior approvals (such as those for certain medications and some veterans' benefits). Other applications include inspections (such as workplace inspections), licensing services (for example, identifying which vehicles need a mechanical check as part of the procedure), real estate development applications review, procurement processes, and ombudsman services and administrative tribunals (identifying com-

plaints that can be upheld with minimal investigation, while allowing the regulated entity to challenge them).

## When a Light Touch Is Appropriate

How can government organizations determine which services or processes could benefit most from the light-touch approach to risk-based triage? Several criteria apply; consider the following questions.

- **Does the process involve approval?** This would include obtaining or renewing a permit or license, applying for access to or receipt of some benefit or entitlement, and demonstrating compliance in a regulated activity.
- **Does the process currently require considerable human attention?** Are the time demands a constraint? Does the process compete for resources that are needed in more strategic work? Is it likely that the demand for human intervention will increase?
- **Is the volume large?** Significant (and growing) volume is an important consideration, especially for those activities that currently take a considerable amount of human intervention.
- **Do the rejects or ineligibles account for only a small portion of the total?** If the proportion of rejects or failures is consistently small, the approach could be helpful, but only in applications where an incorrect "yes" does not have disastrous consequences. Airport screening, for example, would not be appropriate for light-touch triage.

Certainly, these criteria require data on which a risk assessment can be made. A "yes" to all of these questions means that the process is a good candidate for a light-touch risk-based approach.

## A Change in Mindset

In appropriate applications, the evidence thus far for a light-touch approach is promis-

ing. Instead of designing systems to seek out the high-risk individuals, organizations ought to consider a different starting point—flagging the low-risk people to give them a fast, cheap, yes-by-default service, and relegating only the small percentage of higher-risk people to human review.

There is a tradeoff: residual risk. When you don't check everything, some applicants or beneficiaries will inevitably slip through. Traditionally, society accepts such risk in tax reporting; in most systems, the default is not to check every single tax return. But it's not so in areas such as welfare benefit distribution. This is why a change in mindset is needed. The systems run with AI and other technologies should match the actual risk levels and, again, be designed to say "yes" to the compliant majority.

At the very least, public-sector departments should do some back-of-the-envelope calculations on the economics, looking at three specific metrics: what the current approvals process costs, the cost to the public purse of a "false yes" (that is, an approval that would not have been made had there been human oversight), and the current rejection rate.

Furnished with these facts, and drawing on their knowledge of the range of accuracies seen in these risk models, a team of data scientists can estimate—without doing any risk modeling—whether savings are possible. Although lower cost is only one of the benefits sought (speed being the other), this calculation is critical. In some cases, removing human checks entirely (apart from a few random checks as a deterrent) for the low-risk situations can yield a net savings of one-third of the processing costs. And that's after allowing for the costs of those who slip through the net. In other cases, the removal of human checks might make no sense economically, or it might make sense to triage only some parts of the process with a risk model. In fact, organizations should retain human checking for at least 5% of all cases, both as a general deterrent and to validate the automated system (by looking for drift or unexpected behavior).

**T**HE EASE AND convenience that AI, big data, and algorithms have brought to our private-sector transactions raises the bar for government services. At the same time, the pressures on public coffers continue to grow. By setting up the computer to say "yes," governments can win public confidence in automation and free up more of their scarce resources to do greater good.

NOTE

1. *Advanced Analytics for Better Tax Administration: Putting Data to Work*. Organization for Economic Cooperation and Development, Paris, 2016.

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