Understanding the full impact of data, digital and intelligent machines
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There can scarcely have been a more fascinating time to work in public revenue administration. Analytics, computing power, network connectivity and artificial intelligence are all finally powerful enough to deliver long-promised capabilities – from real-time services to predictive interventions and personalised relationships with taxpayers.

The significance of this is hard to understate. For decades, digitisation has increased the speed and volume of existing manual processes – helping us do more of the same things, faster. Letters became emails, filing cabinets became databases, cash and cheques became digital transactions.

But recent advances are different. The new generation of technology and data-driven innovations are sparking a reinvention of the very fundamentals of revenue agencies – recasting compliance strategy, organisational structures, service delivery and relationships with taxpayers.
Computer programming becomes dynamic learning

The most important developments have been in advanced data analytics, interconnected platform ecosystems and artificial intelligence. The latter, and intelligent automation in particular, has a long way still to go, but will become ubiquitous.

Of course, revenue agencies have been using automation tools successfully for some time:

80% of public service leaders reporting extensive or moderate use of automation for IT tasks.¹

The key difference with artificial intelligence-supported automation, compared with traditional approaches, is that systems do not require exacting and prescriptive programming – they “learn” and can continually adapt to change without the need for new software code to be written, tested and installed.

We are already seeing examples of intelligent automation – largely in voice biometrics and virtual digital assistants. In the UK, one million customers use HMRC’s virtual assistant to get answers to basic questions.² Meanwhile, the Australian Taxation Office uses voice authentication (which allows taxpayers to automatically identify themselves while speaking on the phone) to reduce the 75,000 annual workforce hours spent identifying callers.³ These advances add convenience for taxpayers and free the workforce to focus on high-quality interactions.
Intelligent automation will reinvent tax compliance

But some of the biggest advances will come in tax compliance operations. Several agencies are moving towards “natural systems” – models that integrate tax compliance into natural business processes, real-time transactions and taxpayer behaviours. Intelligent automation will be key to making natural systems more advanced, reliable and efficient. Automatic, artificial intelligence-supported integration between accounting software and tax agency systems will ultimately remove the need for separate monthly, quarterly and annual reporting obligations (see Figure 1).

This would represent a new paradigm – not only radically different from the past, but also a significantly more efficient and effective approach to compliance, with dramatic reductions in the complexity and effort required by taxpayers.

At the same time, the shift increases the scope and availability of real-time data – unlocking new opportunities, particularly in predictive analytics. The more automated processes and transactions become, the more revenue agencies can focus on these opportunities, as well as other insight-driven strategies, personalised interactions and complex cases.

64% of public services leaders expect artificial intelligence to significantly change or transform public services over the next three years.4

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Figure 1: The end of ‘tax-time’ and tax returns

**TODAY**
- Tax Period
- Tax - Time
  - Payments
  - Corrections
  - Prompts
  - Queries

**TOMORROW**
- Shared Perspectives on income
- Shared Perspectives on tax
- More Frequent Interactions
- Shared Perspectives on income
- Shared Perspectives on tax
- More Frequent Interactions

**TAX PERIOD**
- Taxpayer
- Tax - Time
High volume conquered, control becomes key

As the historically overwhelming volume of processes and transactions is tamed, agencies will focus greater resources on control and accuracy.

After all, how can tax agencies manage the external, private sector ecosystems they participate in? How do they govern quality, security and privacy while integrating with external platforms and leveraging new data sources? These issues are complex, but great progress has been made. And the agencies and market participants we speak to are confident about gradually overcoming the challenges.

But the fact that control is now so important makes the significance of transformation hit home. Revenue agencies are shifting from being resource-constrained and focused on exceptions and remediation, to being control-constrained and focused on accuracy and prevention.

The primacy of control also goes far beyond data curation and participation the platform economy. Every year will throw up another Uber or blockchain – developments that require a rethink of traditional approaches. Revenue agencies have to plan based on the likelihood that disruptive new companies, platforms and technologies will continue to have a significant impact on administration, regulation and architecture in the future.

Digital trust is paramount

Technology is only part of the story, and is often dwarfed in significance by more human challenges. One of these is digital trust. No progress can be made if taxpayers perceive a lack of transparency or a risk to their privacy and security. As agencies acquire and share more data across their ecosystems, it will be vital that taxpayers trust that their data is not being misused or exposed.

75% of public service leaders agree that trust is the cornerstone of the digital economy

Tools supporting data capture, processing and dissemination will need to address vastly increased volumes of data – but also offer functions that ensure appropriate data is shared only with trusted partners, identify whether the agency is actually using the data acquired, and enable the retirement or destruction of data when it is no longer required.

Without such functionality, revenue agencies will struggle to establish the digital trust that is essential for taxpayers to agree to sharing more of their data.
Workforce augmentation

Another non-technological challenge is developing and implementing a new workforce model and organisational culture that suits a reinvented tax agency. This demands open minds and a significant departure from long-held habits.

Tax administrations will need to drive change across several aspects simultaneously. This includes shifting from being output-led to insight-led and from fixed organisational structures to evolving cross-silo teams.

It is a major change, but Accenture research has found most revenue agencies expect the impact of emerging technologies on their workforce to be positive, with 79% of respondents believing that intelligent technologies will boost the job satisfaction of current employees.

The idea is that implementing emerging technologies requires an evolution of human roles. Current technology is decades from being a replacement for human intelligence; instead, it is designed to augment the capabilities of the human workers and help relieve the burden of mundane and repetitive jobs.
Multi-skilled, Cross-silo teams

Another positive change will see people with different business, technology and management skills working in teams that support particular projects rather than fixed functions. These “liquid workforces” will help to ensure that the organisation remains agile enough to respond to changing environments;

What is clear, though, is that developing new processes and models is relatively easy compared with changing the habits and preferences of tens of thousands of workers. This was also a finding from Accenture’s emerging technologies research:

- 80% of revenue agencies have significantly changed their day-to-day processes
- 67% have adapted their business models in order to accommodate intelligent technologies (primarily advanced analytics and predictive)
- 41% have made structural changes to their workforces.

75% of public workers believe this shift will also improve innovation
Changing the way change happens

Part of this is because many agencies need to change the way they change. This is something many recognise. The Dutch tax administration (Belastingdienst), for example, has a dedicated change management team, staffed mainly by psychologists and behavioural scientists, within the data and analytics function. The team communicates the reasons for the changes and helps workers – many of whom have been doing the same work, the same way, for many years – to make a positive adjustment to the new approaches.6

Revenue agencies are also under pressure to speed up delivery: they must respond more quickly to changing legislation and offer new service models for taxpayers. Today, even revenue agencies must aim to deliver software in weeks rather than years.

Design-driven innovation and agile delivery models need to become the norm right across revenue agencies – even pioneers in these areas still have these capabilities limited to specific applications, rather than organisation-wide.

Where does it all lead?

The transformation of revenue agencies is about people, trust and collaboration. New technologies support all of these in ways we could only imagine a decade ago. We are heading for a revenue agency that is connected directly to taxpayers and the economy, driven by ever-deeper insight, continually adjusting to change, and orchestrating – not operating – a highly automated, personalised tax system.

This changes, of course, the way agencies are structured. Early digitisation focused on building systems to keep a robust record of tax status and process. But as automation, platform integration and analytics have become more advanced, systems have developed to support two other core functions.

We now have systems of:

- **Engagement**, which manage data exchange and taxpayer interactions (including access to tax history, useful content, continuous clarification and behavioural “nudges”).
- **Insights**, where descriptive, prescriptive and, increasingly, predictive analytics drive tax agency strategy and operations.
- **Record**, which continue to hold taxpayer accounts and returns, but in ways that optimise interactions with the other two systems.

Three core systems of the modern revenue agency

- **Systems of Engagement**
- **Systems of Record**
- **Systems of Insights**
As compelling as this vision is, it is tempered by immediate challenges and practical barriers to change.

OECD research spanning 56 countries found that 40% of tax administrations are being asked to do more, including managing additional activities and amalgamating with other services. At the same time, 60% are coping with less staff – with significant reductions in Australia, the UK and the US.7

Many tax agencies remain stuck in a catch-22: overwhelmed by operational processes and constrained by budget cuts, they have neither the capacity nor the funds to implement systems that would increase efficiency and save costs.

But in our research, and our work with tax administrations around the world, we see significant and accelerating progress in automation, artificial intelligence, data analytics, workforce transformation, agile delivery, private sector collaboration and taxpayer engagement – all the fundamentals of the revenue agency of the future.

The fiscal, economic and cultural challenges tax agencies have faced in recent years – and continue to face – makes this progress all the more impressive. The reinvention of tax administration is clearly in full-swing and that makes this a most fascinating time to be involved.
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References

2. HMRC digital blog. So how do the ‘numbers’ stack up so far? 10 March 2016.