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Smart move: Emerging technologies
make their mark on public service

Accenture Public Service Emerging Technologies Research

Strategy | Consulting | Digital | Technology | Operations

Among the foremost missions of government is to improve the delivery of public service and meet the rising expectations of citizens.

Our research, based on a survey of public service technology leaders in nine countries (Australia, Finland, France, Germany, Japan, Norway, Singapore, the U.K., and the U.S.), reveals that intelligent technologies are already playing a pivotal role in helping agencies achieve this mission – and expectations of future gains are high.

But our respondents are also pragmatic: technology is only one part of a wider program of profound change where leadership, adaptability and skills will also play their part.

The time for experimentation, adoption and exploitation of intelligent technologies has begun.

Real outcomes are within reach

Intelligent technologies have the potential to play a transformative role in enabling public service agencies to meet their key challenges. Our research highlights specific objectives attached to intelligent technology adoption and suggests that meeting these is within agencies' grasp.

The Australian Tax Office – voiceprint ID[1]

A demonstration of efficiency savings from voiceprint technology: the system could ultimately save 75,000 workforce hours per year. Call centers across public service industries could benefit.

[1] Australian Taxation Office Deploys Nuance Voice Biometrics in its Call Center to Drive Efficiency, Better Experience, Business Wire, July 2015

Top-ranked challenges faced by public service agencies

#1 Improving service delivery to meet citizens' expectations.

#2 Responding to changes in the organization's mission or goals.

#3 Hiring and developing people with the right skills.

Improving service delivery: transform the citizen and employee experience

When asked about the biggest demands facing their organizations, there was strong consensus among respondents: improving service delivery and quality is the paramount challenge facing public service agencies today.

Citizen expectations – smarter services and agencies' ability to deploy the latest technologies for public good – continue to rise.

So it is little surprise that, across many areas of public service, agencies' primary objective when implementing intelligent technology projects is to improve the experience of citizens, customers – and staff.

For example, almost half of those (48 percent) who are deploying advanced analytics and predictive modeling say that improving and supporting the work of employees is their chief objective.

Increasing citizen satisfaction

The #1 objective when considering or implementing the Internet of Things, machine learning, video analytics and biometrics

Internet of Things

Machine learning

Video analytics

Biometrics/ identity analytics
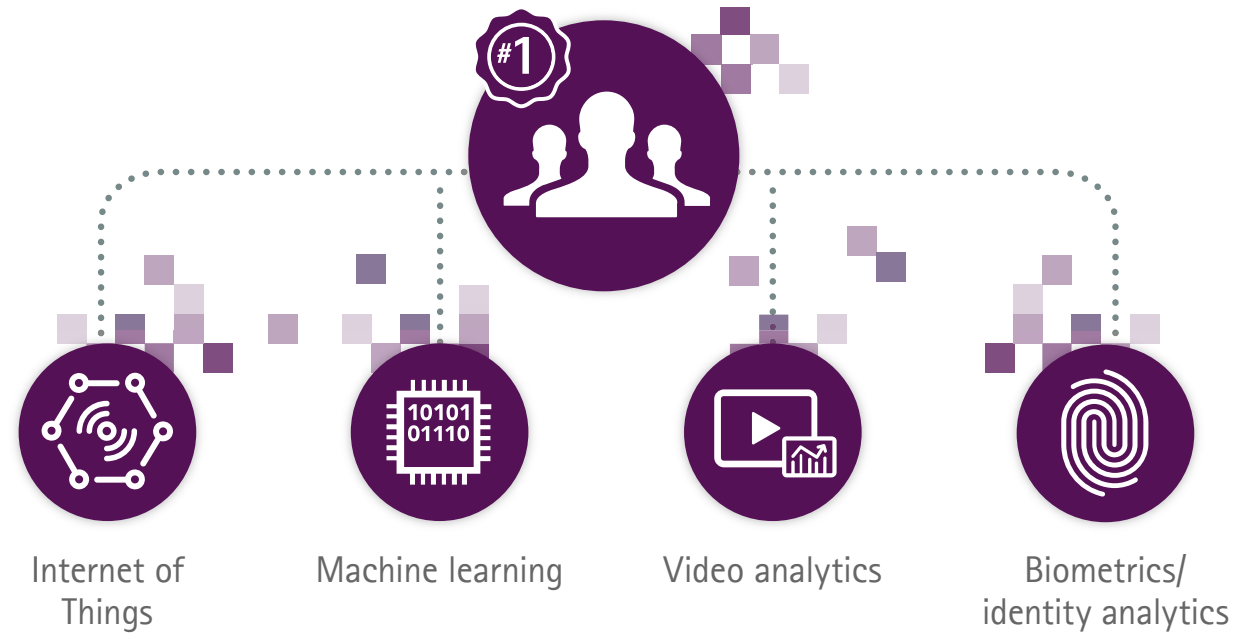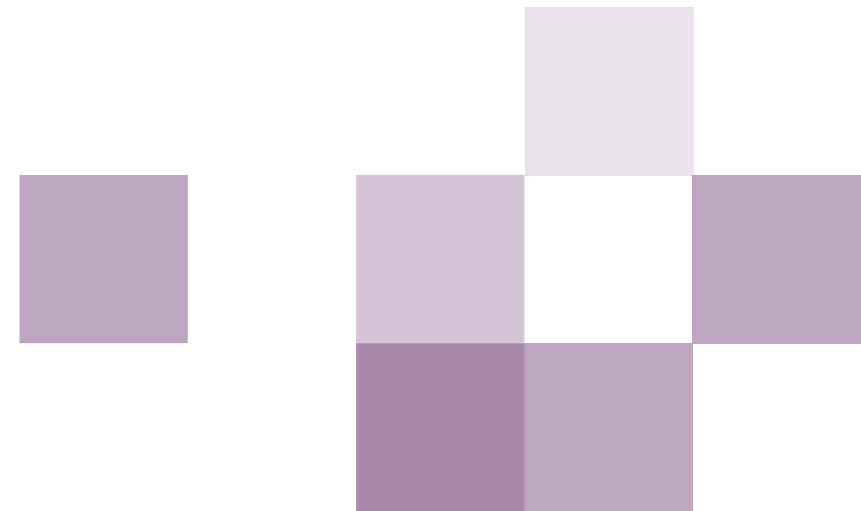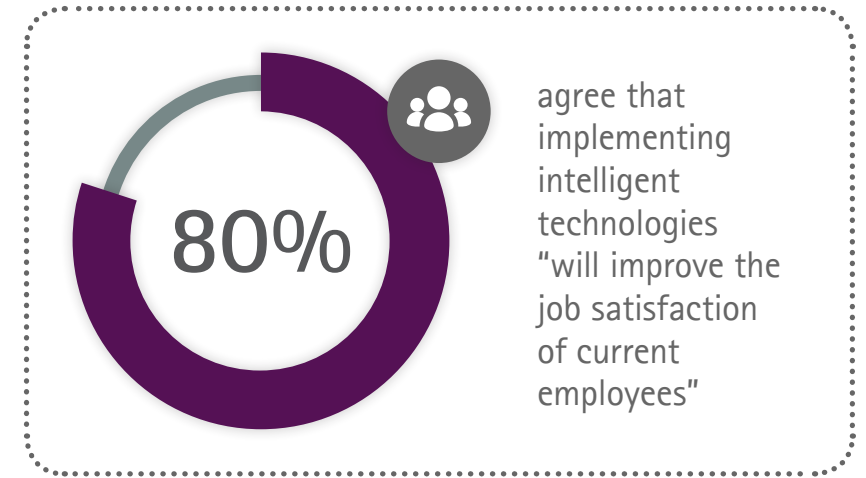
Better jobs – not fewer jobs

Feedback also suggested that, in the foreseeable future, intelligent technologies are likely to augment existing roles rather than replace them.

By automating certain tasks, the use of intelligent technologies can free up employees to focus on more critical – and rewarding – activities that are more closely aligned with citizens' needs.

Intelligent technologies implementation will also help agencies stay ahead in the competition to attract and retain talent by improving their reputation and image among younger, more technically adept employees.

"It's much more motivating and interesting for our employees to work in new and efficient ways instead of doing everything paper-based. On the whole, our employees embrace these new ideas and concepts. They see that the outside world is changing, supplying more and better digital services, and expect that we also move in that direction. Our employees are dedicated to their work, but that doesn't mean they want to do the same things over and over again for 20 years. They need and want to develop."

Karen Marie Schnell, Key Account Manager, Skatteetaten, Norway

80% agree that implementing intelligent technologies "will improve the job satisfaction of current employees"

Expectations are high;
outcomes are being achieved

The widespread interest shown in intelligent technologies is matched by high expectations.

The investment is already being justified in places. Half (51 percent) of those who are piloting or implementing projects report gains to date from the use of intelligent technologies in developing new services and applications, and in improving efficiency through the automation of processes (50 percent).

Over 40 percent report positive outcomes in reducing risk and improving security – for example in preventing fraud and reducing crime.

89% expect a return from their intelligent technology deployment within two years
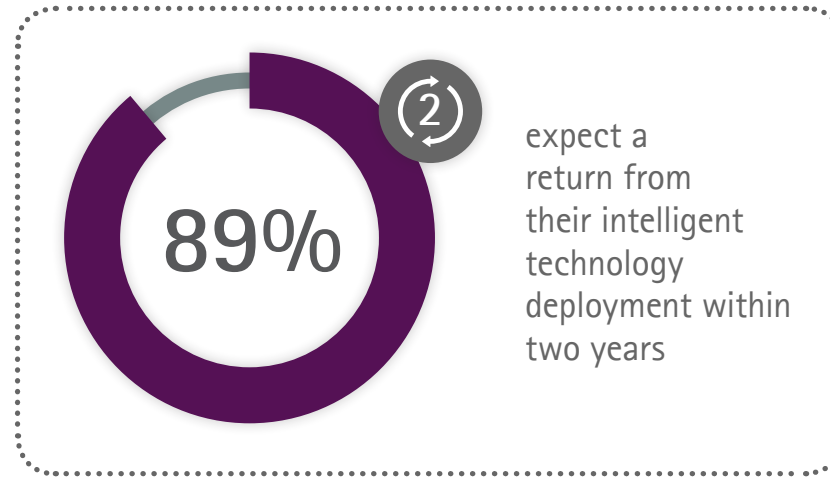
Potential gains in security are accompanied by challenges

Security is a multifaceted issue for public service agencies.

Reduced risk and tighter security are the key benefits that nearly three-quarters (73 percent) of respondents hope to gain from investing in intelligent technologies. Technology leaders in pensions and social security organizations point to improved security (which also covers fraud prevention/system abuse) as a key benefit even more forcefully than their peers from police, justice, and border agencies.

The collection and advanced analysis of large volumes of sensitive citizen data does, however, pose difficult trust and regulatory issues for agencies.

Concerns about data security and privacy also represent a significant barrier to intelligent technology implementation for some agencies – particularly in Singapore and elsewhere in Asia-Pacific.

73% cite reduced risk and improved security as the key benefit they expect from investing in intelligent technologies
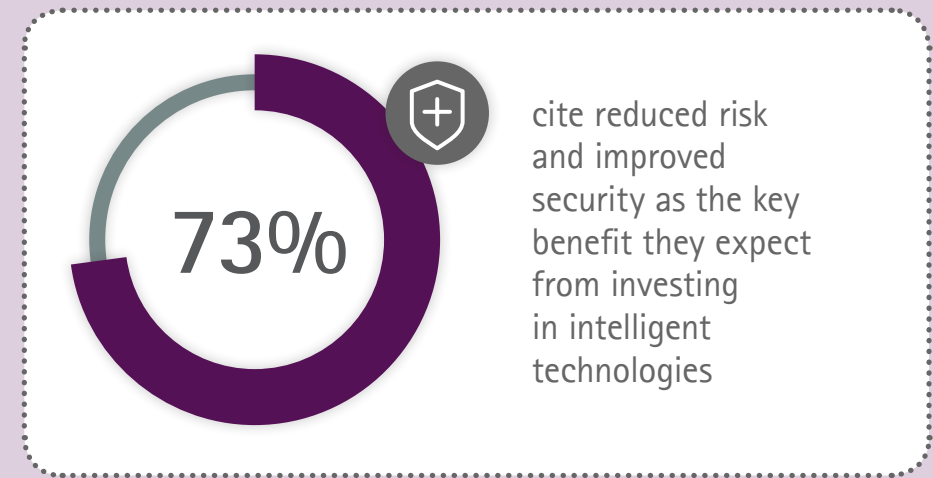
# Obstacles to realizing full potential remain

There are hurdles to overcome for public service agencies as they seek to implement intelligent technologies.

Legacy IT systems are the foremost barrier, while insufficient leadership support (and poor understanding of the technologies' potential) and a dearth of internal skills also pose serious difficulties.
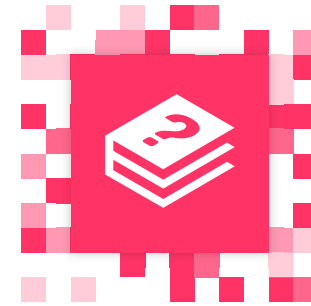
Top-ranked barriers to the implementation of intelligent technologies
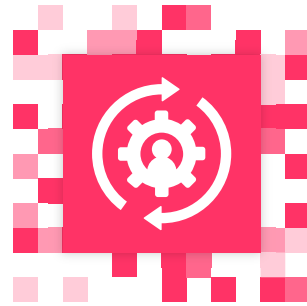
Legacy systems
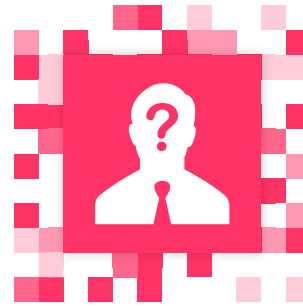
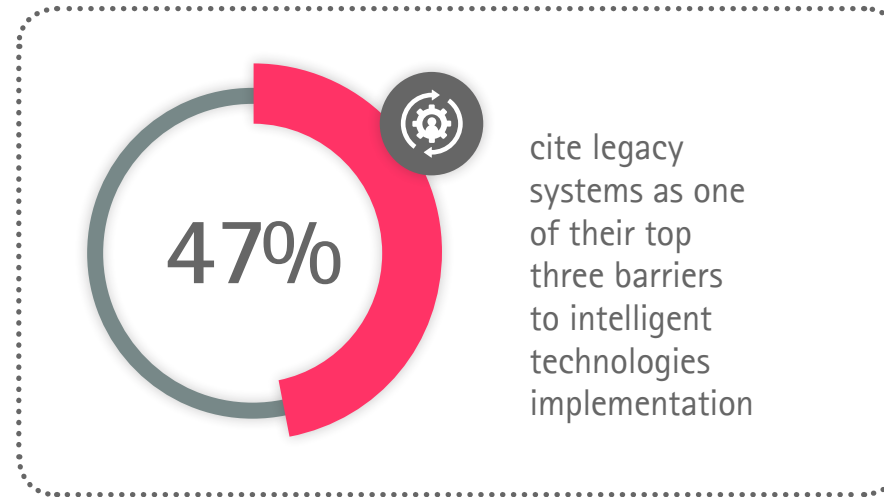Lack of leadership support or understanding of potential

Lack of internal skills or ability to hire

Legacy: the hurdle of entrenched systems

Despite the gradual shift to digital government and continued investment in infrastructure, legacy systems are the toughest implementation barrier public service agencies have to overcome – especially in the U.S. and Europe.

Legacy systems are especially prevalent in data management and core transaction processing, where many agencies – particularly those with revenue, tax and social security remits – remain reliant on systems designed in a different age.

Relatively few agencies have made strides in improving data quality and utilizing unstructured, big, and third-party data. Progress in this area is imperative if intelligent technologies are to deliver their anticipated benefits.

47% cite legacy systems as one of their top three barriers to intelligent technologies implementation

Leadership: heroes and villains?

Senior management are often willing to support deployment of intelligent technologies, at least in theory, but they lack a clear understanding of the benefits and implementation challenges. This lack of clarity can weaken or delay the implementation process.

Departments' ability to build a strong business case with clear metrics of success can solidify management and policy-maker support. Clearly, there is much work to be done to educate senior leaders – on both potential applications and bottom-line benefits.

Level of senior leadership knowledge and willingness to support

38%

say senior leadership is informed about these technologies and their potential

83%
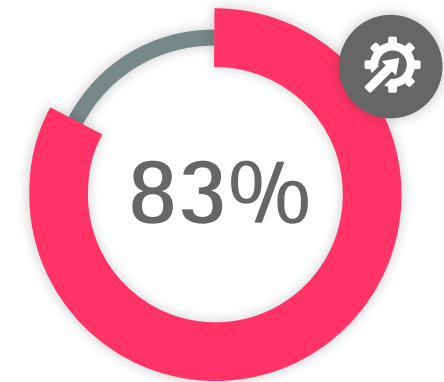
say senior leadership is able and willing to adopt and support these technologies

Skills gap slows pace of change

Finding the right people to fulfill the potential of intelligent technologies is a critical challenge for all agencies. There is not only a need to develop in-house skills and recruit data and other intelligent technology specialists, but also to find those individuals with experience of delivering successful intelligent technology projects.

Half of respondents (51 percent) say their agencies mainly look to hire talent from the private sector when developing intelligent technology projects. And more than half (59 percent) say that development of intelligent technology projects will require significant investment in reskilling.
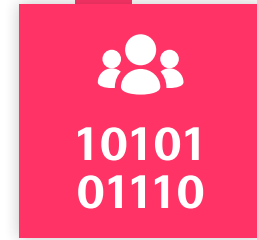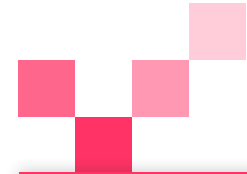
Top three recruitment priorities for public service agencies
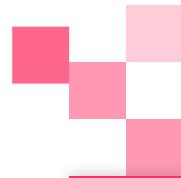
Digital developers
and designers
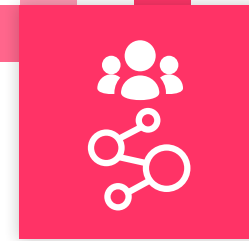
Data scientists

Software engineers

Intelligent technologies gain momentum

Adoption patterns differ by sector and geography, but public service agencies have a clear appetite for embracing intelligent technologies.

Advanced analytics and predictive modeling have made the biggest inroads: over three-quarters (77 percent) of agencies are either evaluating their potential or piloting them.[2] Large numbers are similarly considering or piloting projects related to biometrics and identity analytics and the Internet of Things, and pockets of implementation exist in some sectors for these and other intelligent technologies categories.

Our research also uncovers areas of rich, untapped potential, where high awareness levels are not yet translating into meaningful implementation levels. For example, just 23 percent of the 86 percent who are aware of intelligent process automation have piloted or implemented the technology.

[2] The respondents to this question are those who stated that they are aware of the given technologies.

Pilot and implementation by country

Legend:
- Advanced analytics/predictive modeling
- Biometrics/identity analytics
- Natural language processing/generation
- Machine learning
- Intelligent process automation
- Video analytics

Australia: 64%, 68%, 67%
Finland: 43%, 69%, 50%
France: 24%, 77%, 42%
Germany: 27%, 69%, 33%
Japan: 57%, 63%, 60%
Norway: 30%, 76%, 37%
Singapore: 56%, 68%, 57%
U.K.: 33%, 82%, 34%
U.S.: 22%, 70%, 29%

The march of advanced analytics and predictive modeling

The agencies represented in the survey are using advanced analytics to achieve several objectives, the dominant one for each being to improve and support the work of staff.

Automating existing processes and reducing risk/improving security are the other key objectives associated with advanced analytics. Revenue and pensions/social security agencies have progressed furthest with piloting and implementing these technologies.

"Advanced analytics and predictive modeling is probably the technology that is going to revolutionize our business more than any other, given that we are just dealing with enormous numbers where we cannot actually cover everything. This type of analytics enables us to far more accurately target our scarce resources to the people we are most interested in."

Michael Milford, First Assistant Secretary, Major Capability Division, Intelligence and Capability Group, Department of Immigration and Border Protection, Australia

71% of those who are aware of advanced analytics and predictive modeling are either piloting or implementing projects
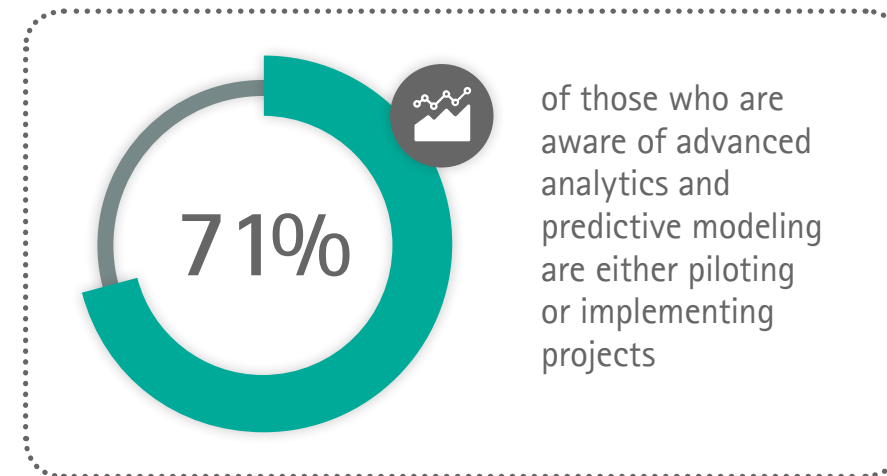
Biometrics and identity analytics:
enhancing security and improving efficiency

Biometrics and identity analytics are being piloted or implemented by 40 percent of respondents' agencies,[3] while another quarter (24 percent) are researching their potential use. Agencies at a national level have moved considerably further with biometrics and identity analytics than those at local or regional level.

Biometrics-based security solutions, such as e-passports and iris recognition, are now in widespread use by border control agencies, as well as by police forces and operators of public infrastructure. In combination with identity analytics tools, they are helping security/policing functions to gain real-time identification and authentication capabilities.

These tools also improve efficiency by helping to streamline passenger and cargo flows, as well as support fraud reduction – an objective sought especially fervently by pensions and social security agencies.

[3] The respondents to this question are those who stated that they are aware of the given technologies.

Public service agencies' primary objectives for implementing biometrics/identity analytics

1. Increasing citizen satisfaction and engagement

2. Reducing risk and improving security

Designed for success

Intelligent technologies have the potential to transform the public service experience for citizens and employees. But agencies need to create the conditions for change.

We highlight these priorities over the following five pages.

"We're very fortunate to have some very enthusiastic and passionate people. We must keep them because they could earn a lot more money elsewhere. It's about making sure we're able to cope with the sort of modern digital issues that we've got: the size, capability, and scope of the digital information we're getting."

Dave Thompson, Chief Constable, West Midlands Police, United Kingdom

Attack legacy head-on

As agencies look to deliver real value from intelligent technologies, they need to address legacy integration as a priority. Supporting analytics initiatives from the cloud, for example, can help to sidestep or "quarantine" legacy data silos and systems.

"Early on, we consolidated all of our data centers ... and went to a virtualized infrastructure – a sort of private cloud. We have been increasing the use of public cloud services as well to increase our agility operationally. This gives us the ability to implement new services quickly, and provide additional flexibility to the agencies so that some of the processes that used to take weeks or months can happen in minutes or hours."

Dave Fletcher, Chief Technology Officer, State of Utah, United States

**65%** are considering "as a service" models rather than creating their own
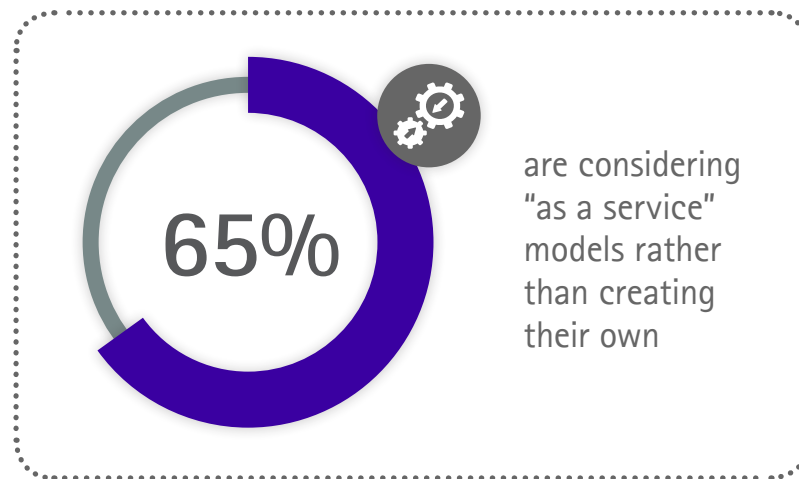
Build a quick-fire business case

Public service agencies must build a business case quickly in order to realize their ambitions. Stronger support from senior leadership can be gained by providing a clear picture of what's achievable. Including increased employee job satisfaction is also a wise move. Just 6 percent of respondents have developed a balanced scorecard of "soft" and "hard" metrics; use of the two in combination can solidify the business case.

"Being able to put a working prototype app – which included a voice biometric – in senior executives' hands, and let them experience it, really was the linchpin that got us over the line in terms of concept."

**Venetia Blackman, Assistant Commissioner,
Digital Program Delivery, Australian Taxation Office**

6%

have developed a balanced scorecard of "soft" and "hard" metrics
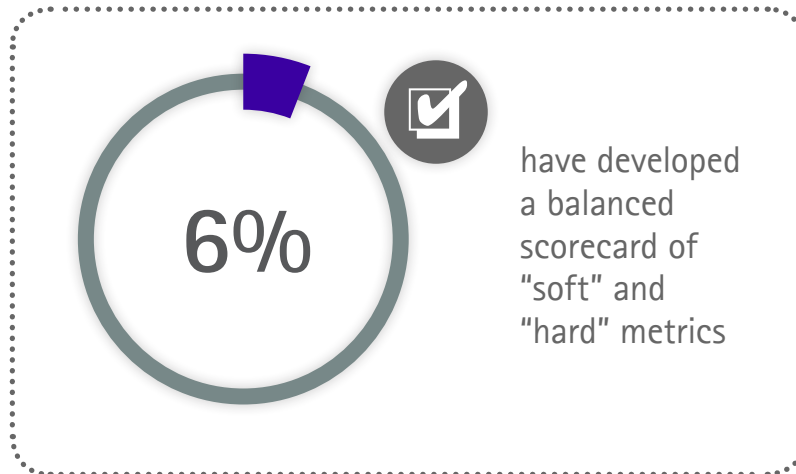
Create more interesting and productive jobs

Adoption of intelligent technologies can offer new skills and opportunities for existing employees, and help retain the best talent.

Although half of respondents (51 percent) say they mainly look to hire the necessary talent from the private sector, agencies need to retain the deep sector knowledge of existing employees. Individuals who combine technical skills with the understanding of the agency/citizen challenge are not easy to find – or to keep.

51% look predominantly to the private sector to hire talent

"It's hard to train people but, for example, when you want to build a big data organization, you need some very skilled people like statisticians, mathematicians, informaticians and so on. You still need customs officers, who provide their knowledge of logistics and the way the consignments go from one country to another. You need to mix very skilled people with traditional employees."

Jean-Michel Thillier, Deputy Director General, Customs and Excise, France
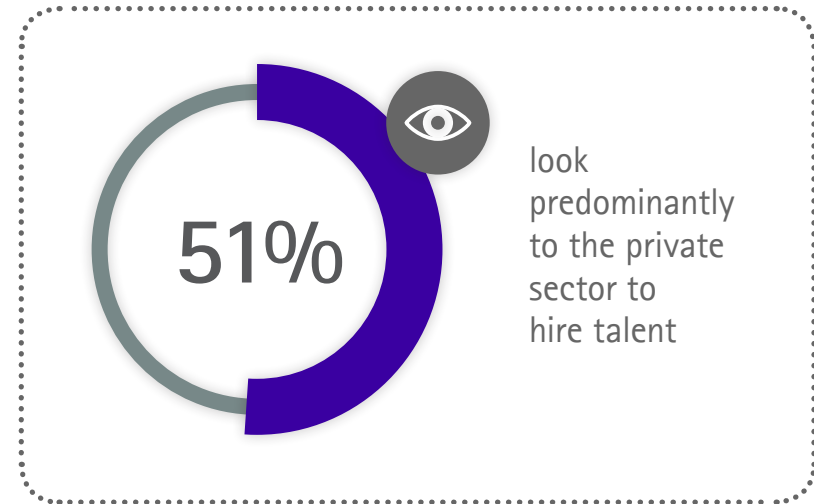
# Be open to private sector collaboration and co-creation

Experience with intelligent technologies gained by private sector and other third parties can yield solutions to difficult implementation problems and skills gaps.

Across all agencies, there is a strong willingness to embrace public-private partnerships to help develop intelligent technology projects.

Innovative thinking also manifests itself in the enlistment of citizens and the voluntary sector in designing and developing intelligent technology solutions.

"Part of what we've done is to engage in a sharing-type arrangement with vendors so that we don't buy, but rather take it as a service and reward on outcomes. On the funding side of things, this allows us to continue to move forward."

Greg Williams, Deputy Commissioner – Smarter Data Program, Australian Taxation Office
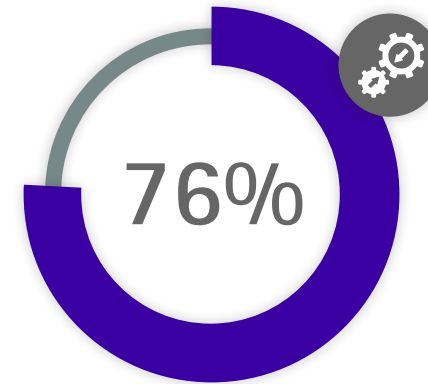
76%
look to examples of successful implementations in the private sector
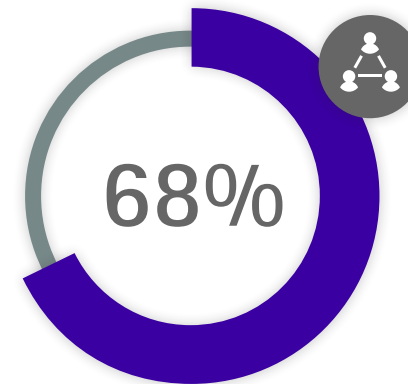
68%
report that the private sector has already helped their organizations to meet citizen demand in some way

Embrace the digital operating model

Three-quarters of respondents (77 percent) have made "significant changes" to day-to-day processes to accommodate intelligent technologies.

Fewer have effected business-model change. For agencies to realize the full potential of intelligent technologies, they must articulate their vision for a digital operating model of the future.

40% say they have made significant structural changes to their workforce to implement these technologies
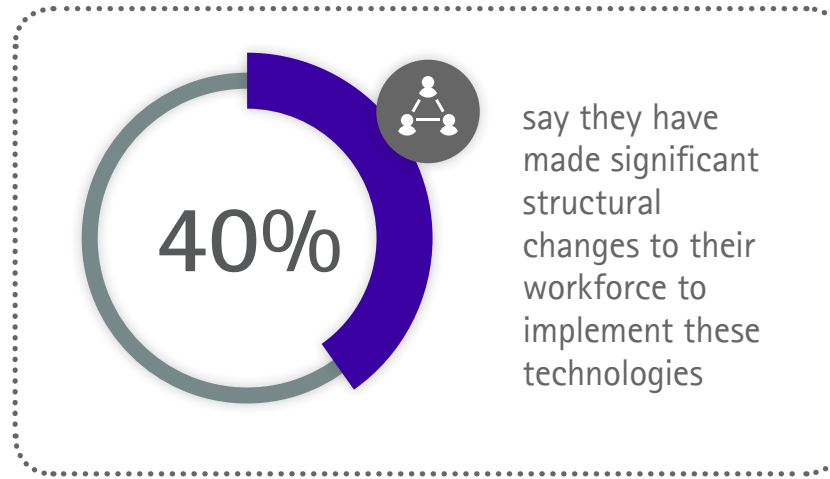
"The overall design of the transformation is critical, because complex transformations need a view of how the whole picture fits together to deliver the vision – i.e. service design, technology architecture, people structures, processes, contracts – and how the transformation fits more broadly with other parts of the organizational context."

Andrew Besford, Head of Business Design,
Department for Work & Pensions, United Kingdom

The smart time to move is now

Intelligent technologies are beginning to make their mark across public service. Our research makes clear that they can bring real value, but that's not to say that all technologies apply everywhere. Now is the time for agencies to test, challenge, and build business cases around the use of specific technology to address discrete needs.

Creativity and adaptability will help. Lessons from the private sector and from other agencies can uncover ways to side-step barriers and effect process change. A willingness to experiment – and to accept that some initiatives may fail – is essential.

Thinking this way should lead agencies to the effective adoption of intelligent technologies – and ultimately to the delivery of improved public services and citizen satisfaction.

Contacts

Terry Hemken
Global Managing Director, Accenture Analytics
Insights Services for Public Service

in linkedin.com/in/terry-hemken

Chris Gray
Managing Director, Health & Public
Service Analytics Lead EALA

twitter.com/cjgrayuk

in linkedin.com/in/cjgray1

About the research

The Accenture Public Service Intelligent Technologies research surveyed 774 IT leaders from public service organizations in nine countries (Australia, Finland, France, Germany, Japan, Norway, Singapore, the U.K., and the U.S.). The telephone survey (CATI) was conducted by Longitude Research between April and May 2016. The survey was supplemented by in-depth qualitative interviews with experts across these countries.

About Accenture

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