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The economic impact of Software as a Service in Local Government.

It's too big to ignore.

Insight Economics
Public Policy Corporate Strategy

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Foreword

Enterprise Resource Planning (ERP) solutions are often considered the heart of an organisation's ICT investments, as they power and shape the work processes of an organisation's core business functions.

In the last two decades, the rise of cloud computing and Software as a Service (SaaS) in particular, has fundamentally changed perceptions of how, where and who delivers technology solutions to an organisation.

A number of Australian governments and businesses have been slow to adopt the cloud due to the complexity of decommissioning legacy, ageing software solutions, while others are adopting hybrid strategies that involve keeping both on premise and adopting the cloud.

At the same time, however, there are still significant segments of both the public and private sector that have evaluated the potential for improved capability and cost efficiencies from ICT strategies that preference the cloud.

Much has been written about the benefits of the cloud to Australian organisations, but few rigorous studies have been conducted to explore both direct savings, productivity impact and broader national interests. To better understand the potential net benefits of cloud technologies, and the cumulative economic benefit to Australian communities of unlocking these efficiencies, TechnologyOne commissioned IBRS and Insight Economics to undertake research into the economic impact of SaaS.

Evidence from this study suggests cloud technologies, in particular SaaS, have the potential to deliver substantial cost savings to councils as well as other business benefits, including:

- Increased productivity
- Increased workflow efficiencies
- Enhanced customer experience
- Improved workforce collaboration
- Reduced cybersecurity risks
- Improved disaster recovery

These cost savings and productivity benefits can in turn enable scarce public funds to go towards higher, better uses than they otherwise would have, or increase organisational output compared to what would otherwise have occurred. To realise these benefits, however, councils must successfully navigate potential transition costs and risks. While these benefits can be understood at a conceptual level, little data is available for the quantification of these benefits in Australia today.

This report is intended to be used to inform councils of the realistic organisational impacts of moving to cloud, as well as quantifying the wider economic benefits for local government and the Australian economy. It takes a conservative approach to evaluating the direct savings and productivity gains, factoring both the costs of change and the direct operational savings.

For more information on the wider economic effects and direct impact on other industries, you can download the full report here.

Peter Suchting
Industry General Manager, Local Government
TechnologyOne

The direct economic impacts of Software as a Service in Local Government

Software as a Service can have a range of direct impacts on an organisation, be it a public sector organisation or a private firm; these impacts can include changes in the total cost of operations for ICT, changes in wider business workflow process efficiencies, improvements in labour force productivity, improvements in asset and supply chain management, improvements in workforce collaboration and sales revenue through field force effects, as well as time and cost savings to customers through online and more effective services delivery.

To realise these benefits, the organisation may also need to undertake change management and training activities to support the transition to a new ICT operating environment.

Based on case study interviews as well as desktop research, this report identifies which different ICT architecture solutions can impact a council depending on their business size.

For more information on the wider, multiplier economic effects, download the full report here.

Overview

Both academic and grey literature, as well as real world Australian case studies indicate that public and private organisations alike are expected to observe a number of changes in organisational outcomes as a result of the transition to a cloud-based software solution compared to a traditional on-premise model.

These impacts fall into three major categories:

- Changes in the total cost of operations (TCO) for ICT
- Changes in wider business output potential and input efficiencies
- Changes in consumer costs and experience

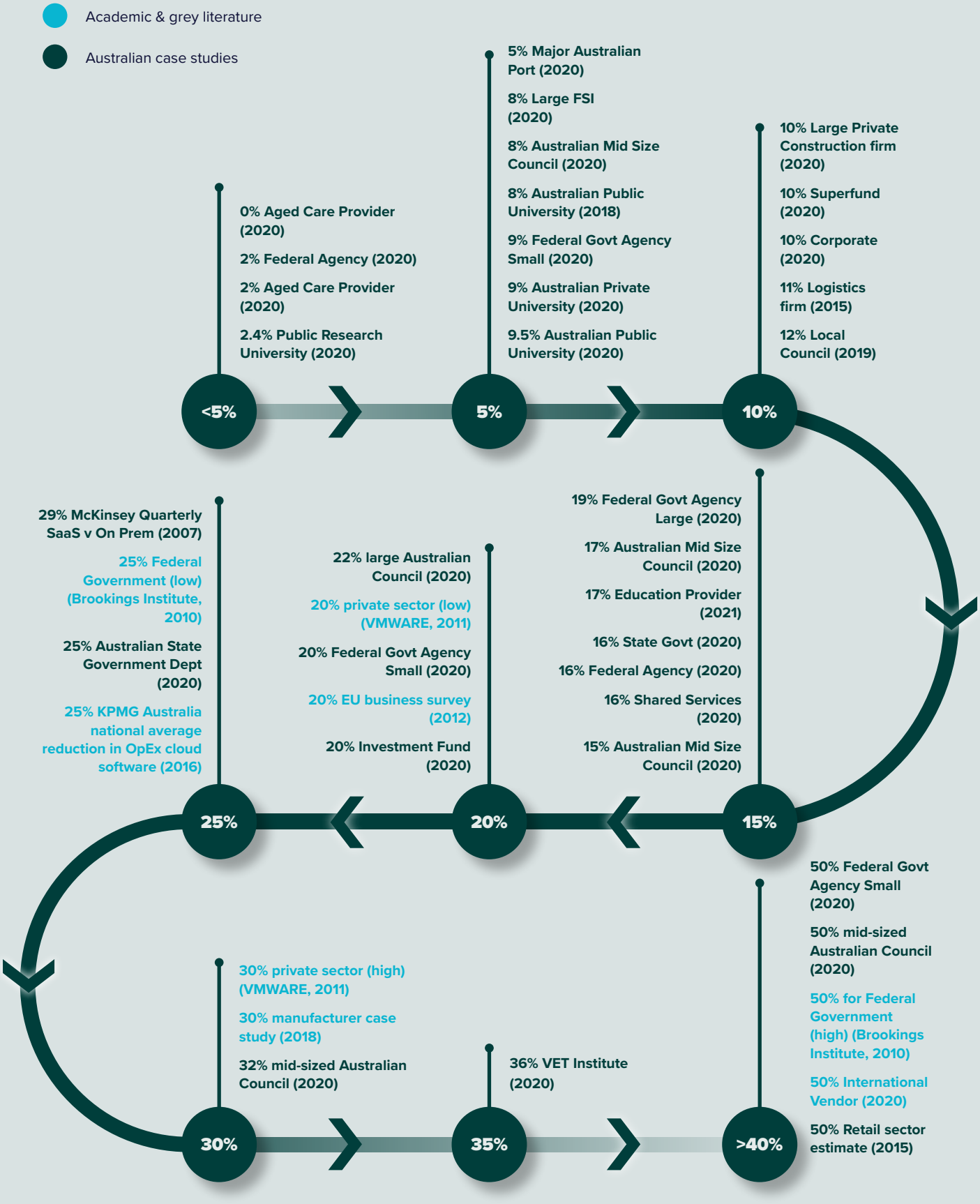
This section provides an overview of the literature and key data developed through case studies undertaken for this report. The following section provides a detailed discussion of impacts observed in local government.

Impacts on the Total Cost of Operations for ICT

Academic literature and international case studies developed over the past decade point to very substantial savings in ICT costs accruing from organisations that have transitioned from a traditional on-premises software strategy to a SaaS solution. Globally, TCO savings are routinely estimated to be in the range of 20 to 50 per cent (Figure 2.1).

Figure 2.1:
Total Cost of Operations (TCO) Savings - Research & Case Studies

Source: IBRS and Insight Economics



Closer to home, the case study interviews undertaken for this report suggest that the realisation of TCO savings has been significant for local firms, but has varied substantially by sector, firm size and organisational structure.

Some government agencies in particular, have reported deep savings realisation in their transition to a SaaS model, with reductions in TCO of 25 per cent to 50 per cent.

In other sectors, the impacts have been more muted, particularly in sectors that may have underinvested in ICT historically, such as the residential aged care sector.

Critically, however, as these businesses are investing in new software solutions, they may not observe a significant change in the costs of ICT but they may report very significant step-changes in wider business capabilities.

Impacts on wider business outcomes and consumer experience

In addition to potential efficiencies in the costs of ICT, the migration from traditional on-premise solutions to SaaS solutions can also enable a range of wider business and customer benefits. Both the literature and the Australian case studies highlight a range of potential wider business benefits realisation:

- Wider labour force productivity improvements
- Improved collaboration and sales
- Workflow efficiencies and cost savings in supply chain and inventory management
- Improved asset maintenance
- Improved cybersecurity and disaster recovery
- Impacts on energy usage and carbon footprint

Direct impacts of Software as a Service for Local Government

Current business context and key considerations for migration to SaaS by local governments: Australian case study insights

During the last 18 months, there has been a significant increase in the number of councils adopting a cloud first strategy. This trend looks set to accelerate, particularly with the demands placed on local councils for digital services growing significantly during the COVID-19 pandemic. The pressing need for contactless services and citizen self-service was in full force by mid-2020. However, what was initially overlooked was the need for council workers to digitise processes to support their remote working activities. When workers are remote, manual, paper-intensive processes simply no longer work. In short, 2020 reset staff and citizens' expectations for the speed and simplicity of service delivery using (most often) SaaS solutions.

The most interesting fact is that many councils are now seeing a surge in demand for complex services, such as development applications. One council noted that January to March 2021 saw an increase of more than 37 per cent in development applications compared to the average from previous years. Another council noted a surge in online transactions (direct financial payments, requests for information, reporting asset maintenance needs) of more than 50 per cent over the previous years.

Most local council executives now recognise that SaaS plays well to this accelerated demand for digital service delivery. SaaS solutions are both elastic - able to handle rapid growth in usage - and natively public facing. It is the availability of staff-led process digitisation features within SaaS enterprise solutions that make the biggest difference. These features allow non-IT staff to be directly involved in the development of forms and workflows to support council activities and require less input from ICT groups. Councils that have such capabilities within their SaaS enterprise solutions see up to 10 times more processes digitised annually than those running on-premise core enterprise solutions without such capabilities. The ability for councils to quickly digitise work processes for staff working from home was directly tied to low-code capabilities in their core enterprise systems. Now councils with these capabilities are looking to rapidly digitise citizen-facing services, leveraging non-technical staff in the process of digitising both internal and external processes.

In short, COVID has been a proving ground for rapid, agile, digitisation of service delivery using SaaS.

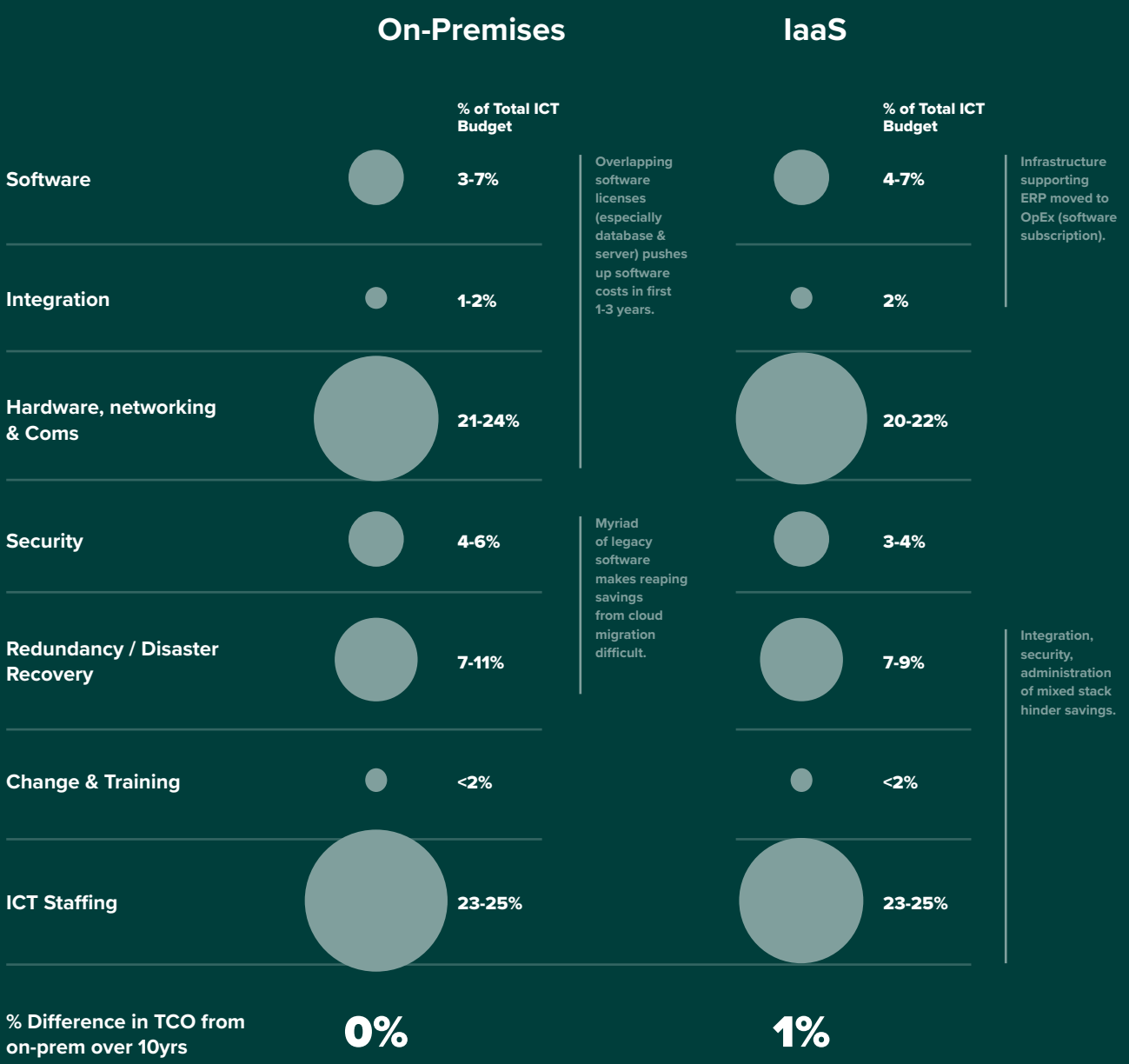
Many councils are looking at cloud services less to reduce the total cost of operation, and more to free up ICT staff to address the growing needs of service delivery. Given the number of complex processes, it is not surprising that the cost of maintaining and integrating many different specialised applications is a significant consideration for councils. While large councils have the sale and ICT capacity for integration, mid-sized and smaller councils are finding the 'SaaS mixed stack' approach a budgetary challenge, being up to 19 per cent more costly than retaining legacy on-premises environments. Pre-integrated, common stack SaaS appears to be more economically viable, with an average eight per cent saving compared to retaining legacy on-premises environments.

Many councils are undergoing significant growth in both population and increased demand by citizens for services. Rate-capping means councils are unable to fully invest in preparation for growth.

As a result, this study finds that council's productivity benefits stemming from more sophisticated SaaS solutions, and in particular process digitisation, are being consumed by the demands of growth.

Where councils were able to articulate clear productivity gains is with external facing activities, in particular development approvals, ratings, and utility services and reporting maintenance issues.

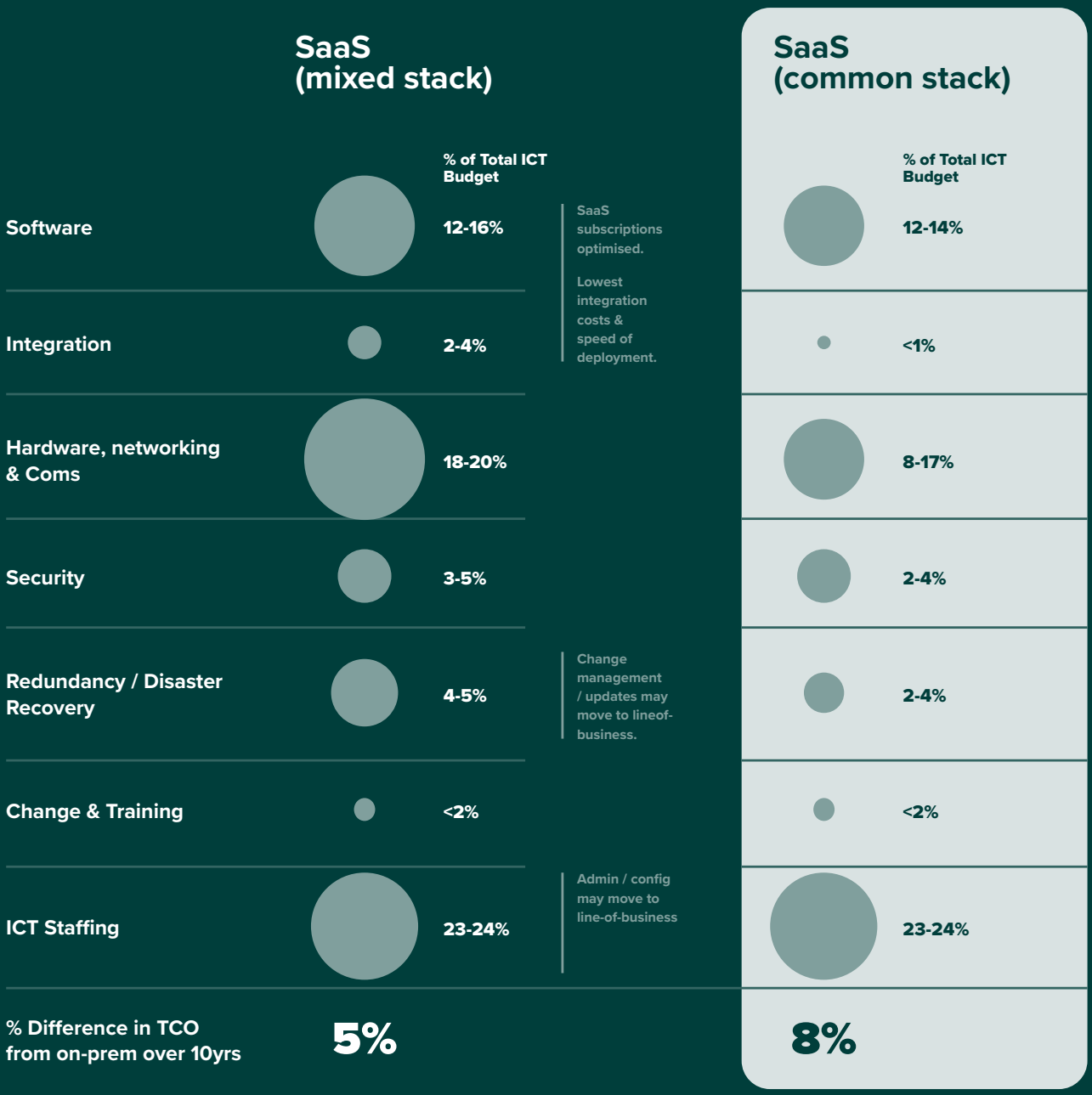
Figure 2.2:
Total cost of operations by delivery model - large councils



Significant productivity improvements for development approvals were often called out as a benefit of advanced SaaS solutions. Development approvals are highly complex, time-consuming and thus expensive, have a high value to citizens and demand rigorous compliance and record keeping. The introduction of cloud-based digital processes to not only manage the records and workflow of development applications internally, but also provide developers with portals and direct access to the status of the submissions saw significant productivity gains: greater than 20 per cent labour cost avoidance, and saving external stakeholders (developers and citizens) a minimum of four hours in in-person interactions with the council. It is the ability to provide self-service portals that makes the biggest difference here.

Another 'quick win' with regards to labour productivity gains due to SaaS features is citizen requests for services and reporting of maintenance.

Figure 2.2:
Total cost of operations by delivery model - large councils (continued)



Source: IBRS based on commercial in confidence market data

Australian case study: Local Council experience in migration to SaaS

A large city council has significant existing investment in a myriad of on-premises solutions, plus a handful of SaaS solutions that had been procured by departments to meet their specific needs. The fragmented nature of the environment meant that the council was unable to obtain a comprehensive view of its citizens and made reporting difficult. Furthermore, lack of integration between the solutions meant that departments within the council were finding it difficult to create inter-departmental processes, effectively locking work into siloed functions. With departments looking to produce specialised SaaS at an increasing rate to meet their needs, it became clear that problems relating to fragmented processes would only grow.

The council developed and costed two business cases to determine the best way forward: a mixed stack SaaS approach, which would involve integrating the existing on-premises and SaaS solutions already in use, and a common stack SaaS solution, which would demand a migration from multiple systems into a single platform.

When the cost of licensing, support, maintenance and integration was factored, the single-stack approach provide to be significantly (17 per cent) less costly over a 5-year period than a mixed stack approach.

In mid-2019, the council migrated several business functions to a common SaaS platform: finance, human resources, and property and ratings.

A self-service citizen portal was also planned on top of the new solution.

The introduction of the new SaaS platform resulted in several key benefits:

- A cross-departmental, single view citizen engagement, resulting in higher quality service levels, less manual rematching (with an estimated 2.5 FTE productivity gain).
- The ability to introduce a public portal for development applications, which resulted in reducing applications processing times by 47 per cent while also increasing compliance. It is also estimated that the portal saves the public a minimum of 75,000 hours annually.
- The rapid development of public-facing forms for citizens to report issues to the council, and request licenses or permits. This saw an estimated 4 FTE productivity gain, especially as COVID saw a marked increase in digital engagement.
- Invoice and billing processing automation saw a 2 FTE productivity gain in the finance group.

The digitisation of over 5 million records, and the ongoing automatic digitisation of over 75,000 records each year, which in turn led to 1.5 FTE saving in responding to requests records relating to property, service and dispute resolutions.

Direct impacts expected for the Local Government sector

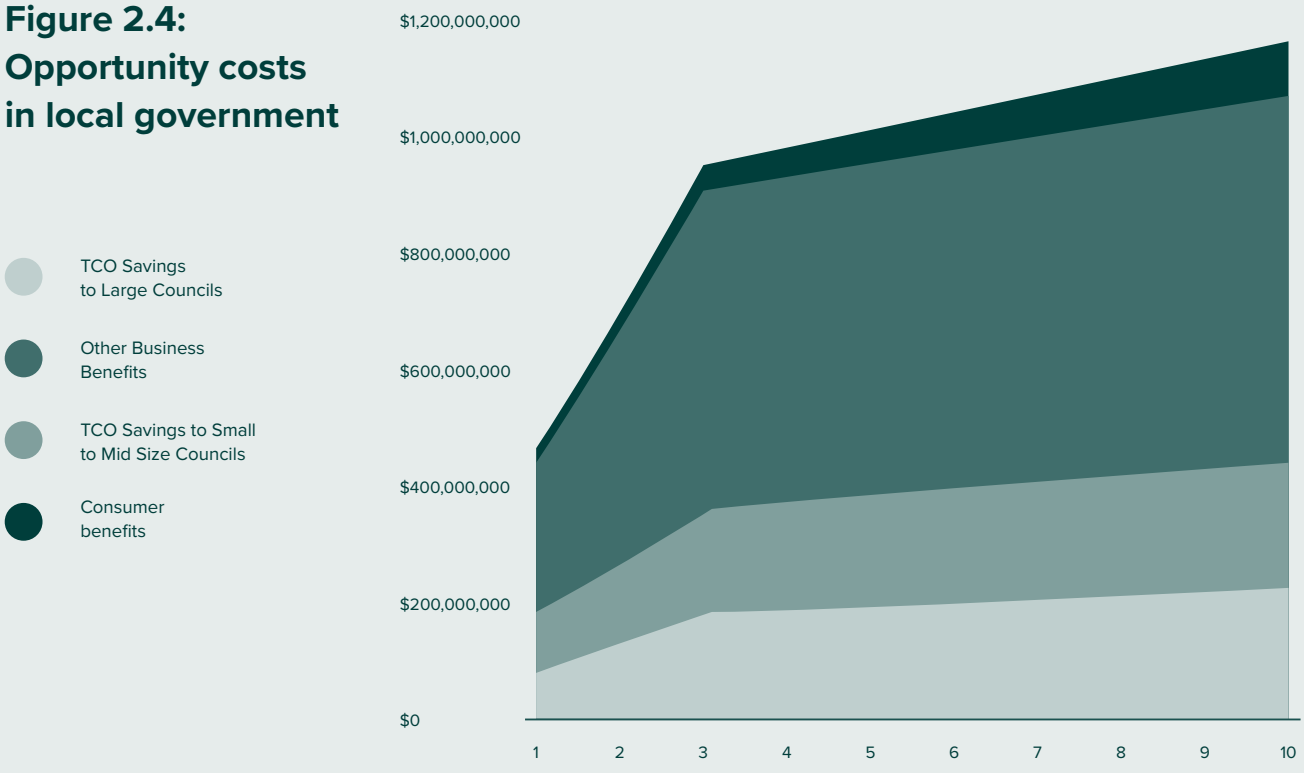
Based on desktop research, market data and interviews, it was estimated that 55 per cent of large councils currently operate using an on-premises software solution and a further 15 per cent use an IaaS model, with the balance having already migrated to a SaaS model, deploying either a mixed stack (10 per cent) or common stake model (20 per cent). Similarly, current take up of software solutions by small to mid-sized councils was estimated to be 45 per cent on-premises, 20 per cent IaaS, 15 per cent SaaS mixed stack and 20 per cent SaaS common stack.

The organisational benefits potential for local councils was estimated based on a migration to a SaaS common stack solution by all councils within three years; the sources of savings included:

- TCO savings, with large councils expected to realise a TCO saving of 8.5 per cent on average in SaaS compared to an on-premises model, and small to mid-sized councils expected to realise a TCO saving of 13.3 per cent on average in SaaS compared to an on-premises model
- Labour force productivity improvements of only two per cent based on real world evidence from Australian case studies, which is below the international case study expectations for a lower bound of five per cent productivity improvement
- Reduce staff turnover of two per cent based on improved employee satisfaction, bringing local government turnover in line with the national average
- Reducing call centre volumes and in-person attendance through online engagement capabilities
- Reducing mail costs to local councils and households
- Reducing time to present to councils by households
- Avoided financial auditing and consulting costs through improved financial reporting and management
- Reduced costs of maintenance as a result of reduced reactive maintenance, conservatively based on the lower bound improvement (eight per cent) estimated in the literature

Further details of the key assumptions and data sources are provided at the end of the report. Based on these impact assumptions, the total direct benefits to councils of moving to Software as a Service (Common Stack) model from current capability solutions is expected to be $8.4 billion in NPV[2%] terms including consumer time savings (Figure 2.4). Excluding consumer time savings, the benefits from lower TCO and the realisation of other business benefits would be $8.1 billion in NPV[2%] terms.

Figure 2.4: Opportunity costs in local government



Opportunity costs

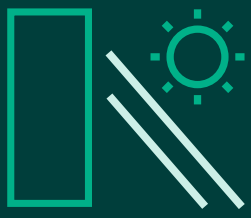
The opportunity costs of these funds for local government are significant. These funds could be usefully redirected towards other important investments and services, such as local road rehabilitation, new infrastructure programs or investment in community services that can improve the safety, health and wellbeing of Australian families (Figure 2.6).

Figure 2.6: Opportunity costs in local government

Rehabilitate more than 3,500 kms of two lane urban sealed roads

Rehabilitate more than 9,900 kms of two lane rural sealed roads

Fund NSW local government's infrastructure backlog more than 2.4 times over



Fund more than 422,000 shade sails in urban spaces to reduce skin cancer

Fund construction of more than 1,400 new recreation centres

Source: IBRS and Insight Economics

Total direct impact to Australian economy

In aggregate across all sectors, the direct benefit potential of moving to a SaaS solution compared to Australia's current software capability would be expected to be in the order of

$252 billion over the next 10 years, allowing for a three-year ramp up of investment, or $224 billion in NPV[2%] terms. For more information on the wider, multiplier economic effects to the Australian economy, **download the full report**.

Conclusions

The direct impact analysis reveals that the organisational impact potential of SaaS technologies for Australian councils is significant. Overall, the estimates based on Australian experience are more conservative than the benefits typically reported in the literature.

Key assumptions and data sources: Local government

Variable	Assumption	Source
Number of large or very large councils	229	ABS Cat No. 3235
Number of small to mid-size councils	315	ABS Cat No. 3235
Number of households - large or very large councils	39,965	ABS Cat No. 3235
Number of households - small to mid-size councils	2,199	ABS Cat No. 3235
Number of FTE	186,000	ABS Employment and Earnings, Public Sector, Australia
Salary costs – average	$72,800	ABS Employment and Earnings, Public Sector, Australia
Current software model uptake – large councils	50% On-prem, with paper based systems 10% IaaS 10% SaaS BoB 20% SaaS (Native Integration)	Interviews & market data, LGAQ 2020 Digital Productivity Report
Current software model uptake – mid-size to small councils	45% On-prem, with paper based systems 20% IaaS 15% SaaS BoB 20% SaaS (Native Integration)	Interviews and market data, LGAQ 2020 Digital Productivity Report
Rate of council requests per household per annum	65% households	Ratio based on average of data from three councils case studies
TCO large councils	Total cost of on-prem – legacy $10,342,998 Total cost of IaaS software $10,417,600 Total cost of SaaS (Mixed Stack) $10,814,400 Total cost of SaaS (Native Integration) $9,466,400	Case studies and market data
TCO mid-size to large councils	Total Cost of on-prem - legacy $4,053,337 Total Cost of IaaS software $3,949,000 Total Cost of SaaS (Mixed Stack) $4,826,000 Total Cost of SaaS (Native Integration) $3,514,000	Case studies and market data
Growth rate in TCO	3.1%	IBIS World
Proportion of councils without other business benefit capabilities	65%	Interviews & market data
Growth in value of other business and customer benefits	2%	Inflation, ABS CPI key categories 1%-2%
Assets under management	$423 billion	Local Government Financial Statements

Key assumptions and data sources: Local government (continued)

Variable	Assumption	Source
Maintenance budget – planned	4.1%	NSW Office of Local Government
Actual maintenance expenditure	2%	NSW Office of Local Government
Reactive maintenance	55%	US Department of Energy, Operations and Maintenance Best Practice, Schnieder Electric White Paper, Journal of Engineering Studies and Research 2012, University of London Condition Based Maintenance, + 3 case studies supporting
Reduction in reactive maintenance through asset management	8%	(Low range of 8%-30%)
Avoided costs financial and audit	$20,000 per council	Interviews
Reduction in in-person engagement through online	50%	Case studies
Avoided time per household per annum	30 minutes	Case studies
Value of avoided time	$19.48	Australian Fair Work Ombudsman
Labour force productivity	5%	OECD, 2017 and interview data
Cost of mail and printing to households	$1.80 x 3 = $5.40 per household per year	Interviews, Officeworks bulk printing costs and Australia Post letter rates
Reduction in turnover	2%	Centre of Excellence in Local Government found LGA turnover at 12% compared to national average of 10%
Costs of recruitment	$9,750 per role	Costs of position advertisement, interviews, and training
Cost of rehabilitation of one lane km urban sealed	$1.159 million	Tasmanian Transport
Cost of rehabilitation of one lane km rural sealed	$406,000	Tasmanian Transport
Cost of one km new road	$5.4 million	BIS Shrapnel, Road Maintenance in Australia 2011 – 2026, 2011 and Infrastructure Partnerships Australia, Road Maintenance: Options for Reform, 2011

About TechnologyOne.

TechnologyOne (ASX: TNE) is Australia's largest enterprise software company and one of Australia's top 150 ASX-listed companies, with locations across six countries. We provide a global SaaS ERP solution that transforms business and makes life simple for our customers. Our deeply integrated enterprise SaaS solution is available on any device, anywhere and any time and is incredibly easy to use.

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