

ADMINISTRATIVE AND SUPPORT SERVICES BENCHMARKING REPORT

**ICT PERFORMANCE FINDINGS
FY 2011/12**

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1. COMMENTARY

Stuart Wakefield, Director, Government ICT Strategy and Planning, Department of Internal Affairs

Commentary

In line with global trends, we are spending more on ICT each year – but not that much more overall. In real (i.e. inflation adjusted) terms, we spent less on ICT in FY 2011/12 than we have in the previous three fiscal years. However, in nominal terms, we are spending more on ICT each year, and we should expect ongoing pressure to find savings in lower value ICT expenditure – especially in common service areas like infrastructure. Flat ICT spending is potentially something to be concerned about, as it may indicate deferred investment in ICT, resulting in increased risk of systems failure.

A trend of increasing ICT expenditure can be positive if it supports savings in non-ICT expenditure and creates value for the business. Despite fiscal constraint, there is a strong appetite for invest-to-save initiatives and widespread acceptance that technology is a key enabler for business transformations that improve service delivery, strengthen productivity, and support better information for decision making.

ICT capital intentions information raises concerns about the quality of ICT planning and whether or not ICT spending is aligned with strategic objectives and providing business value. BASS data is backward looking, but the capital intentions data can help to inform the future landscape. Combining BASS and capital intentions data provides a greater picture of what is happening now, and what is being planned.

While more capital-intensive agencies tend to demonstrate a longer-term view of their ICT plans, most agencies have a short-term horizon. Also, most agencies predict a static average annual spend over the next ten years. These observations suggest we need better insight into the longer-term strategic objectives of our agencies and what ICT investments can support the achievement of these objectives.

Commentary

It is also concerning that ICT capital intentions information shows little evidence of plans for building capabilities that serve more than one agency or for using non-traditional procurement, suggesting limited alignment between planned ICT expenditure and the new ways of doing business called for by Ministers.

New ICT capital funding requests will need to demonstrate alignment with government direction, an attractive cost/benefit proposition that includes transition and change costs, commitment (at least in principle) to adopt shared capabilities, and a tolerable level of risk relative to other new funding proposals.

Limited new capital means the NZ government faces greater pressure than ever before to partner with the business to demonstrate the business value of ICT investments. The Future Investment Fund is oversubscribed based on capital intentions information, and the capital intentions for Budget 2013 are twice the level of allocation made in recent years. Requests for new capital for ICT now compete for funding against all other new capital requests, presenting some challenges:

- New ICT capital funding requests will need to demonstrate alignment with government direction, an attractive cost/benefit proposition that includes transition and change costs, commitment (at least in principle) to adopt shared capabilities, and a tolerable level of risk relative to other new funding proposals.
- ICT projects can have a lower success rate than other projects, so demonstrating appropriate governance and project management will be an increasingly important factor in investment decisions.
- Although there is wide recognition that ICT has the potential to transform organisations, we should expect increasing scrutiny of our success in partnering with business units to demonstrate benefits realisation after an ICT investment has been made.

Commentary

In this year's BASS report, we made progress in getting a better understanding of our ICT costs and our cost drivers. Last year, we committed to strengthening the quality of cost information by reporting both capex and opex in ICT expenditure, trialling cost measurement by service tower, and getting a better understanding of the degree to which application enhancements are driven by legislative change (versus internal demand). These incremental improvements move us closer to global leading practice in understanding our costs and opportunities.

We want to make more improvements for next year's report. Collecting volumetric data for future reports can provide insight into where we may have low return ICT spending and opportunities to make better use of our ICT resources. Measuring the complexity of our ICT environment, the capability of ICT units in terms of services and service delivery, and the value of ICT to overall agency performance are also important insights for managing our function and making a strategic contribution to the overall performance of our agencies.

The trialling of cost measurement by service tower with 11 agencies was beneficial and so will be rolled-out to all BASS agencies for next year's BASS. Into the future, as more time-series data is acquired, the service tower approach will provide greater visibility of the system-level effects of implementing ICT functional leadership and the upcoming ICT Strategy and Action Plan.

Commentary

Specifically, ICT functional leadership and the ICT Strategy and Action Plan will result in lower overall in-house infrastructure costs and in-house application development and maintenance costs. This cost reduction will result from agency adoption of common capabilities such as Infrastructure-as-a-service. In future years, BASS reports are expected to reflect agencies shifting from capital to operating expenditure through greater adoption of 'as-a-service' common capabilities, greater sharing of capability between agencies, and agencies divesting themselves of commodity assets.

Conversely, the ICT management service tower may increase following greater investment in capabilities such as strategy and architecture, information security and assurance, information management, sourcing, and service design. This capability shift for ICT units is required to better contribute to the achievement of Better Public Services targets.

2. HIGHLIGHTS OF FINDINGS

Highlights

FY 2011/12 ICT expenditure of \$981.2 million is down \$15.6m (or 1.7 percent) since FY 2009/10 when adjusted for inflation. This is the first BASS report to show the proportion of capital (capex) and operating (opex) expenditure within ICT spend, and is the first to collect cost information by service tower and cost element. Building a time series in successive reporting periods will provide insight into whether ICT spending is in line with plans and provide insight into key cost drivers.

New metrics included in this year's report will in time provide a clearer view on cost drivers. This year's BASS report is the first to show the proportion of capital and operating expenditure within overall ICT spend – in time this will provide valuable trend data. Also, this year eleven BASS agencies reported costs across service towers instead of processes to better align cost information to how ICT services are delivered. They also reported against cost elements to establish a common view of the cost drivers within each tower.

Overall, NZ agencies report being less efficient than international comparators and have made modest gains since FY 2009/10. NZ agencies reported a higher cost per end user than international comparators, and reported a lower number of end users per ICT FTE than international comparators.

NZ agencies have demonstrated that they are effective at supporting systems. Over the three reporting periods for BASS, agencies have reported consistently high levels of reliability that are comparable with international comparator.

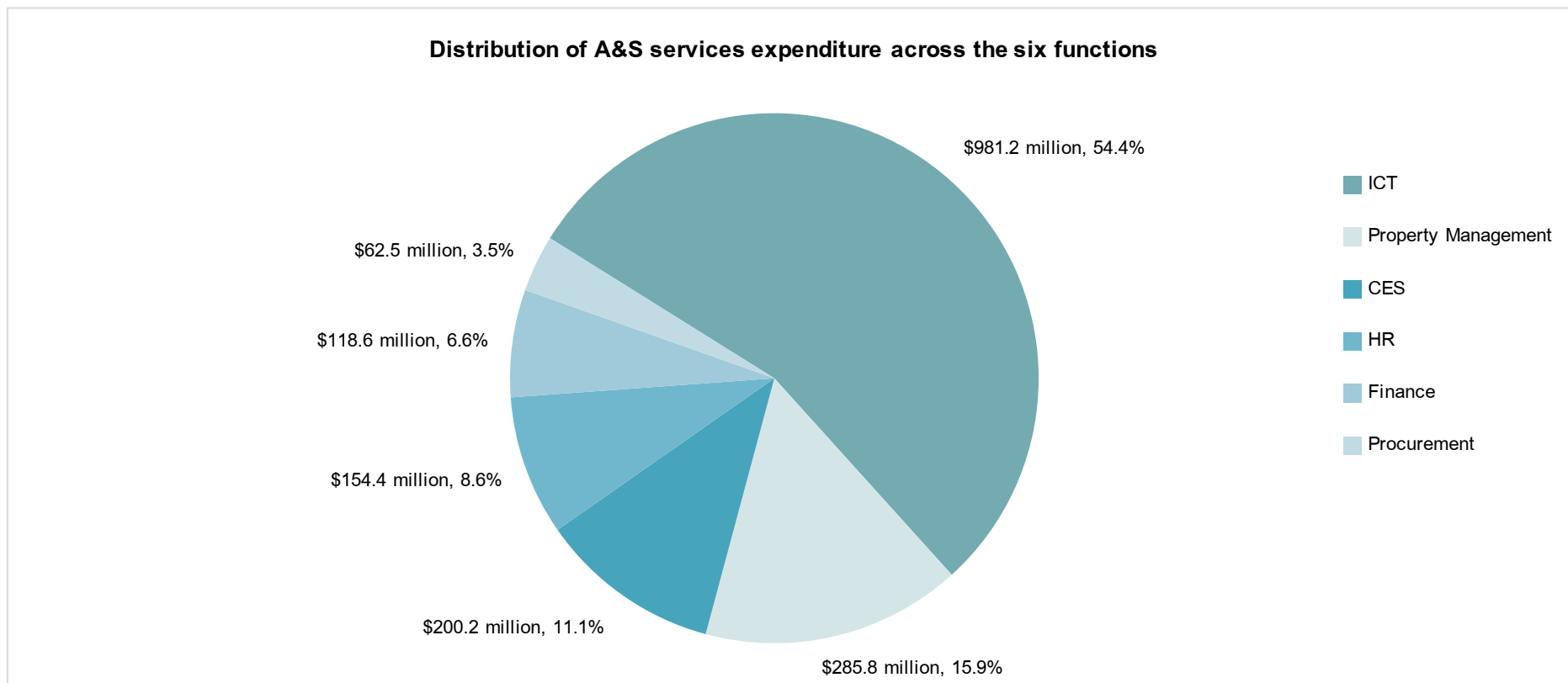
There is an opportunity to introduce further measures of the value of the ICT function. Agencies need to be able to demonstrate effectiveness in the management of applications and growing business demand for new functionality and service delivery. Measuring the impact of ICT solutions and services on agency performance is a challenge globally and will take considerable practitioner input in future improvements. The GCIO and Treasury will work to develop more meaningful indicators of whether or not resources are managed in a way that minimises cost, effort, and time.

3. COST

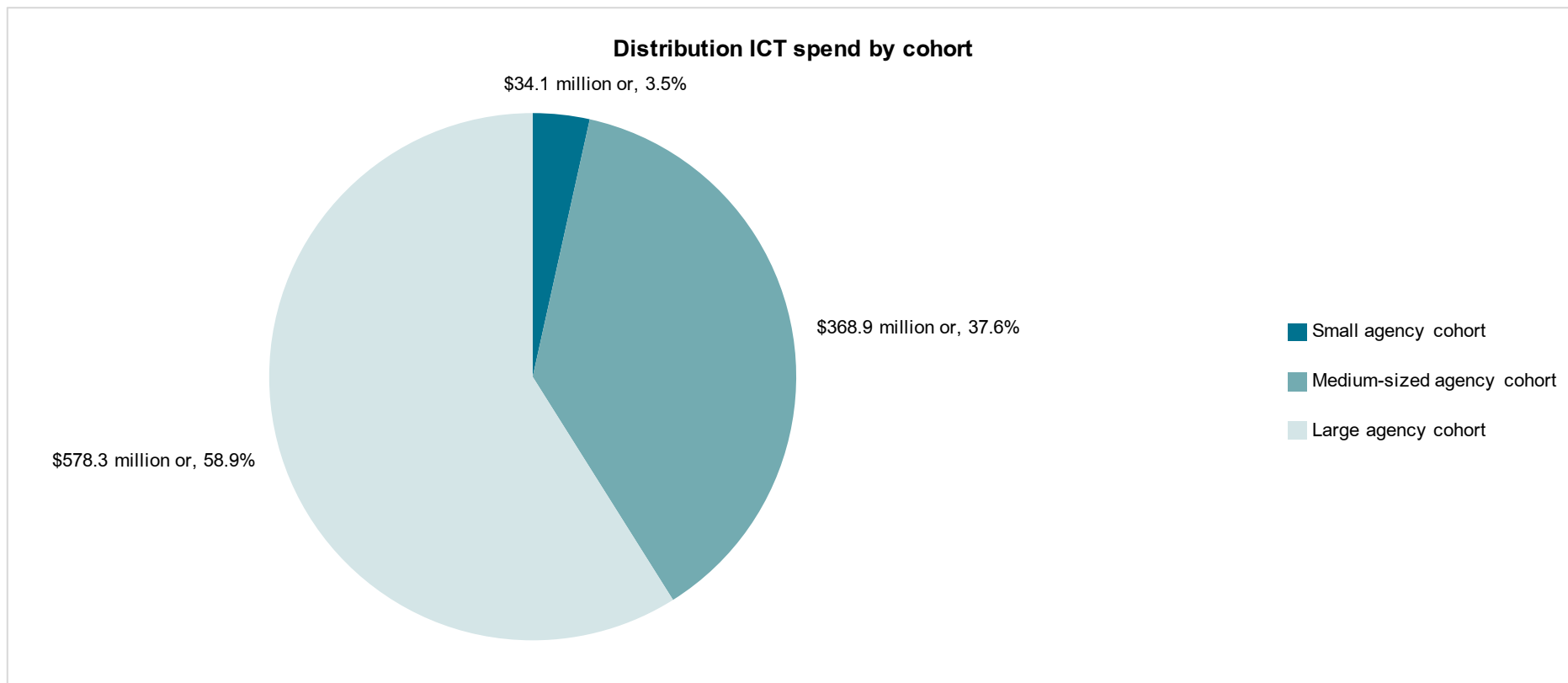
Cost findings include total spending overall and by cohort. Cost information is collected by ICT process for 18 agencies and by ICT Service Tower (including cost elements) for 11 agencies. Cost findings also provide information regarding changes in spending since previous reporting periods both in nominal and inflation-adjusted terms.

Service Tower data has been mapped to ICT process data to provide time series by ICT process.

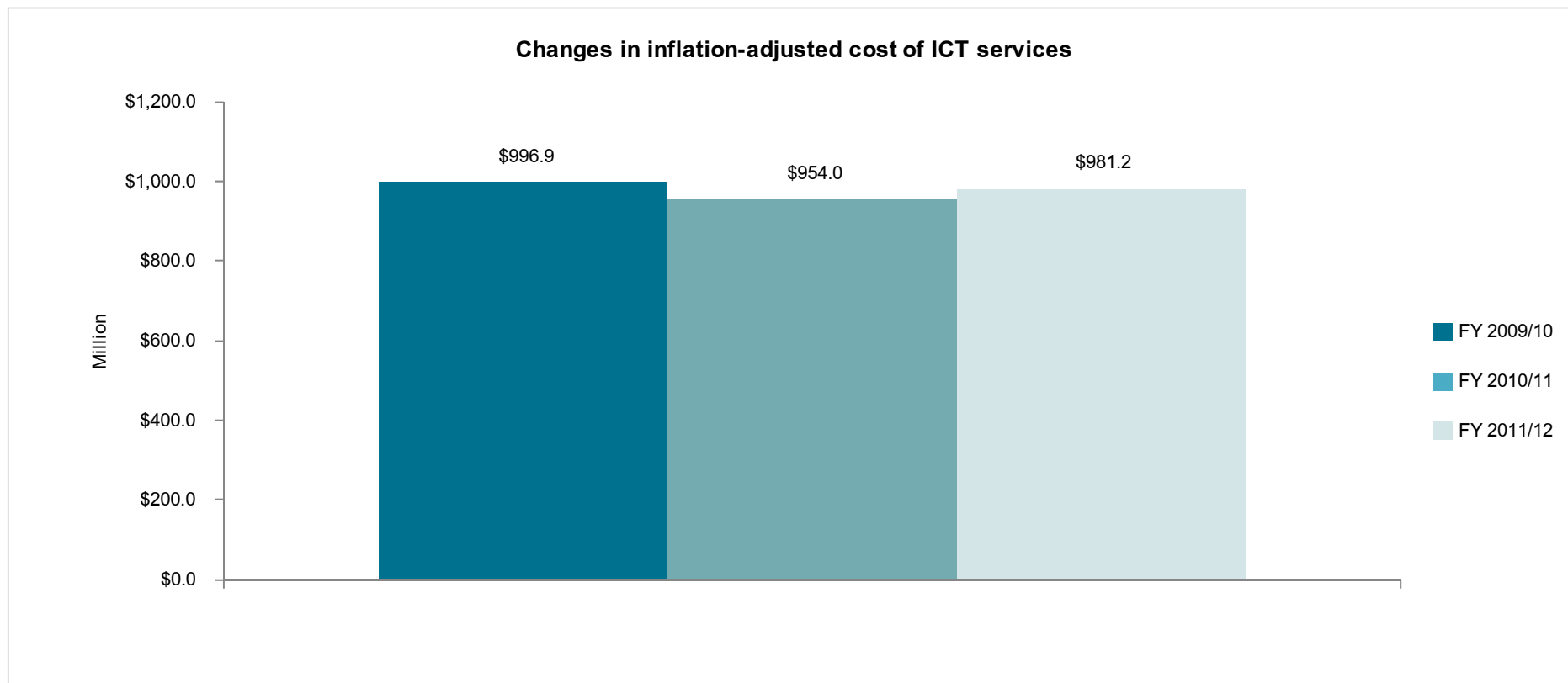
ICT expenditure of \$981.0m makes up 54.4 percent of A&S service spending, making it the largest function by expenditure



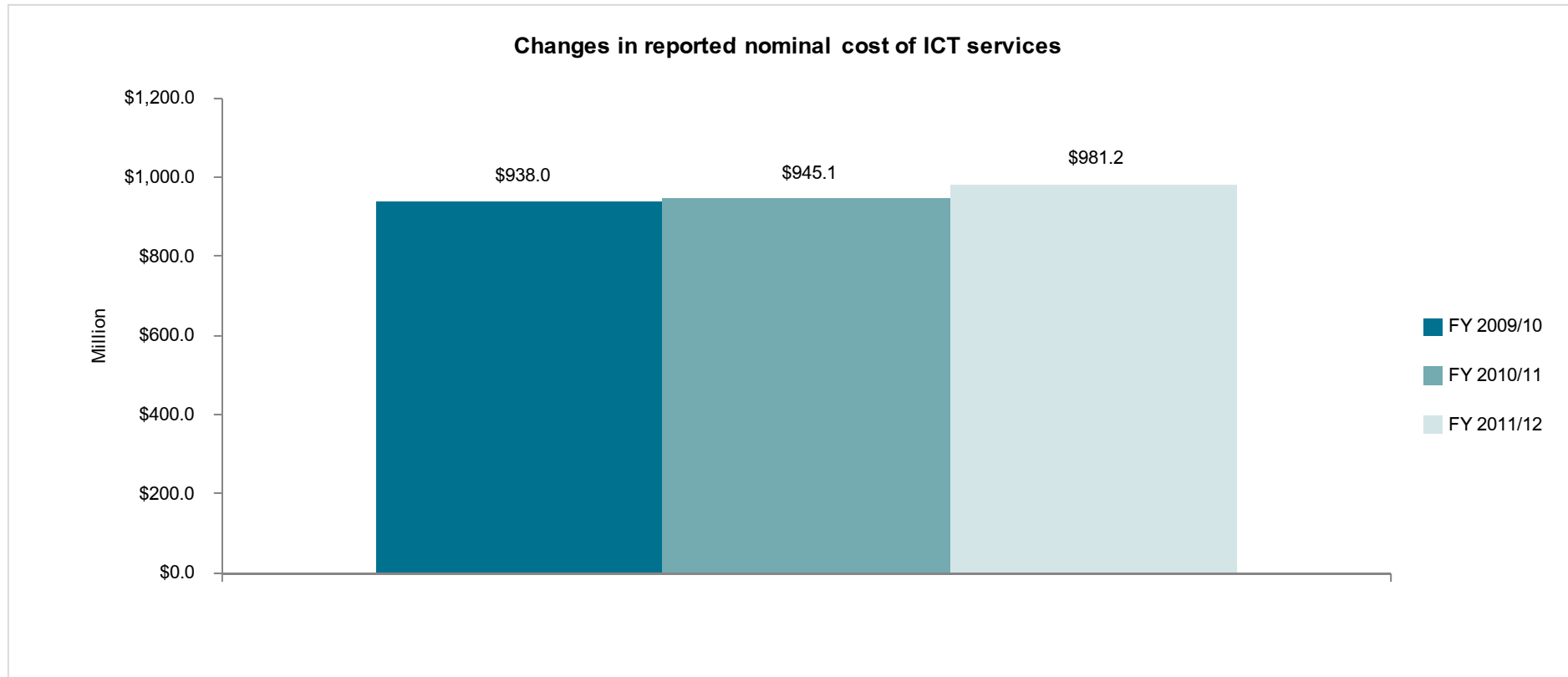
Medium-sized and large agency cohorts made up 96.5 percent of ICT service expenditure in FY 2011/12



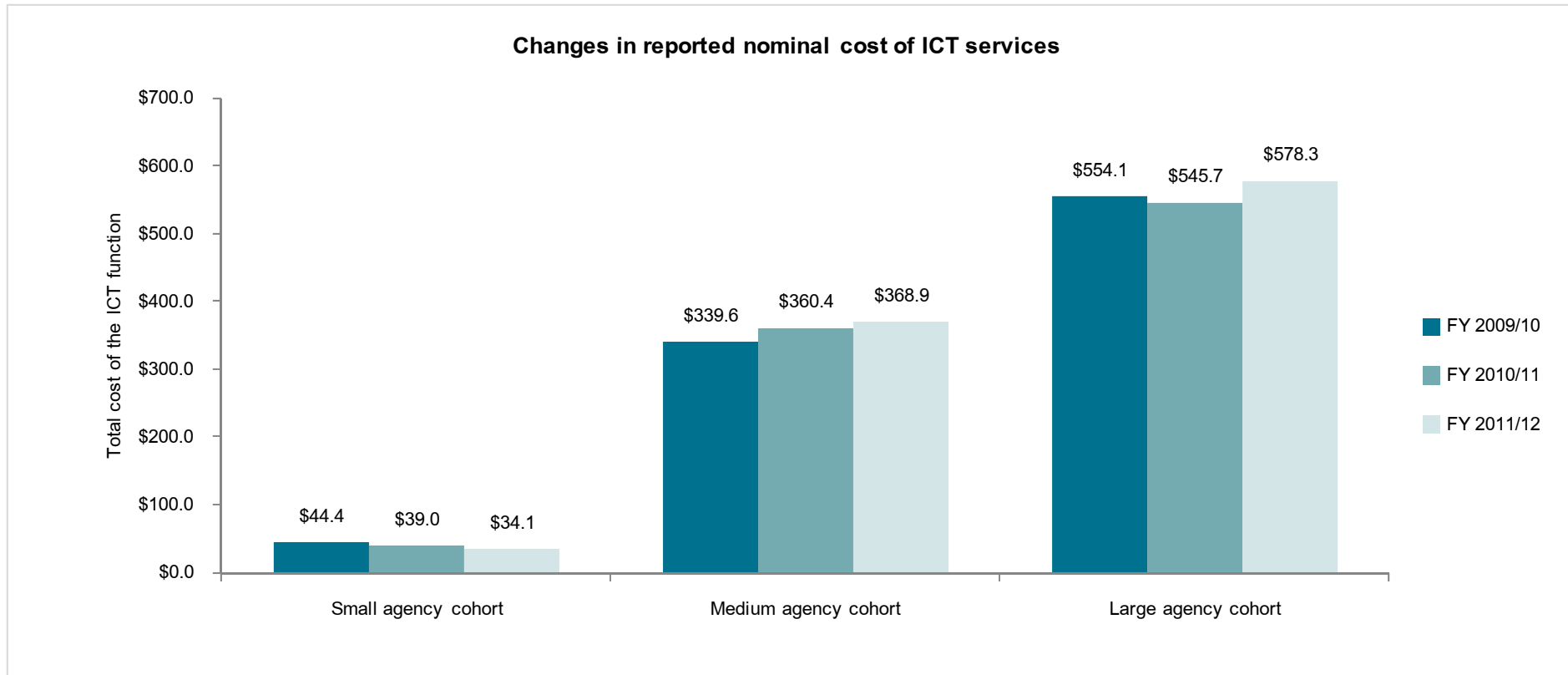
ICT expenditure of \$981.2m is down \$15.6m (or 1.7 percent) since FY 2009/10 when adjusted for inflation



Agencies reported a nominal spending increase of \$43.2m (or 4.6 percent) since FY 2009/10, \$36.2m of which is attributed to increases this year



The large and medium-sized agency cohorts have driven overall nominal ICT spending increases

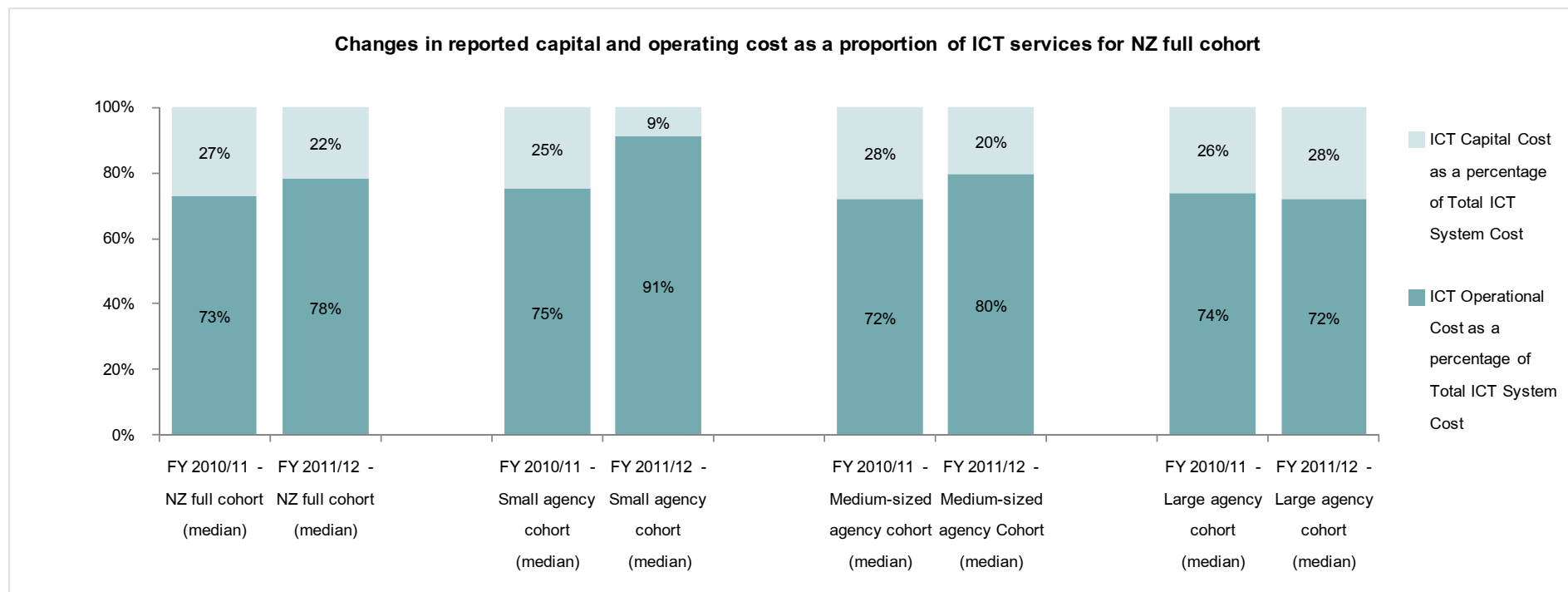


The small agency cohort is the only cohort to report year-on-year reductions in overall ICT expenditure since FY 2009/10 . Note that \$5 million of this relates to merging the Ministry of Fisheries to become part of the Ministry of Primary Industries, which is in the medium-sized agencies cohort.

Lumpy capital expenditure (capex) drives annual changes in ICT spending

- A net nominal spending increase of \$36.2 million since FY 2010/11 results from 12 agencies spending \$52.9 million less and 17 agencies spending \$89.1 million more:
 - \$43.1 million (or 81 percent) of the total reported reduction can be attributed to 4 of 12 agencies
 - The key reason cited for a reduction in these agencies was decreased capex
 - \$72.1 million (or 81 percent) of the total reported increase can be attributed to 6 of 17 agencies
 - The key reasons cited for increases in these agencies were increased capex, systems/software development, and merger-related ICT costs

This is the first BASS report to show the proportion of capex and opex within ICT expenditure



Previous BASS reports included a single cost figure for ICT expenditure overall and by agency. Given that ICT capex is lumpy year-to-year, ICT professionals asked the BASS team to isolate this spending to better understand spending trends. Data returns for this report included capex and opex figures for both FY 2010/11 and FY 2011/12, allowing for a two-year comparison.

There are opportunities to undertake more future analysis to ascertain trends in behaviour. For instance, there are different capabilities associated with management of both capex and opex. Lead indicators for capex capability include P3M3, and adoption of good practice methodologies (e.g. Better Business Cases); and lead indicators for opex capability include good service management practices (such as ITIL) and Asset Management Maturity.

Building a time series for capex and opex in successive reporting periods will provide insight into whether ICT spending is in line with plans

Over time, it would be reasonable to expect to see the following trends:

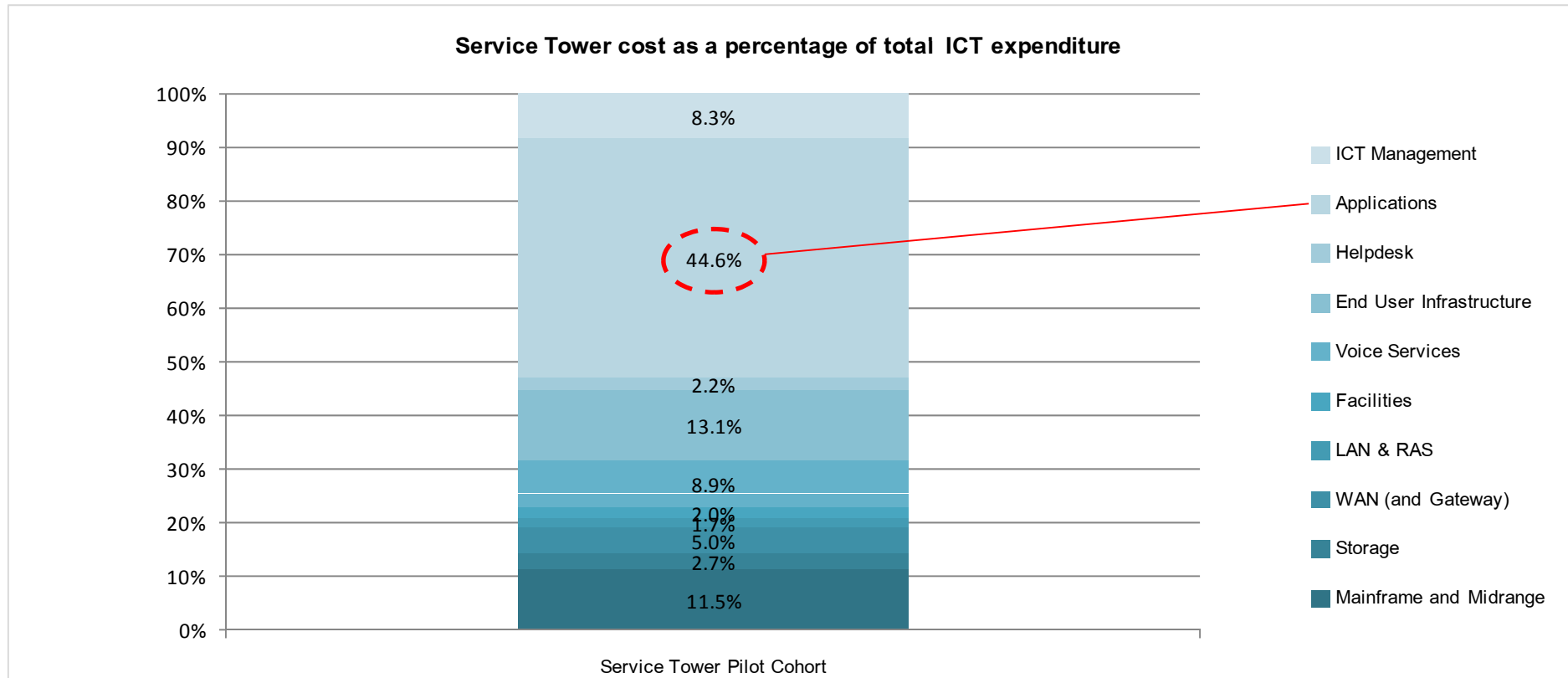
- Agencies get better at having actual ICT expenditure match planned expenditure, but only if there is increased capability, improved planning and some stability
- The uptake of Software as a Service (SaaS) and Infrastructure as a Service (IaaS) reduces expenditure on core and/or common ICT services
- The uptake of SaaS and IaaS shifts spending from capex to opex
- Better visibility over benefits from investment in ICT are being realised, and a better understanding of how they relate to overall agency outcomes – by combining BASS and Government Project Portfolio information

This year, eleven BASS agencies reported costs across service towers instead of processes to better align cost information to how ICT services are delivered

From (ICT process)	To (ICT service tower)
Infrastructure management and Infrastructure development	Mainframe and midrange
	Storage
	WAN (inc. Gateway)
	LAN & RAS
	Facilities
	Voice services
	End user infrastructure
End user support	Helpdesk
Applications maintenance	Applications (support and maintenance, and development sub towers)
Applications development and Implementation	
Strategy and planning	ICT management
Management and administration	

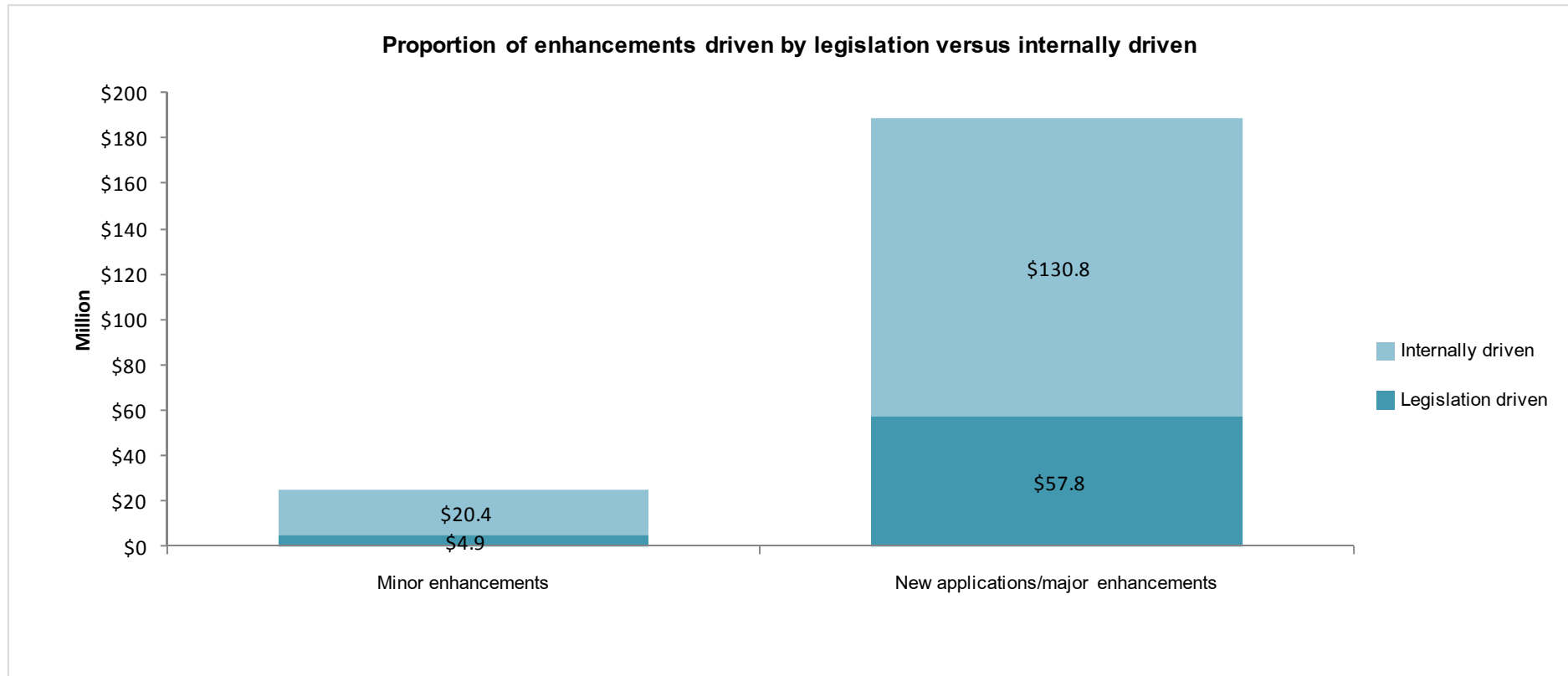
The view of ICT cost by service tower is better aligned with global trends in measuring ICT costs, including Australian government and Gartner methodologies.

The applications tower is the highest proportion of expenditure, warranting a better understanding its business value and cost drivers



Drivers for spend on application is an area that warrants further investigation. In particular, the relationship between an application and the value to the agency, and its outcomes, warrants attention.

Internal demand, not legislative change, is the major driver for applications expenditure in 2011/12



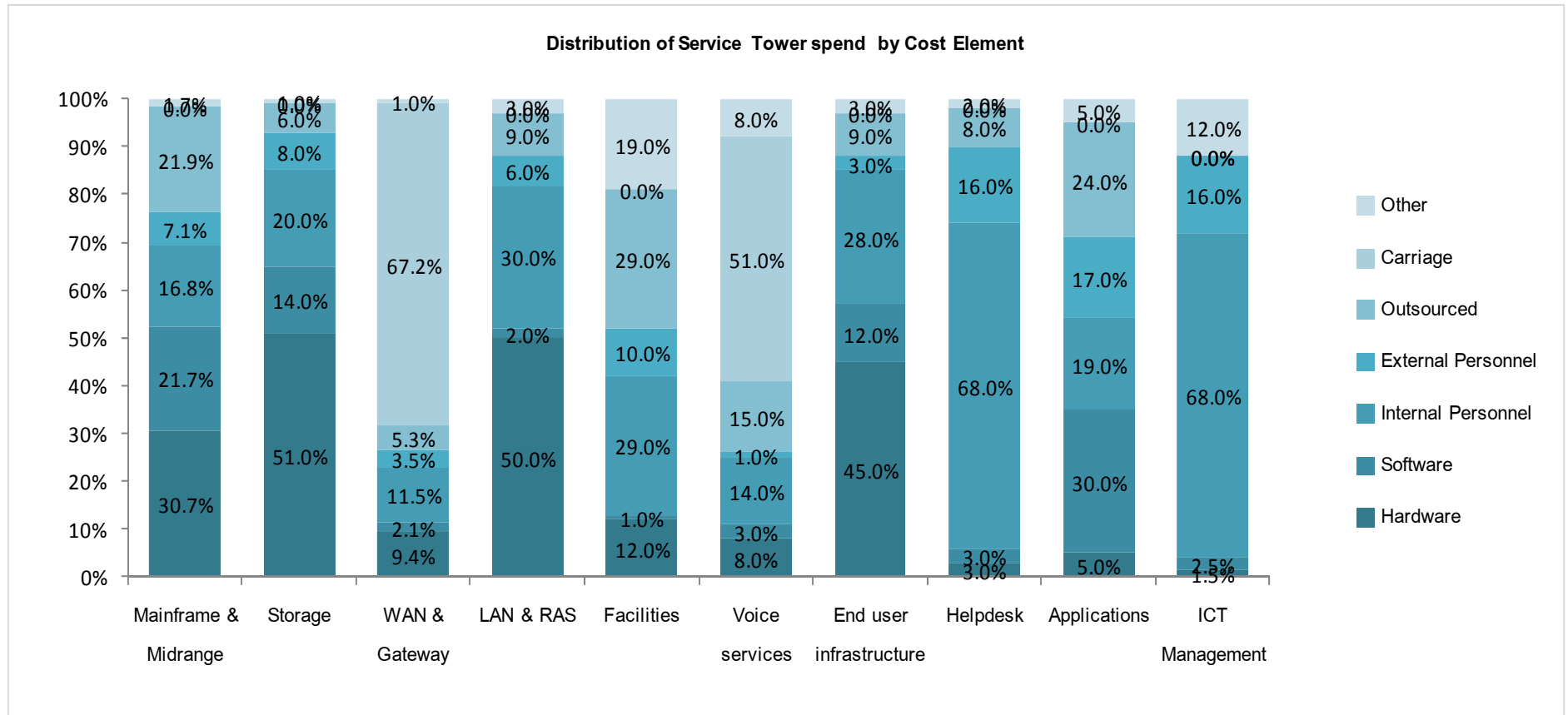
This is the first BASS report to measure the cost drivers of new applications and enhancements

“Driven by legislation” is defined as: development or enhancements that are a direct response to an external mandate for change e.g. compliance, regulation, legislation and formal government decisions

“Internally driven” is defined as: new software and enhancements not as a direct response to an external mandate for change.

“Major” is defined as: more than \$100k; “Minor” is defined as: no more than \$100k

A pilot of service tower measurement established a view of common cost elements to better understand cost drivers in each tower

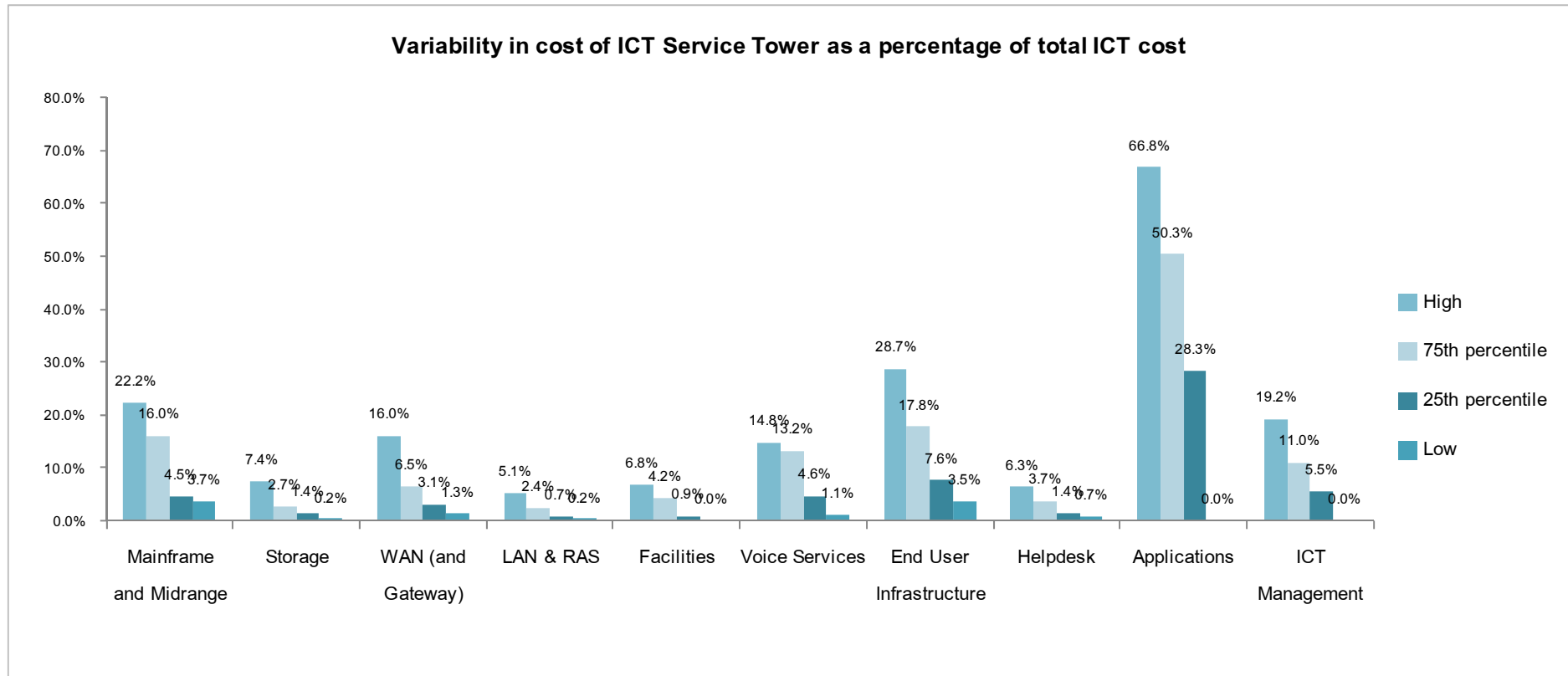


Variability by cost element within the Mainframe and Midrange tower helps identify opportunities to standardise approach and cost

Cost element spend per Mainframe & Midrange Tower for FY 2011/12									
Agency	% total Mainframe & Midrange spend			Internal	External				
		Hardware	Software	Personnel	Personnel	Outsourced	Carriage	Other	
1	2.9%	0.4%	0.0%	1.4%	0.2%	1.0%	0.0%	0.0%	
2	2.8%	1.2%	1.1%	0.3%	0.2%	0.0%	0.0%	0.0%	
3	10.4%	0.6%	0.0%	0.3%	0.0%	9.4%	0.0%	0.0%	
4	3.3%	0.0%	0.6%	0.0%	0.0%	2.7%	0.0%	0.0%	
5	32.6%	1.4%	4.0%	6.1%	1.1%	19.9%	0.0%	0.1%	
6	4.7%	0.0%	3.8%	0.1%	0.4%	0.4%	0.0%	0.0%	
7	6.3%	0.2%	2.0%	0.6%	0.4%	3.1%	0.0%	0.0%	
8	21.1%	5.8%	6.1%	2.5%	0.2%	6.3%	0.0%	0.2%	
9	8.9%	2.8%	2.6%	3.5%	0.0%	0.0%	0.0%	0.0%	
10	0.8%	0.7%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	
11	6.2%	0.6%	0.3%	1.1%	0.3%	3.8%	0.0%	0.1%	
TOTALS	100.0%	13.6%	20.5%	16.0%	2.8%	46.6%	0.0%	0.6%	

The Mainframe and Midrange service tower is documented here as an example. Similar analysis can be carried out across each of the ten service towers and sub-towers

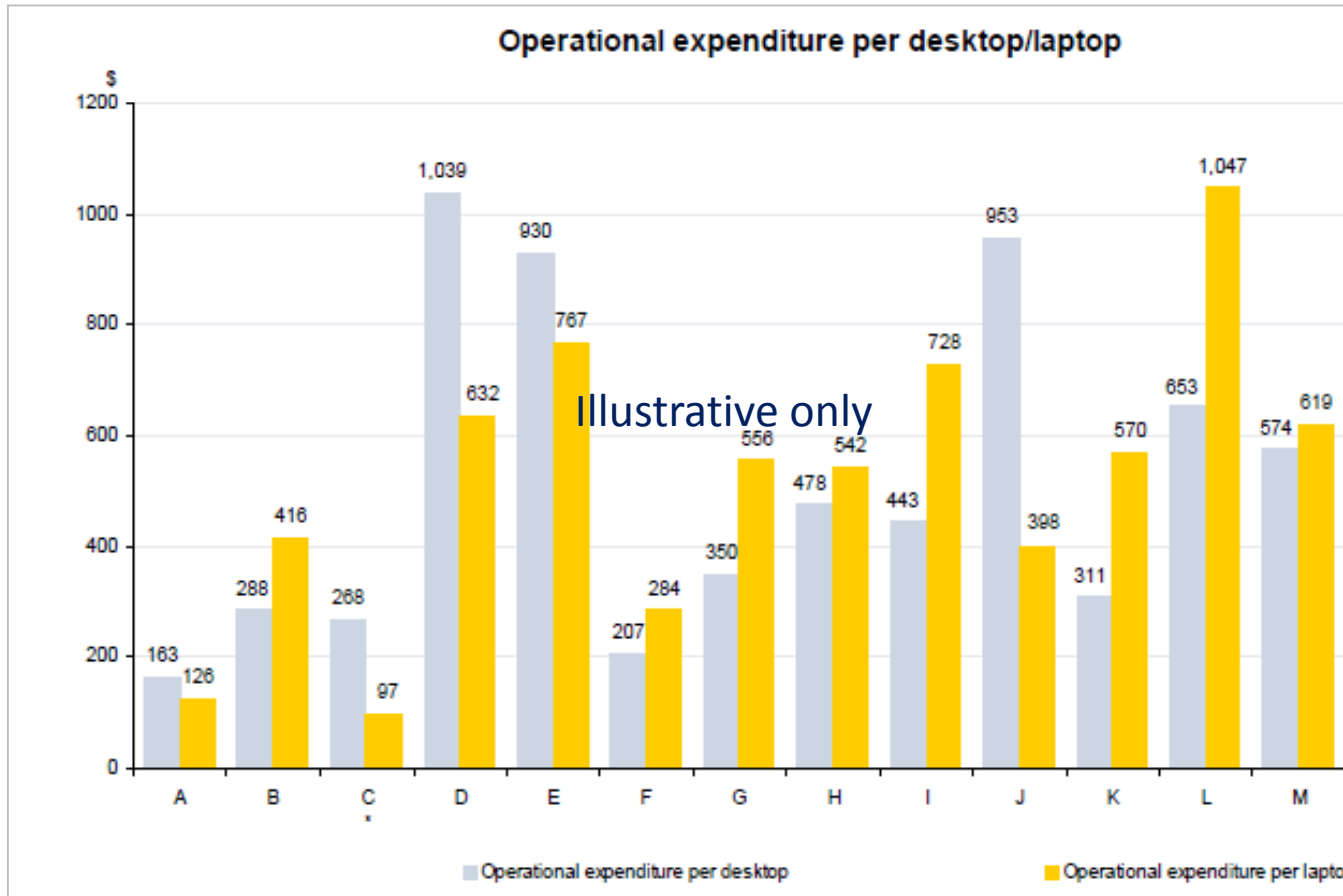
Variability in spending by service tower suggests opportunities for savings, but more detailed data is needed to pinpoint specific opportunities



The high degree of variability in the distribution of spend across service towers suggests there may be opportunities for agencies to reduce the cost of ICT by service tower (e.g. through consolidation and standardisation).

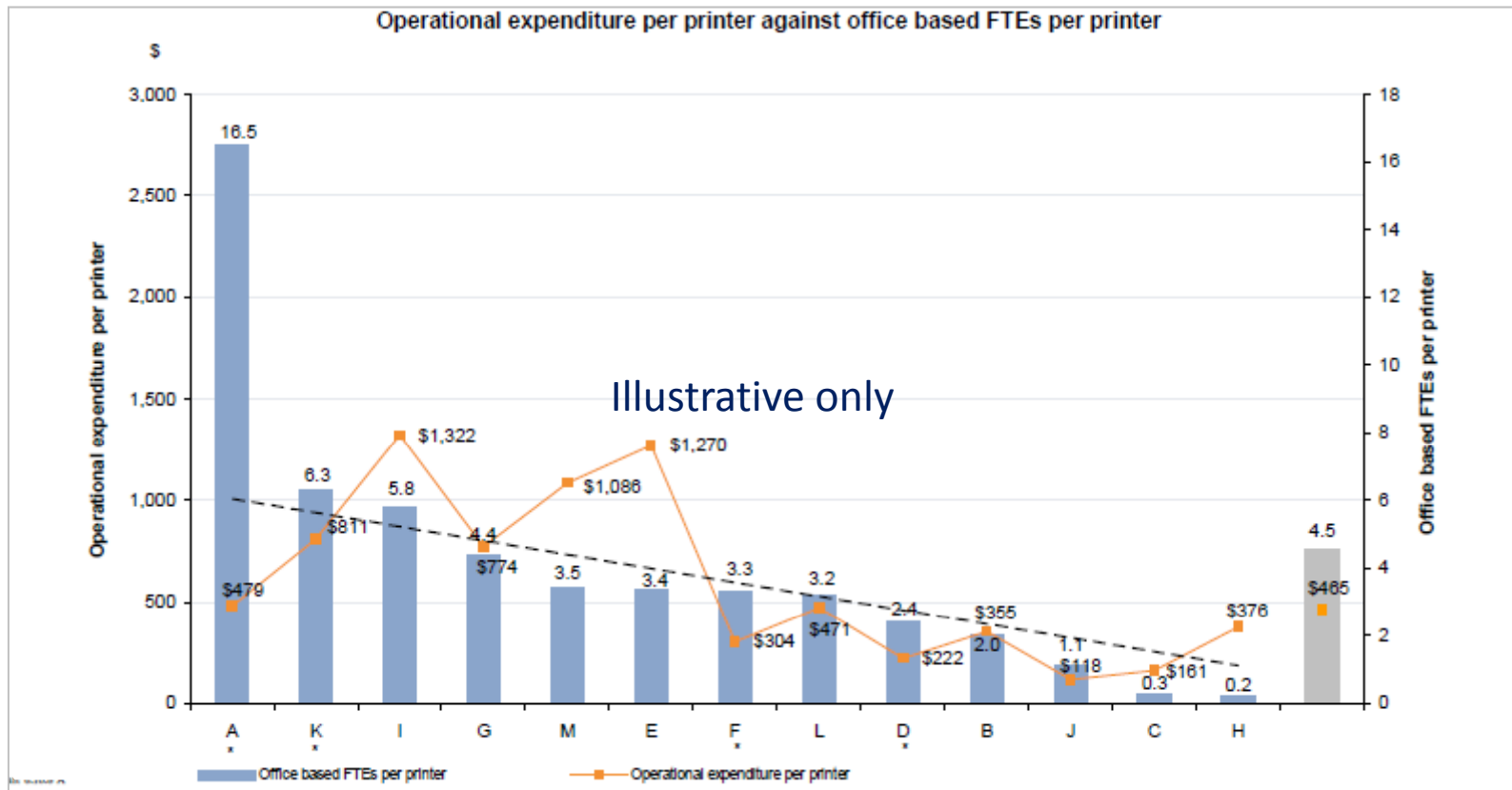
Volumetric data is needed to compare specific cost drivers behind the variability in spend by service tower.

In other jurisdictions, variability in the cost per desktop has provided insight into costs of different ways to deliver services



Other jurisdictions collect volumetric data in order to understand what is driving changes in ICT spend and performance, and to enable better comparisons between agencies – for example, by highlighting opportunities to reduce costs through standardisation and consolidation.

Volumetric data can provide insight into the relationship between volume and cost, identifying third party price reduction opportunities

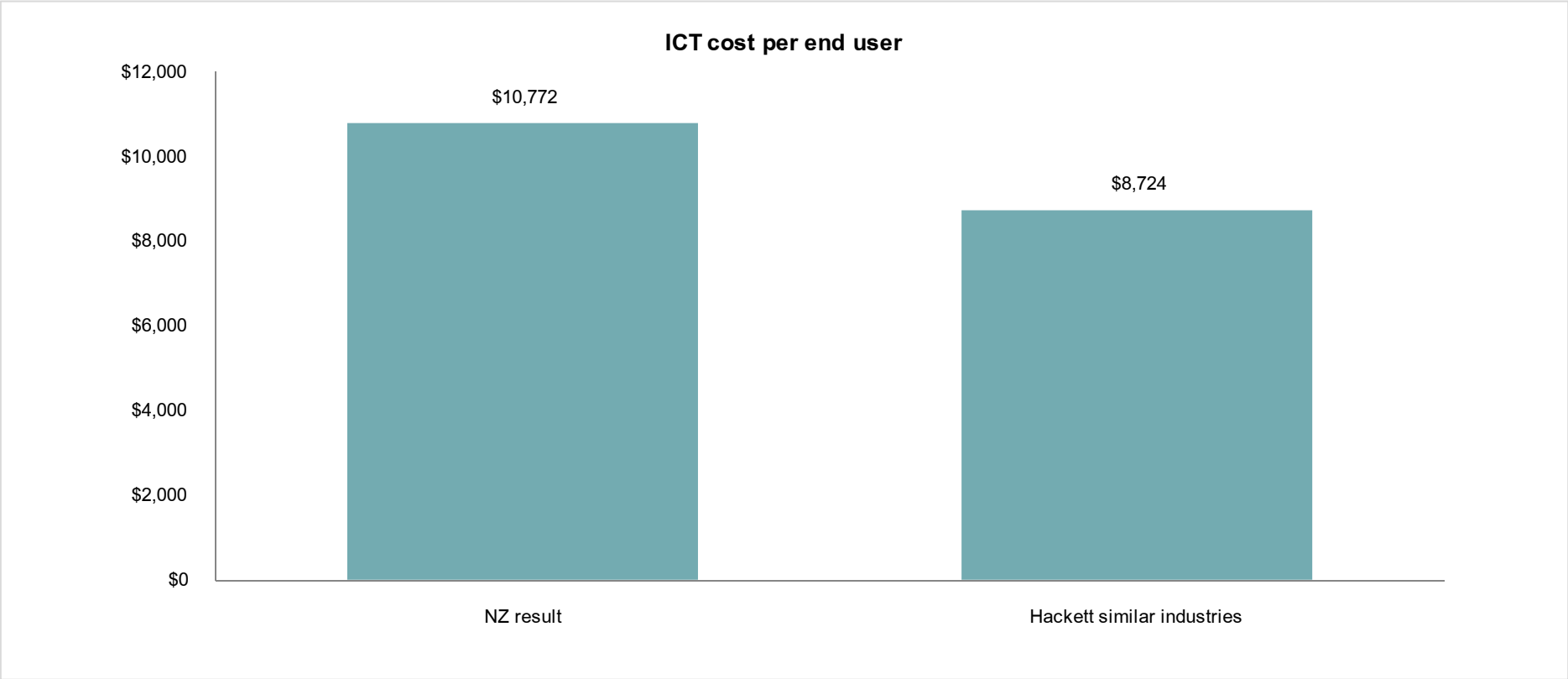


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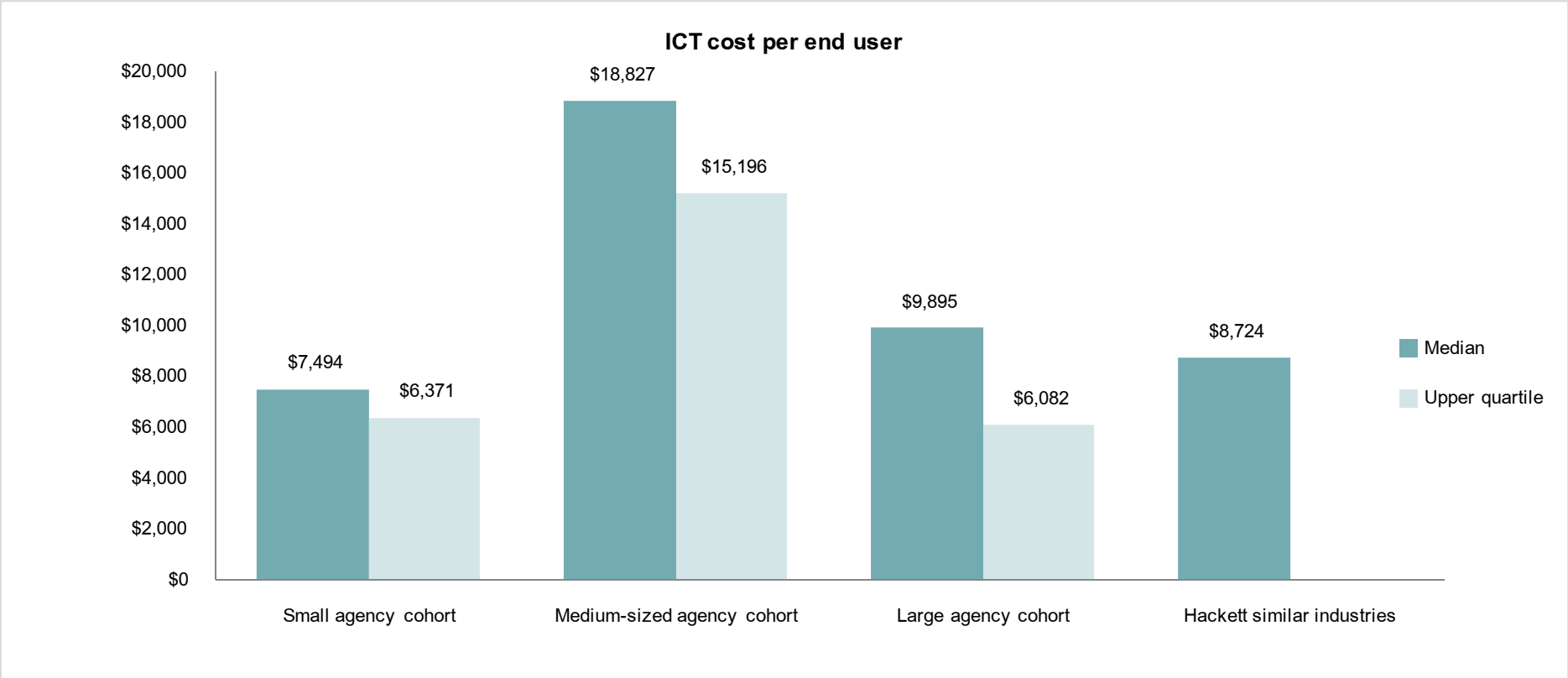
4. EFFICIENCY

Efficiency findings report on the ratio of input to output (or the use of resources in a manner that minimises cost, effort, and time) as well as opportunities for efficiency gains and their implications for gross savings. Findings also compare NZ agency efficiency with international comparators and examine changes in efficiency since the previous reporting periods, adjusting for inflation as appropriate.

Overall, NZ agencies report a higher cost per end user than the international benchmark



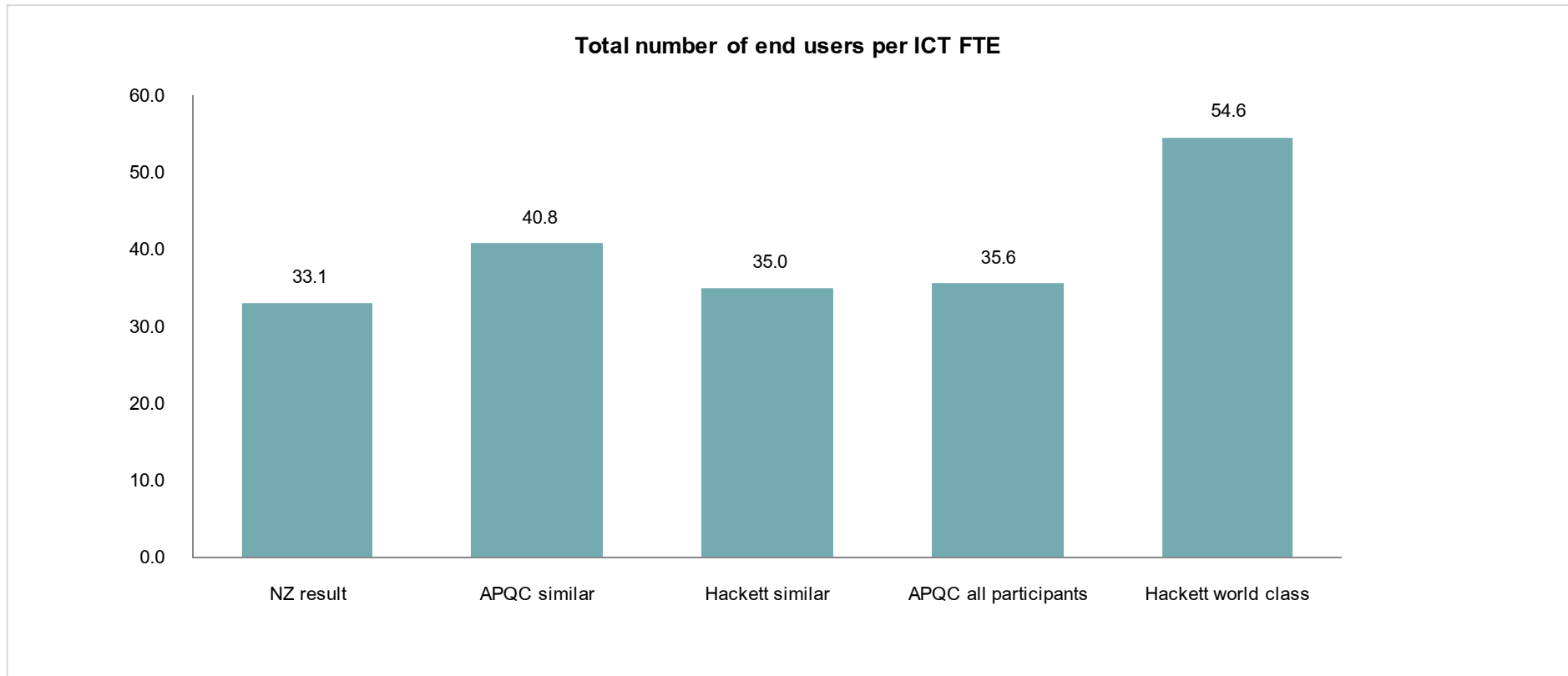
Medium-sized agency cohort agencies have significantly higher ICT costs per end user than other cohorts



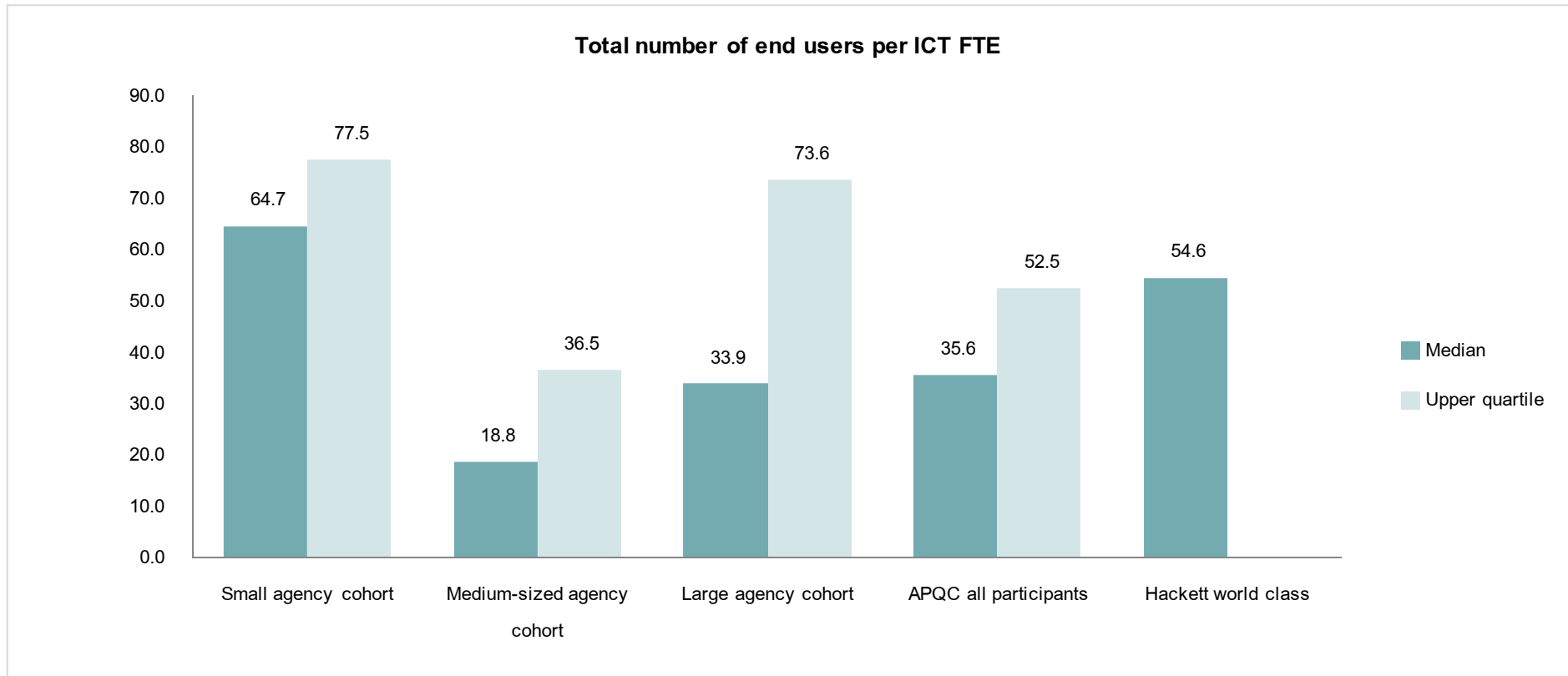
The medium-sized agency cohort (\$18,827) is 116 percent higher than the Hackett benchmark and 90 percent higher than the large agency cohort. This result is likely because many medium-sized agencies have relatively expensive line-of-business applications for a relatively small number of users.

This graph shows that, at the median, the small agency cohort (\$7,494) is 14 percent lower than the Hackett world similar industries benchmark (\$8,724), and the large agency cohort (\$9,895) is 3 percent higher.

Overall, NZ agencies report a lower number of end users per ICT FTE than international comparators



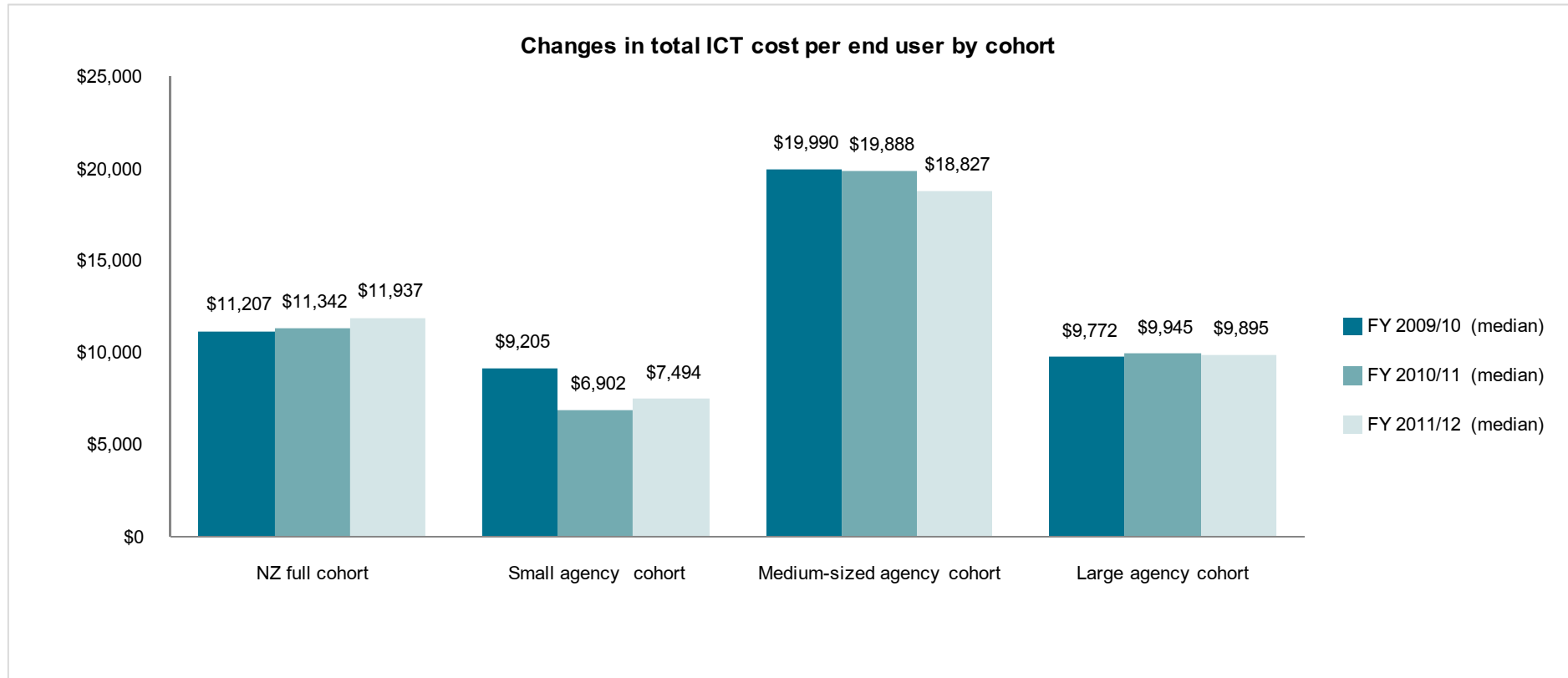
The medium-sized and large agency cohorts have fewer end users per ICT FTE than the small agency cohort



The degree of outsourcing provides some context to these results:

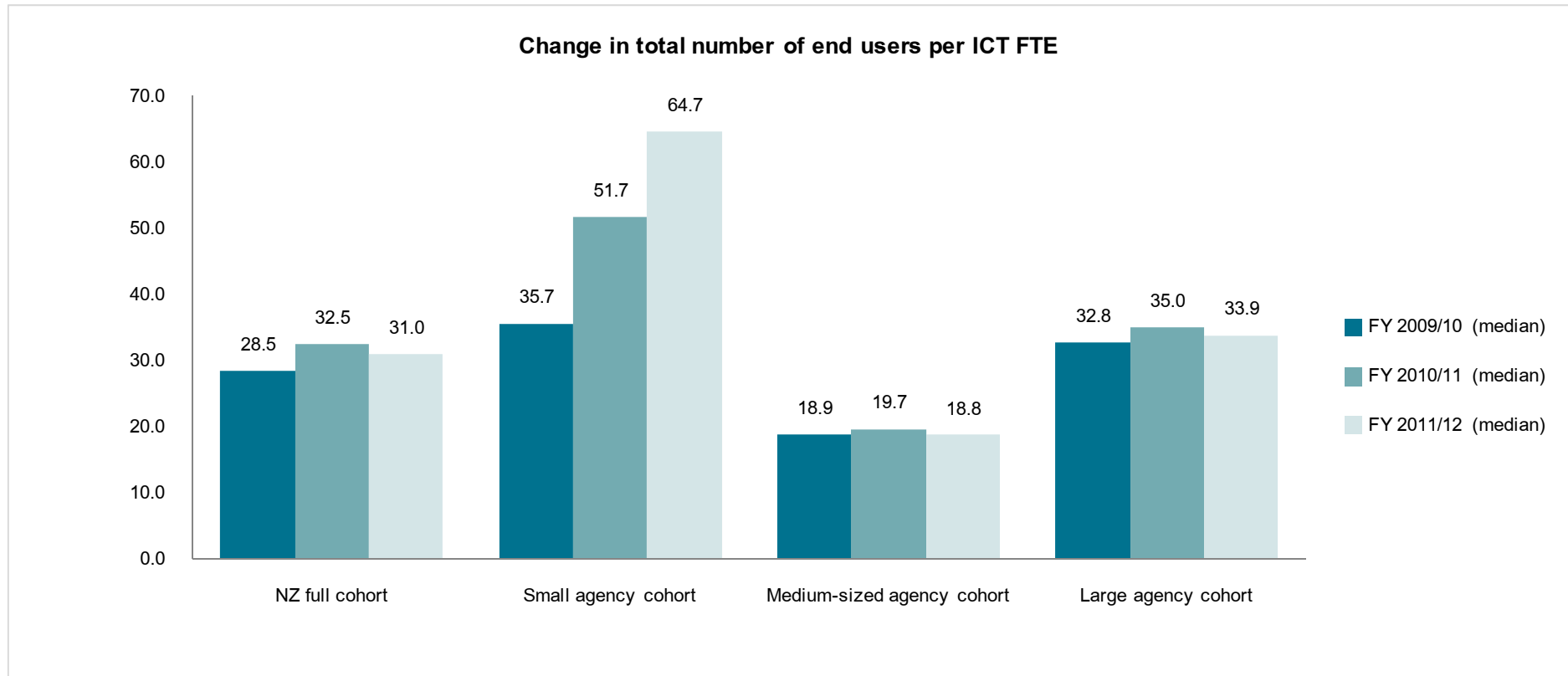
- Large agency cohort outsourced costs make up 13.6 percent of total ICT spend
- Medium-sized agency cohort outsourced costs make up 18.7 percent of total ICT spend
- Small agency cohort outsourced costs make up 18.5 percent of total ICT spend

Overall, the total cost per end user has remained flat since FY 2009/10



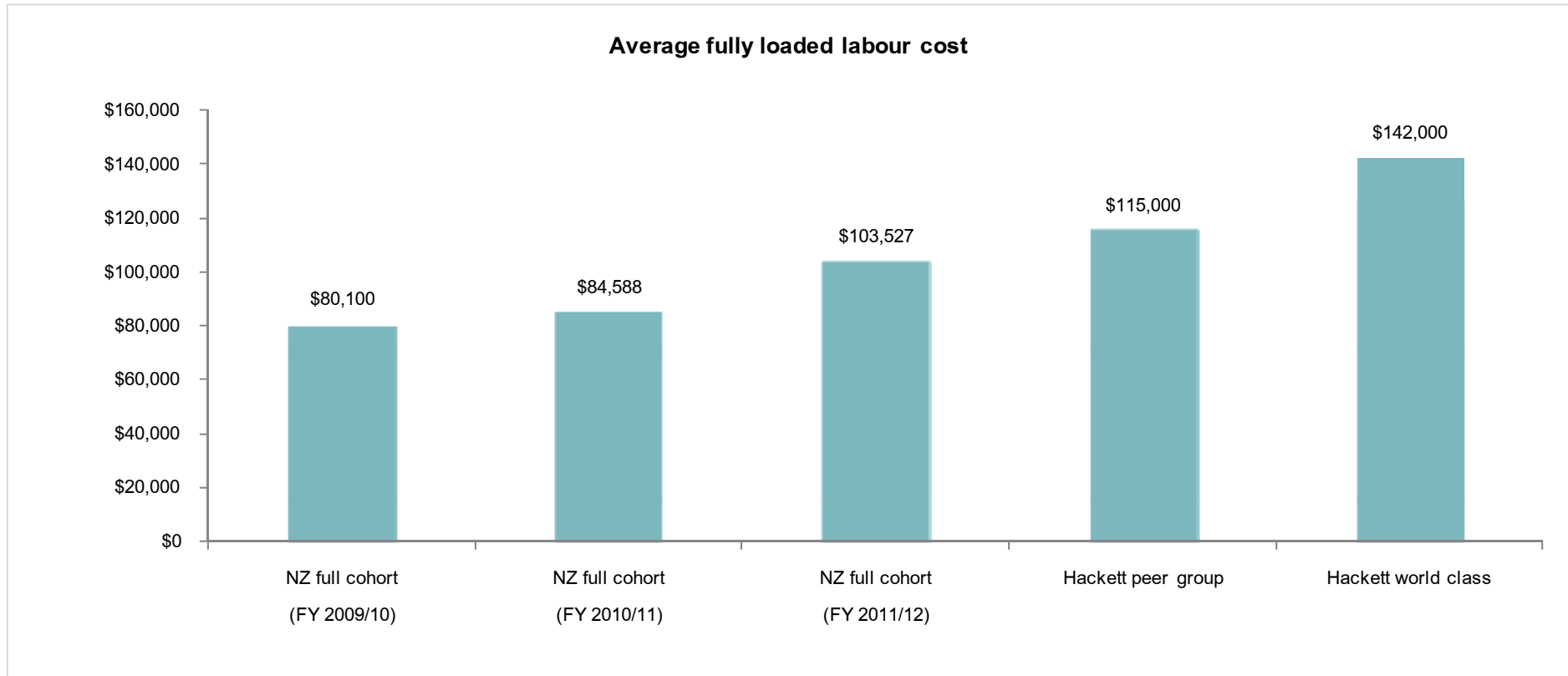
The number of end users has increased from 88,935 in FY 2009/10 to 91,090 in FY 2011/12. Had the number of end users stayed static since FY 2009/10, the total ICT cost per end user would be higher, due to the \$43.2 million increase in ICT spend.

The small agency cohort has increased its total number of end users per ICT FTE, while other cohorts remained static



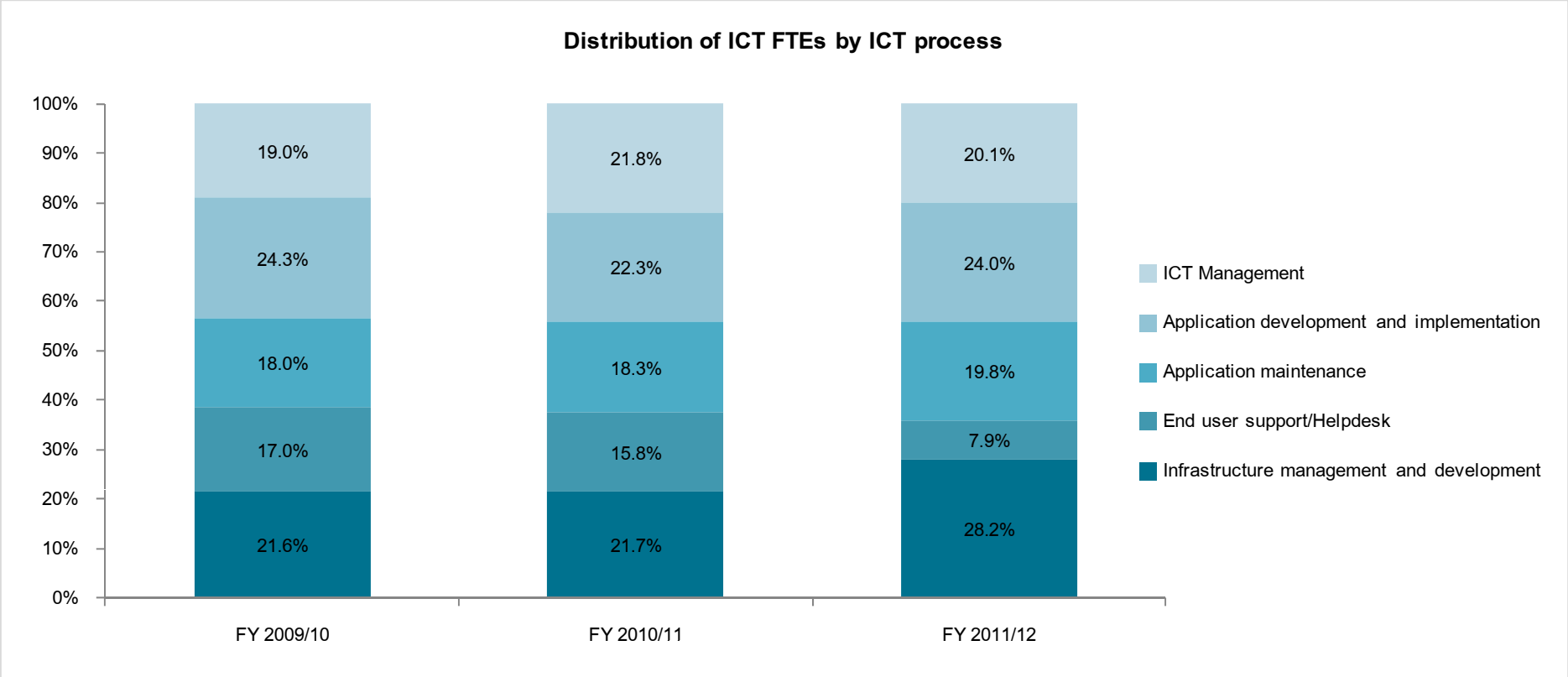
Medium-sized agencies tend to have a smaller number of end users, but still operate a relatively complex ICT environment, making it more difficult for them to realise scalability from their services.

The cost per ICT FTE has risen by 29 percent since FY 2009/10, which warrants further investigation as labour is 30 percent of ICT expenditure

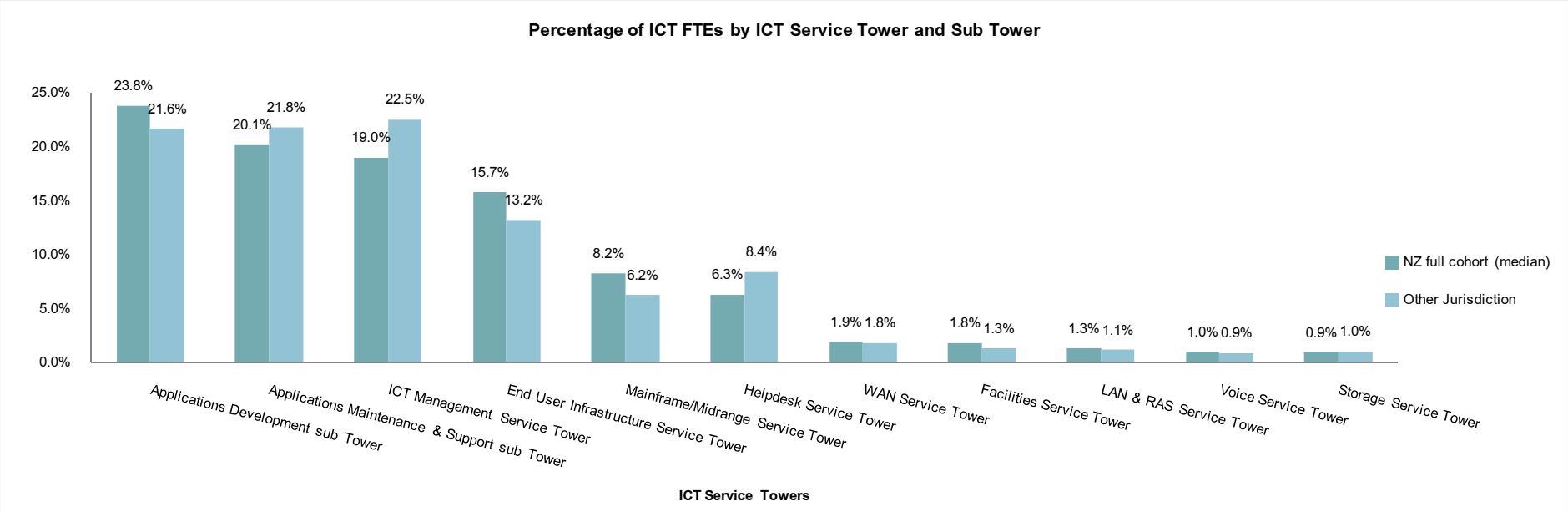


Because labour costs make up 29.1 percent of the total cost of the ICT function, and because New Zealand has a lower cost labour market, agencies have a substantial advantage over international comparators.

The increase in infrastructure management FTEs as a share of ICT FTEs warrants further investigation, since most outsourcing arrangements target this area



ICT resourcing is higher in Infrastructure and Midrange service towers than for the other jurisdiction, implying more in-house maintenance of ICT infrastructure

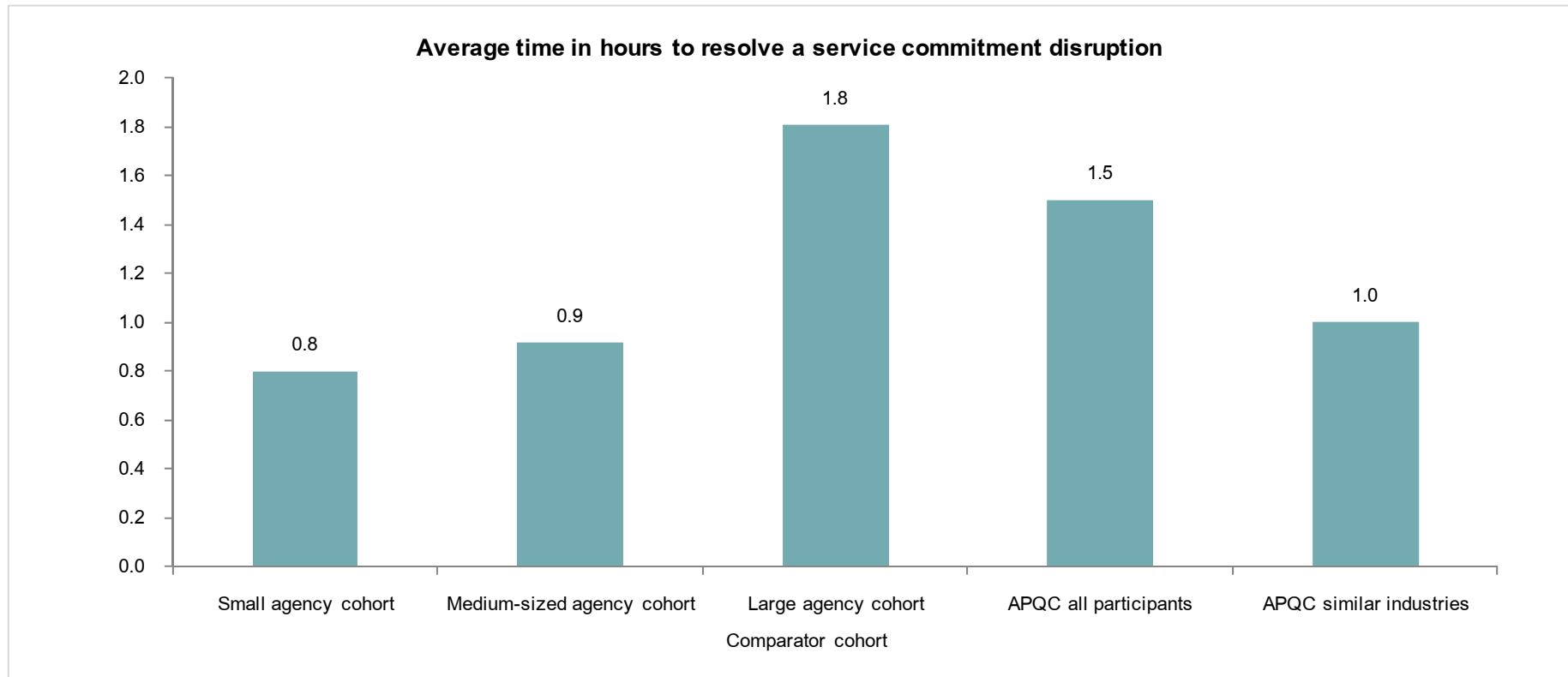


ICT management is the only service tower where resourcing is significantly less than for the other jurisdiction

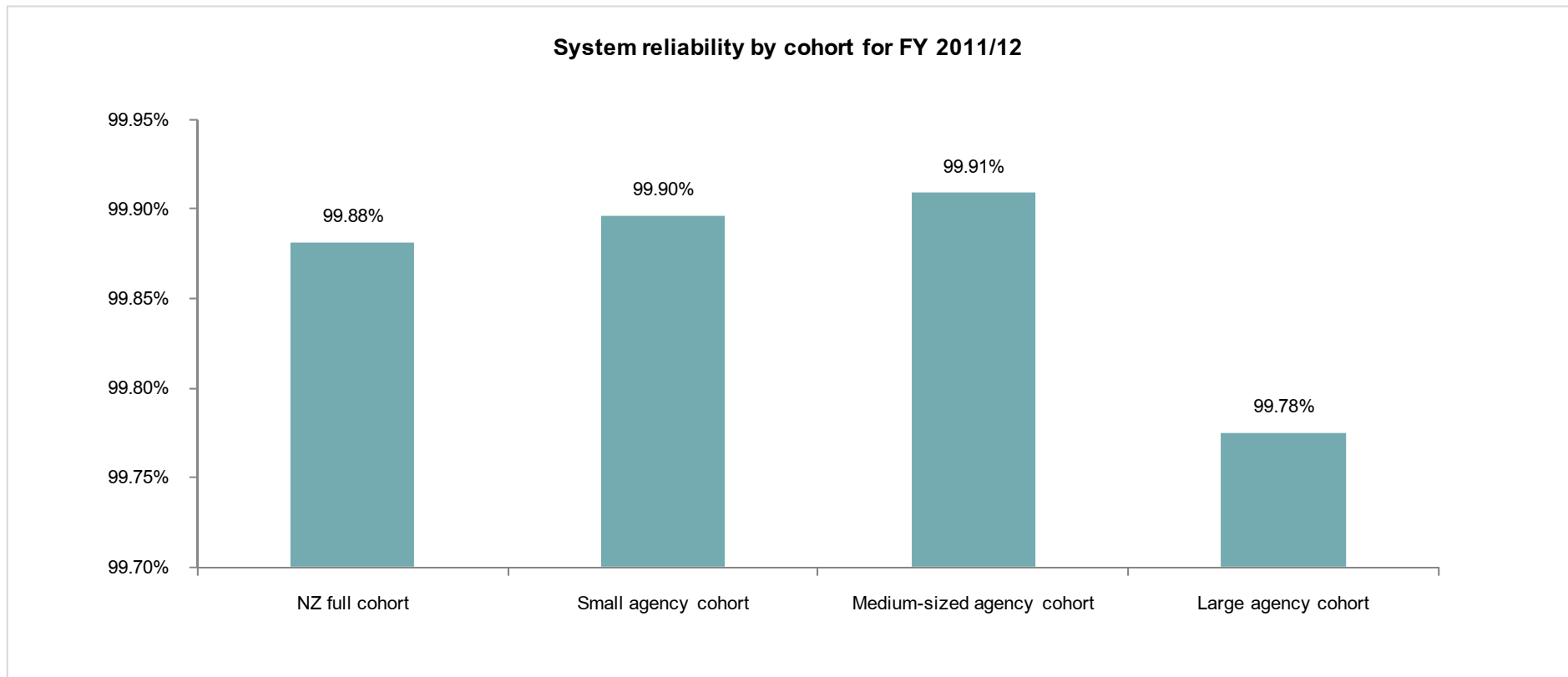
5. EFFECTIVENESS

Effectiveness findings report on the extent to which ICT activities achieve intended or targeted results. They compare NZ agency effectiveness with international comparators and examine changes in effectiveness since the previous reporting periods.

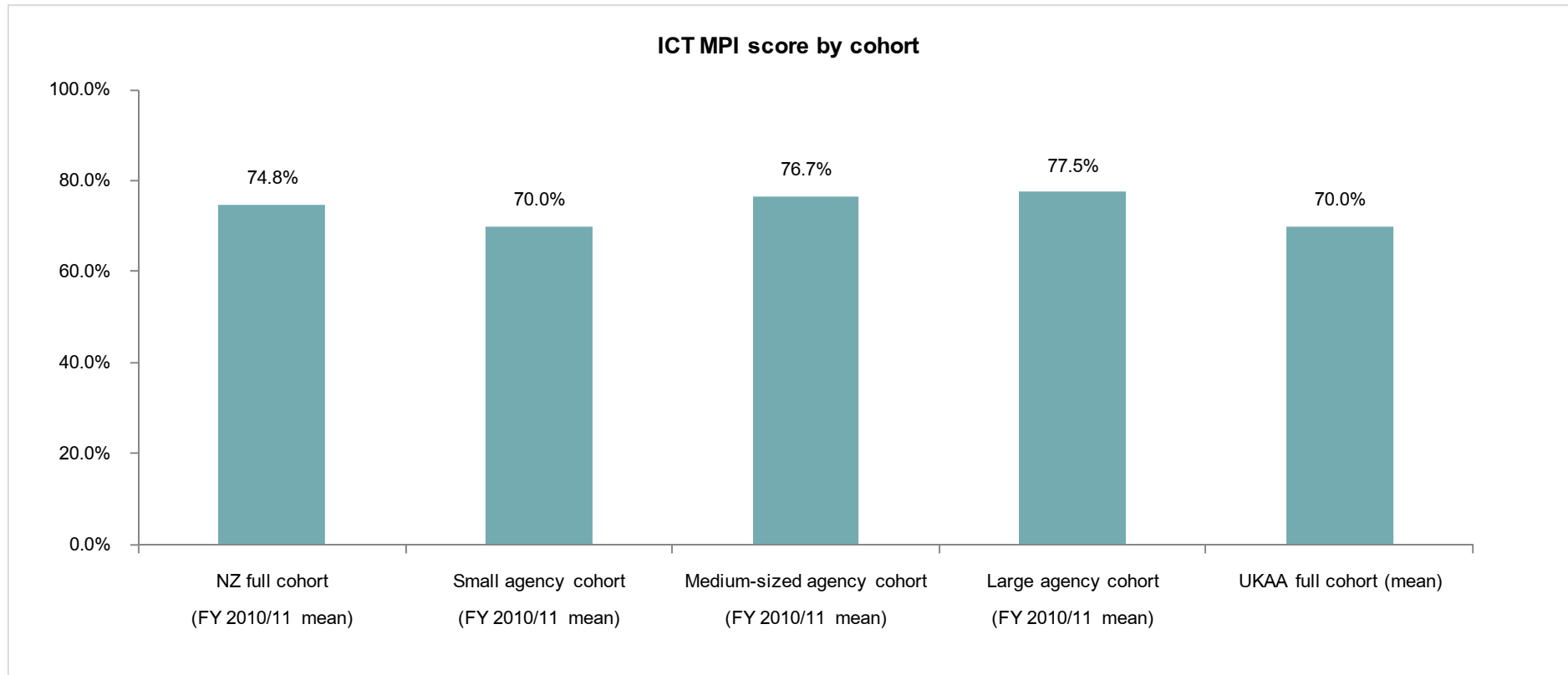
The average time to resolve service disruptions is in line with international comparators



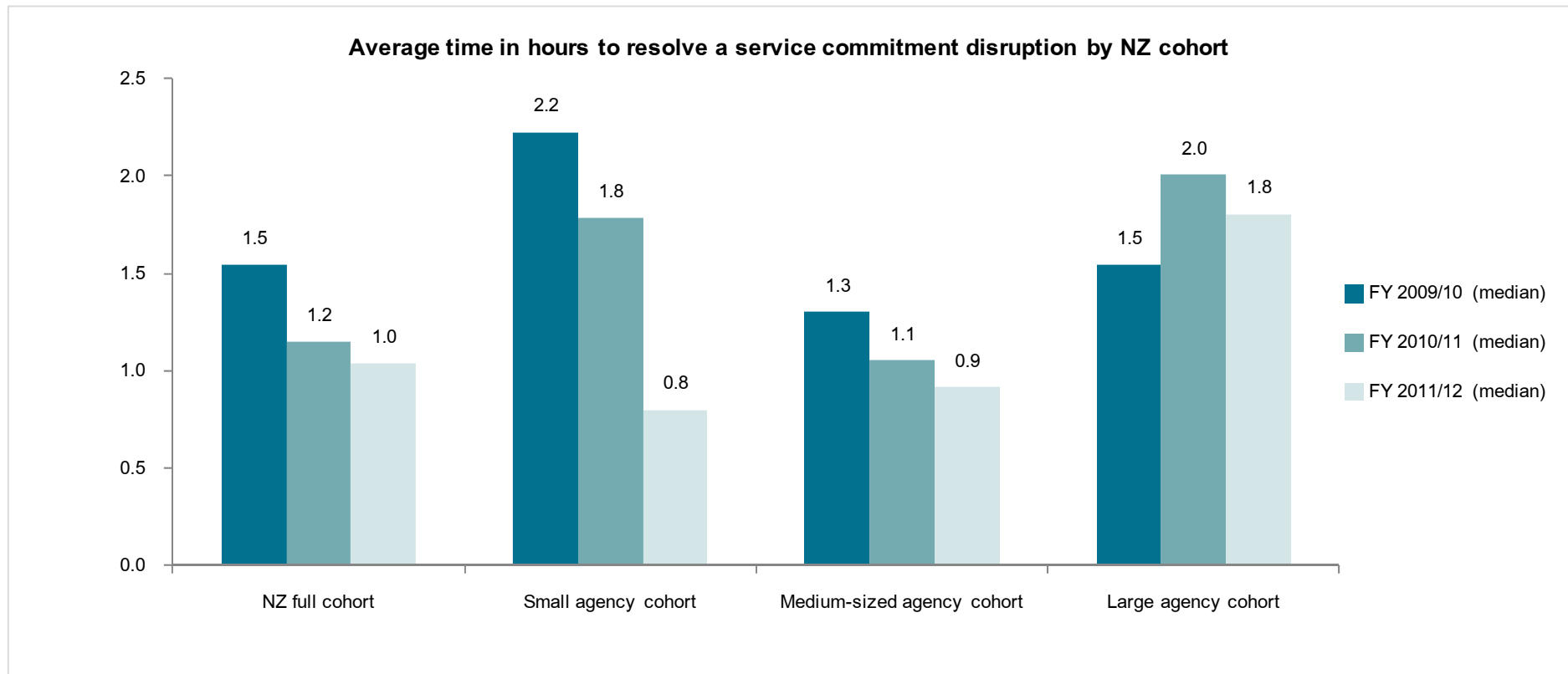
System reliability is high across all cohorts



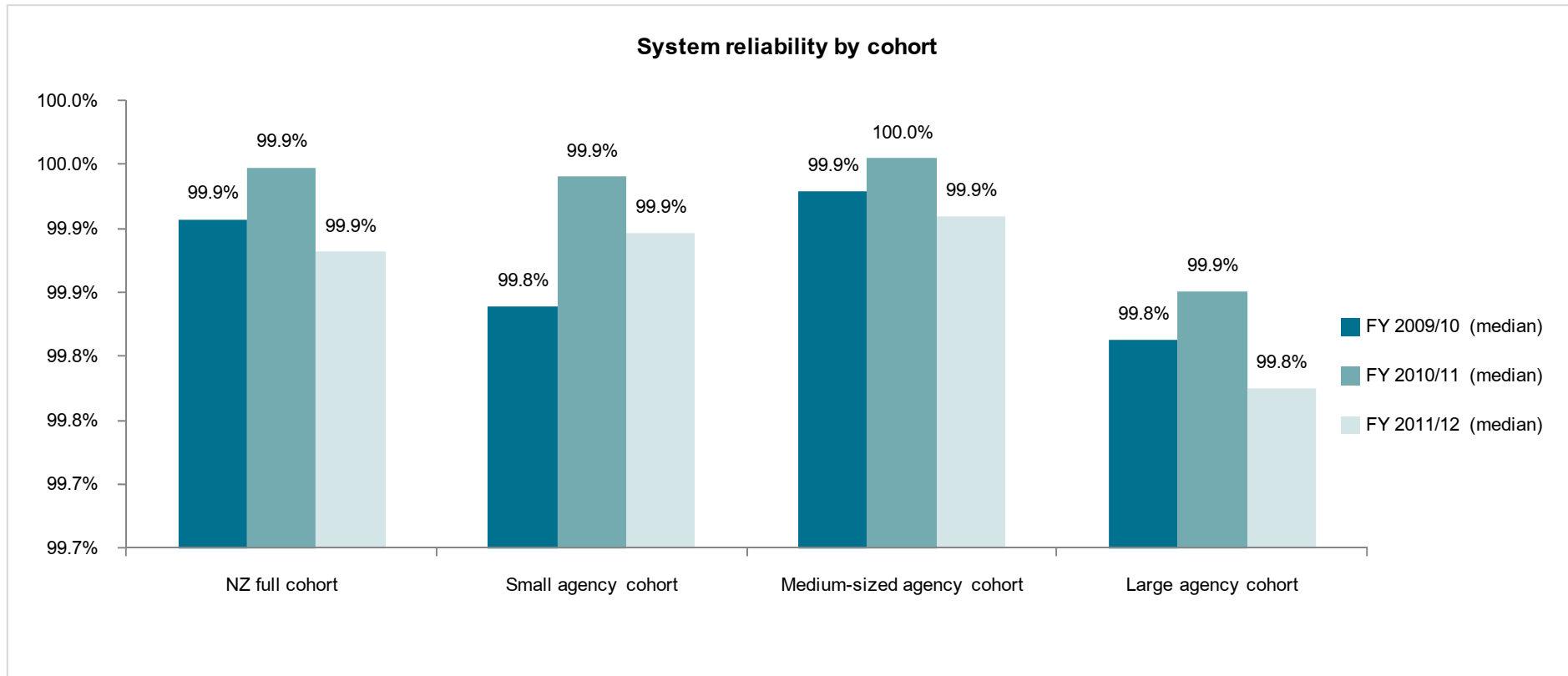
Overall, agencies reported MPI scores in line or above the international comparator



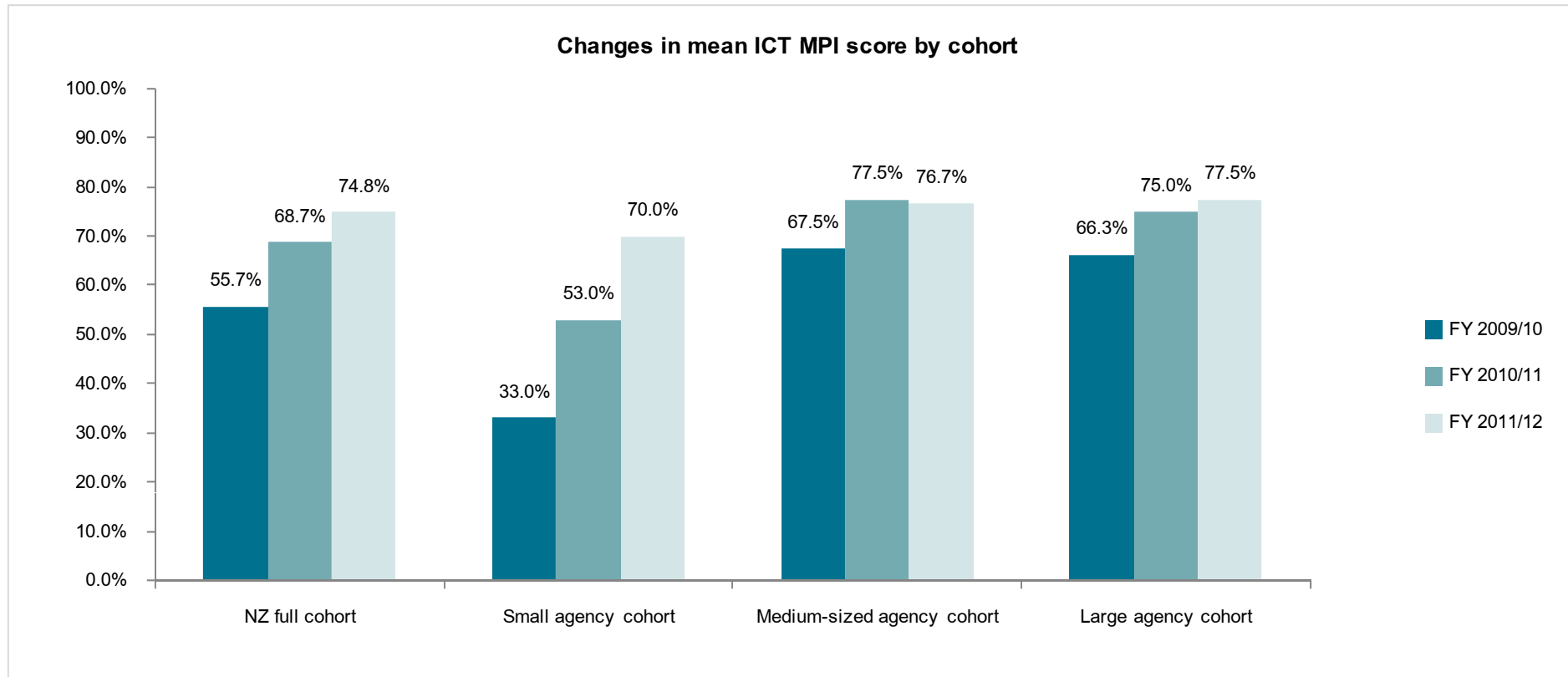
For the NZ, small and medium-sized agency cohort, the average time to resolve service disruptions has improved



Agencies have maintained high levels of system reliability since FY 2009/10



Overall, reported ICT MPI results have increased from 69% to 75%, with improvements for all cohorts



Agencies have expressed a strong preference to move from the MPI towards a Capability Maturity Model (CMM) to provide more meaningful information on which to base decisions.

6. QUALITY OF MANAGEMENT INFORMATION

These findings report on known ICT data quality issues, limitations of the indicator set in providing insight into ICT service performance, and opportunities for improvement. The introduction section in the summary BASS report includes common quality of management information findings across all functions that are not repeated in this chapter.

Quality of Management Information

The quality of the data underlying the metrics is generally of a high standard, and information can be meaningfully compared. Agencies overall collected high quality data for both reporting periods with consistent definitions and data collection methods across the New Zealand cohort and the international comparator groups.

Significant improvement were made to information quality for this reporting period.

- **For FY 2010/11 and FY 2011/12 agencies have separated capital expenditure (capex) and operating expenditure (opex):** Agency spending on capex has been isolated to help provide a clearer picture of trends and opportunities.
- Significant work has been undertaken to align measurement with benchmarks in other jurisdictions, notably through a pilot collection of cost information across eleven agencies by:
 - Service Tower and sub-tower
 - Cost Elements

While results are broadly comparable, they need to be understood within the context of each agency. While agencies have common features, each has their own functions and cost drivers. For example, large service delivery agencies are expected to have more expensive ICT requirements such as specialised line-of-business applications or a distributed network. Agencies should use the benchmarking results as a guide to relative performance. Conclusions regarding efficiency and effectiveness should be made in light of each agency's operational context.

Quality of Management Information

Complexity data was piloted for FY 2011/12 but needs refinement in order to provide insight. The Service Tower agencies also submitted data against newly piloted Complexity Measures. There is significant variability in the data, which appears to arise from problems around interpretation of the measures. The Treasury will work with the GCIO to improve these measures for the FY2012/13 exercise.

There is an opportunity to introduce further measures of the value of the ICT function. Agencies need to be able to demonstrate effectiveness in the management of applications and growing business demand for new functionality and service delivery. Measuring the impact of ICT solutions and services on agency performance is a challenge globally and will take considerable practitioner input and trial and error in future benchmarking exercises. The GCIO and Treasury will work to develop more meaningful indicators of whether or not resources are managed in a way that minimises cost, effort, and time resources are managed in a way that minimises cost, effort, and time.

Quality of Management Information

Management information quality will continue to improve with changes to metrics, especially for the management information that provides a government-wide view of ICT performance. As stated in the chapter's commentary, there are significant opportunities to improve the management information in future reports below, including but not limited to the following:

- **Capability Maturity Model (CMM):** Moving from the MPI to a CMM approach, whereby proxy value measures can be introduced. These may draw from international standards such as ITIL.
- **End User Definition:** In line with other jurisdictions, there is an opportunity to introduce a distinction between 1) Power Users and 2) Casual Users, to add meaning to the “end users per ICT FTE” and “cost per end user” measures.
- **Complexity Measures:** Taking lessons from the pilot of complexity measures for this reporting period, Treasury will work with the GCIO to improve these measures for the FY2012/13 exercise.
- **Service Towers:** All agencies will move to Service Towers/Sub Towers & complexity indicators
- **Personnel Cost:** Collecting personnel costs that has been capitalised, to better understand variation in personnel costs.
- **Outsourcing:** Refining metrics to better understand what is outsourced and at what cost
- **Volumetric data:** Dependant on agency availability, the GCIO will pilot the collection of volumetric data with a small group of agencies

More information

A glossary of terms, definitions and source material can be accessed via the main report, available on the Treasury website: <http://www.treasury.govt.nz/statesector/performance/bass/benchmarking/2011-12>

A full set of BASS data can also be accessed via the Treasury website:
<http://www.treasury.govt.nz/statesector/performance/bass/benchmarking/2011-12>

Questions about the findings in this report should be directed to BASS@treasury.govt.nz