inspiring success

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The Secretary
Public Accounts Committee
GPO Box 3721
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INQUIRY INTO MANAGEMENT OF ICT PROJECTS

The Australian Computer Society is appreciative for the opportunity to provide a submission into the Inquiry into the Management of ICT projects.

As a professional society, the ACS is the only independent - vendor and technology agnostic – voice in Australia's ICT sector. We are uniquely positioned to provide advice to governments and communities on improving ICT outcomes for all stakeholders. Our 22,000+ members work in every sector and industry vertical in Australia and the world and represent deep expertise across the entire ICT ecosystem. We continue to partner with Federal and State and Territory governments as a trusted and independent advisor to improve ICT outcomes and inform public policy development.

The ACS makes the following submission encouraged by the NT Government focus on improving ICT project management with respect to cost, time, benefit realisation and outcomes in the context of ICT as critical enabler to strengthen the future of the Territory. Our submission draws attention to the recommendations and lessons learnt from very high profile ICT project failures in Australia and abroad and we make the following recommendations to the inquiry:

1. **That the NT Government appoint a Ministerial ICT Council comprising senior representatives from industry, the SME sector and professional societies.**

2. **That the Ministerial ICT Council oversees Gateway Reviews for IT projects and establishes the Gateway review methodology across government for IT project assurance. The Council should consider the establishment of ICT provisioning guidelines to protect projects from scope creep and ensure delivery of best in class services.**

3. **That the NT Government seeks to adopt and enforce a standard project and program management methodology to streamline and improve the execution, delivery and management of ICT projects across the NT Government.**

4. **That the NT Government works with the ACS to understand its current and future in-house ICT expertise, particularly in relation to ICT project management and ICT contract management.**
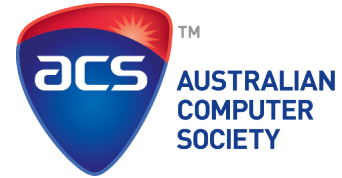
Information Communications Technology (ICT) underpins all government operations. ICT enables day-to-day communications as well as time and document and information management. More so, ICT holds the data related to the business of every arm of government and is increasingly essential for planning and policy development to serve the community. ICT is now, in our digital age, integrated into every aspect of our lives.

Despite ICT's ubiquity there remains a widespread inadequate appreciation of our dependence on it as much as what it is. While this misunderstanding permeates poor ICT project management it is not confined to government and is itself a broad indicator of how ICT is viewed in society today. For example, the ACS argues that ICT education should not focus on literacy with software applications and hardware (how to create a power-point presentation or use a laptop) but on the underlying knowledge of information and computer systems.[1]

Furthermore, in contrast to medicine, law, and even accounting and engineering, ICT is a relatively new discipline. It is perhaps the youngest profession and is not yet seen in the community, in government or in industry as a profession in itself as reflected by the general absence of ICT expertise in project steering committees and project delivery teams. This is the salient lesson from scores of forensic reports into large scale ICT projects characterised by cost over runs, delays, waste, reputational damage and service failure, and the ACS happily details some of these here.

In 2011, it was estimated by the Harvard Business Review that of 1471 major ICT projects around the world fully one in six experienced a cost overrun of 200 per cent and 70 per cent of projects experienced schedule overruns.[2] The authors highlighted, in contrast, the ingredients for a successful ICT transformation project by Emirates Bank in 2006 as including IT experts within the project team.

The ACS has 22,000 members who strive every day to deliver quality outcomes aligned to our code of professional behaviour. We acknowledge there are 'cowboys' in the sector but that ACS quality assurance of ICT skills and capabilities among practitioners is what sets an ACS member apart from a non-ACS member. ACS members who are certified either as "ACS Technologists" or "ACS Professionals" provide the market with an added assurance. An ACS Certified Professional can only maintain their certified status by undertaking more hours of annual accredited professional development than a lawyer. But despite even the best quality ICT outputs, ICT needs to be a voice at the highest level of decision making to mitigate risk:

- In Industry the CIO should be at the board table alongside the CEO
- In government the Premier, Chief Minister and Prime Minister need authoritative and independent ICT advice

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[1] ACS Submission to the Draft National Curriculum: http://acs.org.au/__data/assets/pdf_file/0003/18291/ACS-submission-to-the-ACARA-Draft-Curriculum-May-2013-FINAL.pdf
[2] Harvard Business Review: http://hbr.org/2011/09/why-your-it-project-may-be-riskier-than-you-think/

- In Education, our teachers need fluency in maths and sciences to impart to our children the skills needed to not only survive in our digital age but to take advantage of the tremendous opportunities ICT presents
- In our communities, citizens need guidance and assurance on their use and access of ICT.

The need to elevate the voice of ICT is a view shared by many Australian and international audit reports on ICT project failure and principally in the most comprehensive report to date by an Australian authority:

> *The government may wish to consider establishing a sub-committee of Cabinet to oversee the ongoing delivery of ICT-enabled projects and the implementation of my recommendations.*[3]

While our submission will provide many examples of when things go spectacularly wrong, and recommendations to avoid these mistakes, the general inadequacy of understanding of ICT is such that even our most trusted and fearless investigators often overlook the fundamental causes of failure. For example the US Food and Drug Administration Recalls and Safety Alerts for medical devices are peppered with references to electrical-mechanical faults but when analysed through an ICT expert lens, bad software coding is evident.[4] The ACS is currently undertaking an analysis of world-wide medical device recalls and preliminary results of that analysis show that over the last decade the references to "software" causes are rising and references to "electrical/mechanical" failure are decreasing, validating the ACS thesis that inadequate professionalism in ICT is an increasing risk to society but that the understanding of ICT's role in project outcomes is still lagging.

Government is disadvantaged when dealing with ICT vendors and needs independent advice

The UK Government has the dubious honour of mismanaging one of the largest IT project failures in the world through the NHS patient record system. In 2011 the NHS project was regarded as the largest civilian IT project of its kind in the world and it burnt through at least £12.7billion with many estimates putting the cost far higher. The amount of waste was equated to the salaries of more than 60,000 nurses for a decade [5] and although the project has been scrapped, the negative cost and consumer impacts are ongoing even today.[6]

There have been many reports and reviews into the NHS project over the last decade and at each point they support the ACS recommendations above. The ACS encourages all government agencies to note particularly the procurement and management lessons outlined by the UK National Audit Office 2006 report.[7]

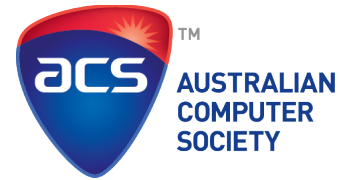[3] Own Motion Investigation into ICT-enabled projects, Victorian Ombudsman, November 2011
[4] 1160 mentions of software are detailed in the US FDA medical recall section:
http://google2.fda.gov/search?q=software&x=-956&y=-306&filter=0&proxystylesheet=FDAgov&output=xml_no_dtd&sort=date%253AD%253AL%253Ad1&site=FDAgov-Safety-Devices&requiredfields=-archive%3AYes&client=FDAgov
[5] http://www.dailymail.co.uk/news/article-2040259/NHS-IT-project-failure-Labours-12bn-scheme-scrapped.html
[6] http://www.bbc.co.uk/news/uk-politics-24130684
[7] http://www.nao.org.uk/wp-content/uploads/2006/06/05061173.pdf - see Appendix 2: Lessons learnt.

In another example from the UK, the BBC launched a "Digital Media Initiative" in 2008 to modernise media asset systems. After five years and almost £100m the project was abandoned.

The UK National Audit Office released a report on the failed project in February 2011. Key conclusions of the audit report noted that

> [...] In managing the outsourced contract, the BBC's knowledge of the adequacy of Siemens's design and development work, and therefore of the causes of any delay, was limited. The BBC did not have any independent technical assessment of the system, as would be good practice for system design, and until May 2009 did not seek access to the Siemens code supporting the system. [8]

Specifically, in relation to the BBC project failure, the UK National Office recommended:

a) *The BBC should have had an adequate assessment of technology supplier capability.*

This should have an obvious resonance to recent NT government experience. In the BBC case, the supplier, Siemens, was a long-standing technology solution partner of the BBC but had last been assessed four years earlier. Given the rapidly evolving nature of technology the ACS recommends that supplier capability is reviewed independently each year.

b) *The BBC should have independent technical assurance processes on system design when contracting out software development.*

What is clear from these UK experiences is the value of vendor neutral expert advice on large scale ICT projects needs to be established at the top. The ACS recommends that all governments and agencies adopt a gateway review process. These often exist for procurement projects but need to be established to monitor ICT project delivery.

The need for independent ICT capability and expertise in steering committees

Closer to home, substantial cost overruns and project delays occurred in the implementation of an improvement program to the Victorian Department of Justice administrative systems. The Victorian Auditor-General noted that the project suffered from inadequate expertise:

> *Inadequate specification of system requirements [...] partner agency staff used to identify system requirements were nominated by the partner agencies based on their substantial business knowledge or subject matter expertise and not their IT skills. While this led to the identification of functional requirements, the absence of IT skills meant that these requirements were not always successfully translated into technical requirements.* [9]

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[8] The BBC's management of its Digital Media Initiative, Report by the Comptroller and Auditor General Presented to the BBC Trust's Finance and Compliance Committee February, 2011
[9] Report on the Implementation of the Criminal Justice Enhancement Program (CJEP), The Victorian Auditor-General's Office, June 2008. Page 28

The report went on to acknowledge that the IT Contractor in the project was not formally part of the steering committee: *"The IT contractor attended steering committee meetings periodically and did acknowledge many of the issues and concerns raised."* [10]

Following a string of high profile ICT project failures the Victorian Ombudsman initiated an own motion review noting $1.44bn of cost had been wasted in failed IT projects, representing, in today's terms 10 per cent of the annual revenue of the Victorian State Revenue Office. The ACS considers this investigation the most far-reaching and authoritative Australian review of ICT project failure to date and encourages the Committee to note its conclusions and recommendations.

> *Each of the 10 projects I examined failed to meet expectations; most failed to meet delivery timeframes; and all ran over budget. The original budgets for these projects totalled $1.3 billion. The latest estimated cost is $2.74 billion – an additional $1.44 billion cost to government.* [11]

The Ombudsman also noted that

- Many of the project steering committees did not have the requisite expertise.

- There is a capability deficiency in government in contract assessment and negotiation in contrast to large vendors: *"Large vendors are well-versed and experienced in contract negotiations, putting relatively inexperienced government staff at a disadvantage"*

- There is a lack of ICT expertise within government: *"There is a shortage of skilled senior project managers with relevant ICT experience in government. To compensate, agencies often appoint expensive contractors or inexperienced public sector staff."*

ICT professionalism does not solve everything

In February 20-12, the NSW Auditor-General published a report on the management of IT Services Contracts. Unsurprisingly the report noted inadequate ICT skills across key agencies leading to negative ICT project outcomes. Skills – and their inadequacy – are noted 24 times in the report in relation to ICT Contract management. [12]

Upon retiring in September 2013, the then NSW Auditor General, Peter Achterstraat, provided his view of the 12 reasons government projects fail. [13] The ACS holds that half of these (highlighted) can be avoided by implementing vendor neutral, independent advisory mechanisms:

     i.   A poor initial business case

     ii.   Unclear statements of expected outcomes

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[10] Ibid. P.32

[11] Own Motion Investigation into ICT-enabled projects, Victorian Ombudsman, November 2011

[12] Managing IT Services Contracts, New South Wales Auditor-General's Report February 2012

[13] "Outgoing auditor-general shares his wisdom":
http://www.itnews.com.au/News/357915,twelve-reasons-government-projects-fail.aspx

iii.   Lack of senior management buy-in

iv.   Inadequate gateway reviews

v.   Poor communication

vi.   Inadequate stakeholder engagement

vii.   Scope creep (or in many cases 'scope gallop')

viii.   Conflicts of interest

ix.   Optimism bias when assessing prospective benefits

x.   Group think

xi.   Lack of appreciation of the 'big picture'

xii.   Decision-makers being too imbedded in the project so they can't see the forest for the trees.

Size does not matter because risk remains

Adding to our catalogue of poor domestic IT outcomes, the Queensland Health payroll system deserves special mention. At the time of writing long standing issues impacting the QLD Government's IT program are continuing to drain resources with half of the major IT initiatives QLD has in play at risk of delay, cost overrun, or project failure.[14] Key recommendations of the Queensland Health Payroll System Commission of Inquiry support ACS recommendations in this submission:

> *"I have identified two principal causes of the inadequacies which led to the increase in contract price, the serious shortcomings in contract and project management, and in the State's decision to settle with IBM."* [15]

Echoing the Victorian Ombudsman's warning that governments suffer from asymmetrical knowledge and expertise in contract management with large international IT vendors, the QLD Health Commissioner noted that government IT project management structure must have access to skills and experience and that this expertise must report into government at such a level as to be able to do so without fear.[16] The ACS interprets this, that in effect, such advice must be independent.

Severely burnt from their NHS experience, the current UK Government has a program of making outsourced IT contracts smaller and more defined, arguing that having all your eggs in one vender mega-basket is itself a big risk. Thus, the thinking goes that smaller vendors = smaller risk.

However, the ACS maintains that minimising risk by making IT projects smaller and more defined presents to project owner's new risks beyond large scale project outcomes reliant on one vendor's performance.

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[14] Half of QLD Health IT Projects at risk: http://www.itnews.com.au/News/361812,half-of-qld-health-it-projects-at-risk.aspx

[15] Queensland Health Payroll System Commission of Inquiry, Report, July 2013

[16] Ibid. Page 220

In August 2013, the NSW Independent Commission Against Corruption released a report on Managing IT Contractors with the specific concern that as increasingly government is reliant on outsourced contractors for IT, government lacked adequate processes for assuring contractor capability.

Stating that "as project controls weaken, ICAC has seen opportunities for profiteering and corruption increase," [17] the ACS maintains that it is critical for both contractors and agencies to be adequately protected against what can only be described as ever increasing risk.

The ICAC report highlighted that curriculum vitae embellishment and fraud have become increasingly prevalent risks in IT-related projects. ICAC discovered that 64 per cent of candidates overstated their accomplishments and 71 per cent misrepresented the number of years they held a particular role.[18]

As an aside, the ACS actively works to overcome these two issues. Firstly, we provide independent, industry leading certification providing employers with certainty around the qualifications of their IT expertise and resources. In addition, the ACS offers professional indemnity insurance which helps protect individuals from the dangers of poor project management which can leave them liable.

> ### *Consistent Project and Program management methodology to streamline and improve the execution, delivery and management of projects.*

In our own backyard, the NT Auditor-General's reports[19] in total show that IT management and performance in the Territory is improving following a recommended focus on improved project governance: "We are getting better at project scope, design, vendor management and delivery". However, the ACS maintains that the lack of consistency in the execution of project and program management activities, management of risks and project quality is continuing across the NT Government. This is evident by the failings of the projects noted in the Public Accounts Committee Terms of Reference and also by the following:

- There is no mandated or adopted project or program management methodology to support the execution of project activity across the NT Government. IE PRINCE2, PMBOK, MSP
- ACS members working across the NT Government continue to witness disparate practices in the management of ICT projects:
    - Multiple projects within the same agency being managed differently – this is said to be a common occurrence.
    - Some agencies have allocated and spent thousands of dollars and man-hours to establish Project Management Offices but lack willingness to enforce adherence to due process and standards.
    - Lack of leadership from the senior agency management to recognise ICT as a strategic services enabler and support the improve use of ICT and delivery of ICT projects through training and skills development for agency staff.

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[17] Managing IT contractors, improving IT outcomes, NSW ICAC, August 2013. Page 4.

[18] Ibid. Page 16.

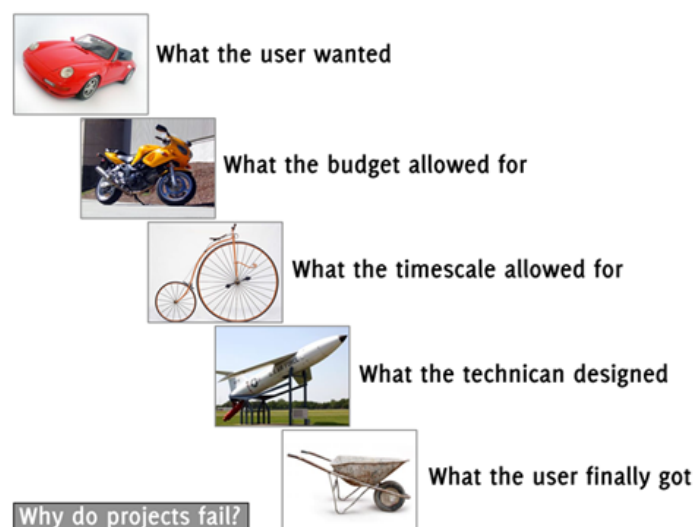[19] Auditor-General for the Northern Territory – August 2013

- A preference by Agency heads to buy software solutions rather than build solutions using local resources and expertise. This has created a reliance on external contractors and vendors who fly in and fly out and whom generally do not support local skills development and growth. The ACS understands this was the case on the recent DCI & PowerWater AMS projects.

- Formal Steering Committees established within NTG Agencies lack formal authority and/or recognition by senior management and are reluctant to make critical decisions to cease or cancel runaway projects.

Project and Program Management can be taught and affected through the adoption of methodologies such as PRINCE2, PMBOK, MSP, P30, P3M3, etc. The NT Government can improve project and program management through simple policy directives such as mandating that Agencies demonstrate a level of project management maturity (within a period of time).

The Asset Management System (AMS) project, described in the media as a "perfect storm of mistakes" [20] blew out three to four times the initial project cost and took over six years to deliver (and even then with some 570 defects).

The Territory's Public Accounts Committee in August this year heard from the infrastructure department deputy Chief Executive Ms Anne Bradford who pointed to a disparity between what IT staff believed the application delivered (97% fit for purpose) and how users received it (12% fit for purpose). The images below depict how critical gaps associated with poor project planning, scoping and execution can lead to inadequate results.

The increasing risk in ICT

What the user wanted

What the budget allowed for

What the timescale allowed for

What the technican designed

What the user finally got

Why do projects fail?

©http://www.jiscinfonet.ac.uk/

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[20] http://www.theregister.co.uk/2013/08/28/another_big_sap_project_hits_the_rocks_in_oz/

For the ACS, we note that many of the issues impacting the AMS project could have been avoided if the government had the benefit of independent advice from ICT experts as part of a gateway review governance framework. The Auditor-General's August 2013 report [21] does not explicitly recommend such a framework - being appropriately concerned with explaining what happened and remediation progress - but the report points to it in noting inadequate performance of the project steering committee and reference group, significant gaps in project design and expectations, scope creep, a lack of expert knowledge within project teams and significant variance in the quality of inter-agency input.

The ACS view of the need for a Ministerial Council on ICT to support best in class gateway review methodology is reinforced explicitly in the March 2013 Auditor-General report in relation to project governance of the ACM project:

> *While the overall project governance structure used might have been expected for a project of this size and complexity, the effectiveness of the governance was affected by a lack of clear recognition and reporting of key risks and issues confronting the project and their potential effects. The inadequate documentation and presentation of the risks and effects, when coupled with issues of the continuity of steering committee membership, reduced the effectiveness of governance. There was also insufficient action taken on the independent quality assurance advice received through various project reviews.* [22]

In relation to the NT Grants Management System, the Public Accounts Committee hearing of 17 December 2012 witnessed this exchange:

> *Mr GUNNER: So they tendered with a software program right from the start that was not actually going to be able to do the job?*
>
> *Mr MOO: Yes.*
>
> *Mr MOFFET: They tendered with a core program they believed was capable of customisation. I think what subsequently turned out was (a) it was not capable, and (b) they did not have the skills and resources to bring that to bear. [...]* [23]

The Auditor-General report of the previous October 2012 had already recommended improved project governance [24] and it reinforces the ACS position in this submission that in adopting that recommendation the Grants Management System project management subsequently improved.

Streamlining the tendering process

ACS NT branch members are actively engaged in the pursuit of business with the NT Government through the current tendering process. With the importance of professional ICT

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[21] Auditor-General for the Northern Territory – March 2013

[22] Ibid (highlight ACS).

[23] http://www.nt.gov.au/lant/parliamentary-business/committees/public%20accounts/Transcripts/Final_Transcript_Department_of_Health_17_December_2012.pdf

[24] Auditor-General for the Northern Territory – October 2012
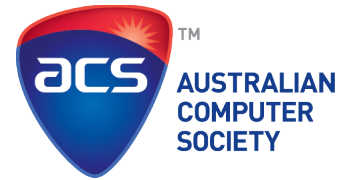
services being critical to project success, the professional approach must be extended to the tender process. While the duration of the process can be subject to unforeseen delays, in all cases the stated aim should be to generate the tender and select the vendor in the quickest timeframe possible. Speed in this respect can deliver a more efficient outcome than ongoing delay.

To promote the continued improvement of tenders, increased transparency should also be at the forefront of the process. While the loss of any tender leads to an internal review, this can become more valuable for the losing party if they are provided with greater feedback through and after the tender process. The long term outcome of this improvement will be a higher quality of tender responses being received which ultimately delivers a greater likelihood of project success by the winning party.

In line with the creation of a Ministerial council on ICT, a specialised ICT selection panel should also be considered where a tender document relates specifically to the provision of technology and digital services. This practice is standard where a tender relates to a specific field such as engineering or exploration, and the field of ICT should be treated no differently. This document identifies several project failures that could have been avoided with specific knowledge in place. Given the continued growth in the Territory's Asian economy, project failures will have the potential to cause greater economic damage and loss.

Providing greater detail, transparency and accountability in the tender process will demonstrate to vendors and end users that the process is committed to delivering a successful project. Once these changes are effected, it then becomes easier to further modify the process to involve vendor demonstration and presentation as well as more advanced scoping of requirements, leading to lower overall cost for the project – through the avoidance of scope creep.

Conclusion

The ACS commends the NT Government in seeking input into improving IT outcomes for the Territory. The ACS is available to the Committee as a trusted impartial specialist advisor on ICT policy.

The ACS has recently partnered with the federal Department of Communications to conduct a successful public consultation on cloud computing and in 2011 partnered with the prime Minister and Cabinet in developing a cyber-security whitepaper. Our public policy expertise as a trusted advisor to governments, an impartial researcher and a vendor neutral advocate for ICT professionalism is a matter for public record[25] and we hope that we may continue to assist the NT Government in improving outcomes for all Territorians.

For further information regarding this submission, please contact ACS Northern Territory Branch Chair, Mr George Koulakis at george.koulakis@acsmail.net.au or by telephone on +61 8 8921 8313.

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[25] https://www.acs.org.au/information-resources/public-policy/public-policy-positions