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IT GOVERNANCE STABILITY IN A POLITICAL CHANGING ENVIRONMENT: EXPLORING POTENTIAL IMPACTS IN THE PUBLIC SECTOR

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ABSTRACT

Public sector organisations (PSOs) operate in information-intensive environments often within operational contexts where efficiency is a goal. What's more, the rapid adoption of IT is expected to facilitate good governance within public sector organisations but it often clashes with the bureaucratic culture of these organisations. Accordingly, models such as IT Governance (ITG) and government reform -in particular the new public management (NPM)- were introduced in PSOs in an effort to address the inefficiencies of bureaucracy and under performance. This work explores the potential effect of change in political direction and policy on the stability of IT governance in Australian public sector organisations. The aim of this paper is to examine implications of a change of government and the resulting political environment on the effectiveness of the audit function of ITG. The empirical data discussed here indicate that a number of aspects of audit functionality were negatively affected by change in political direction and resultant policy changes. The results indicate a perceived decline in capacity and capability which in turn disrupts the stability of IT governance systems in public sector organisations.

Keywords: IT Governance, Public sector reform, Political direction, changes in government, audit challenges.

INTRODUCTION

Most public sector organisations (PSOs) operate in data-rich environments and depend on information technology (IT) as an essential part of their daily operations. The service delivery timeframes within PSOs are often being targeted as points where efficiency gains can be found, this often a case when public perception of bureaucratic inefficiency and wastage becomes a political issue in the media [1]. Further, IT is expected to facilitate good governance within PSOs via enabling accurate deci-

sion-making; increasing transparency and accountability; and supporting the efficient delivery of services [2]. Consequently, political leaders place high emphasis on the role of IT as a catalyst for change in the public sector. In spite of the relevance of IT as important means of delivering efficiencies and in facilitating change, this capability for efficiency can often clash with the bureaucratic culture of PSOs [3].

The past two decades witnessed a wave of public sector reforms, commonly referred to as the new public management (NPM). These reforms focused on transforming government approaches to management to concentrate

on output targets; performance appraisals; and on a movement towards efficiency, effectiveness, and cost reductions [4]. Australia is a federation of six States (New South Wales, Queensland, Victoria, South Australia, Western Australia, and Tasmania) and two Territories (Australian Capital Territory and Northern Territory) each with its own legislature and parliament with an overarching Commonwealth (Australian) government. In the Australian public sector, the changes introduced by NPM reform (e.g., structural re-model, budget processes re-engineering) led to a shift away from a traditional administrative approach to one that fostered managerialism and economic rationalism [5]. In recent time, many Government agencies in Australia have embarked not just on cost efficiencies in service delivery but on policies of either a full or partial cost recovery mechanism. However, not all reforms in the public sector were economically rational, and in some cases were seen to be just a "window dressing" of organisations. For example, some PSOs that went through reform were not driven by achieving greater economic efficiency but rather for the purpose of legitimising roles in the face of different forms of change in political direction and policy or institutional pressure [6, 7].

Information technology reforms have often been associated with changes in government. For example, shortly after the Liberal National Party (LNP) Coalition government was swept into power in the 2012 Queensland State Election, the previous Australian Labor Party (ALP) ICT strategy was officially discarded [8]. The LNP also articulated that the new government was focused on using ICT to save money, not wasting it [9]. Changes in public sector resource allocation especially in a high cost areas such as IT are not unknown following changes in political direction and policy. In the same vein, IT Governance (ITG) is closely linked to government reform, in particular the NPM. ITG and government reforms address the issues of bureaucracy, underperformance, and inefficiency in PSOs as they are both regarded as means for modernising governments by employing a result-oriented approach, redesigning lines of responsibility, improving accountability, and increasing visibility of plans and processes [10, 11]. The effects of change in political direction and policy, and organisational restructure (e.g., department head change) can have significant implications on continuity of IT governance [12]. These changes also arguably lead to a lack of clarity in respect to responsibility and accountability for governance outcomes.

This paper draws on previous research by Al Omari, Barnes, and Pitman [13] and implements a survey method and a questionnaire instrument which was administered to 70 IT and audit professionals from public sector organisations in Queensland to examine implications of a

change of government and the resulting political environment on the effectiveness of the audit function of ITG within an Australian State government.

BACKGROUND

Australian Public Sector: Synoptic Overview

Public sector organisations in Australia are defined as "enterprises which the Commonwealth (Australian) Government, State/Territory and local Governments, separately or jointly have control over. This definition includes local Government authorities and all Government departments, agencies and authorities created by, or reporting to, the Australian Parliament and State Parliaments" [14]. PSOs represent the administrative effort that deals with service delivery for the current government at national, regional or local level [15]. In the public sector, a wide scope of concerns exists due to some of the following distinguished characteristics:

- ♦ High level of bureaucracy and red tape. i.e., less flexible formal procedures for decision-making [16] and excessive amounts of counterproductive rules driven by processes instead of results [15].
- ♦ Wider accountability and lower managerial autonomy. e.g., managers have less freedom to act on issues like performance incentives and staffing [17, 18].
- ♦ Frequently changing requirements. i.e., changes in government and varying ministerial expectations [16, 19].

The wide-spread recognition that IT has the potential to transform a State Government's efficiency and productivity in the areas of service functions and internal operations keeps driving the investment in IT to prompt good governance [20]. For example, the Australian Government expenditure on IT increased from AUD 5.17 billion in 2008-9 to AUD 5.19 billion in 2010-11 [21].

IT Governance and Public Sector Reform

In simple terms, public sector reform could be defined as an on-going change process within PSOs that intends to improve their performance [22]. For more than two decades the Australian public sector has been undergoing continuous reform which was first initiated through big cuts to tariffs and floating the dollar in an attempt to internationalise the economy [23]. These decisions were shortly followed by concentrating on public sector performance to boost efficiency and increase responsiveness to political demands [24, 25]. However, the reform pro-

cess has not been an easy task due to Australia being a federated nation with a public sector comprising three layers: the Commonwealth, eight state and territory administrations, and more than 500 local government municipalities [26]. The Reid inquiry [27] into the Australian public sector is considered the cornerstone of an assessment of public sector reform. The inquiry introduced numerous changes to management practices that initiated the machinery of government [24]. In Australia, three main models of public sector reform could be conceptualised, namely, managerialism, new public management (NPM), and integrated governance.

It is recognised that public sector reform and the adoption of IT are interacting processes [11]. Consequently, political leaders often place high emphasis on IT initiatives to invoke changes in the public sector. As the public's expectation for technology-enabled services increases (e.g., e-government) and political pressures rise, the selection of effective ITG mechanisms to achieve IT-enabled goals remains a challenge [28]. IT Governance is defined in the public sector as "ensuring that a state government is effectively using information technology in all lines of business and leveraging capabilities across state government appropriately" [29]. The main objectives associated with ITG are minimising risk, supporting goal attainment, and providing oversight of IT investments. ITG is different from IT management as the former relates to decision-making and the latter concerns itself with decision implementation [30]. In Australia, ITG initiatives were part of the Australian government ICT reform in 2008, which emphasised strengthening governance of ICT, measuring benefits arising from investments, and focusing on a whole-of-government approach [31]. Even though ITG initiatives are relatively recent, they have encountered a few challenges. One of these challenges is concerned with implementation in large, complex, and multi-unit, multi-level state government organisations [32]. Another challenge is establishing a consistent measurement of ITG performance across PSOs as undertaking audit of existing ITG systems, as part of performance assessment, introduces a new set of challenges [13].

STUDY SETTING AND AIM

Shortly after the Queensland state's election in March 2012, a range of public sector changes commenced with the incoming government announcing a new ministerial line-up coupled with significant reform [33] in an effort to "restore departmental and ministerial accountability" [34]. The LNP increased the number of departments

from 13 to 19 with every Minister to oversee and be responsible for a standalone department [35]. The most affected departments by this change were the previous "mega-departments" which were overseen jointly by a number of multiple Ministers. These departments, such as Department of Environment and Resource Management; and Department of Employment, Economic Development and Innovation were broken into separate departments with clear lines of control and responsibility to one minister [36].

This research examines the impact of a changing political environment on the viability or reliability of ITG audit in a State government context. The aim of this study is to explore the potential effect of change in political direction and policy on the stability of IT governance in public sector organisations undergoing such significant reform. The Queensland public sector was chosen as our research participant due to the shift of power at the state government level after being governed by the same party for most of the last twenty-three years [37]. In addition, organisational structure and public sector objectives with the State of Queensland are not substantially different to other jurisdictions within Australia. Further, it is likely that their public sector objects will substantially correspond to other public sector jurisdictions globally other than different cultural aspects may have an influence. Cultural influences though highly important are outside the scope of this research.

This study is based on previous research by Al Omari, et al. [13], which utilised a Delphi method and brought together a panel of 16 experts from IS audit, IT and business to complete an email survey consisting of a three-round questionnaire instrument. Their research identified a ranked list of 30 major ITG audit challenges within the Queensland public sector (see Table 1) and also measured the perceived impact and effort of these challenges. These audit challenges were divided into three categories, namely, Internal Audit (N), External Audit (E), and Organisational (O) with each category containing challenges that attributes to the category's label (e.g., challenges in the internal audit category represent challenges associated with internal audit, etc.).

In order to achieve the aim of this study, the potential effect of change in political direction and policy on the stability of IT governance in public sector organisations will be assessed through measuring perceived changes in the attributes of the previously identified ITG audit challenges.

Table 1: Top ten ITG Audit Challenges [13]

Code	Challenge	Rank	Impact	Effort
E2	Limited knowledge of emerging risk exposures related specifically to the audited organisation.	1	3.7	3.3
N1	Insufficient skills and competencies to undertake effective ITG audits.	2	4.2	3.3
O7	Lack of executive management ITG ownership and accountability.	3	4.3	3.9
O2	Tendency to focus on mere compliance rather than quality.	4	4.2	3.4
N2	Inadequate evaluation and testing of the effectiveness of ITG controls.	5	3.9	3.1
O1	Difficulty to recruit and retain experienced ITG auditors.	6	4.0	3.9
E10	Repetition of audit activity in place of identification of systemic control failures.	7	3.4	2.9
E3	Audited organisation lack of necessary skills or displaying reticence to co-operate.	8	3.8	3.4
N10	Inadequate evaluation and testing of the effectiveness of ITG controls.	9	3.9	3.4
N3	Lack of developed methodologies and tools.	10	3.9	3.5

METHODOLOGY

This study has an exploratory focus as research in this domain is in its early stages in Australia and there has been little research available to date. An email-based questionnaire was developed as an extension of the previous research by Al Omari, et al. [13] on ITG audit challenges. The data was collected at the end of 2012 following a change of government within a large Australian constituency. This timing was relevant to explore the potential effect of political and policy changes on the stability of IT governance in PSOs as participants were sensitised to some of the changes and restructuring introduced by government reform. The survey included participants drawn from three different representative groups to limit any sample frame bias and also to ensure the representation of a variety of PSOs from government business enterprises, conventional departments, and local government authorities. The targeted population included participants at different levels (c-suite, managers, and officers from IT, audit, and business areas) who have knowledge of ITG within the Queensland public sector.

The questionnaire was developed as a data collection instrument to gather the participants' perceptions on the previously identified list of ITG audit challenges. The questionnaire was pilot-tested on five experts (practitioners and academics) to ensure the reliability and validity of measures prior to administering to participants. Based on the feedback received, no further amendments were required to the developed instrument. The questionnaire was administered to the target participants in public sector organisations considered to have IT infrastructure of a sufficient size to examine the perceived stability of IT

governance. The questionnaire presented the results from the previous research by Al Omari, et al. [13] to 70 participants and invited them to re-evaluate the ratings of ITG audit challenges in light of a change in the Queensland government. Respondents were asked to re-evaluate the perceived rating of impact, required effort, and ranking only for the ITG audit challenges they consider to have been affected by a changed political environment. The survey responses totalled 21, providing a response rate of 32.8%.

This paper utilised only non-parametric statistics while other forms of data validation (i.e., confirmatory factor analysis) for convergent and divergent validity could not be performed due to the limited sample size as the minimum sample recommended for conducting such analysis should be at least 100 [38]. The Kendall's coefficient of concordance (Kendall's W) was chosen to evaluate the level of agreement among the respondents' rankings of audit challenges [39]. The value of Kendall's W ranges from 0 (no agreement) to 1 (perfect agreement) as high values signify that respondents are judging the level of importance of the challenges in a similar manner [40]. The level of consensus reached in this research was ($W = .26, p < .001$), which is considered satisfactory and provides some degree of confidence in the results [41].

Next, Spearman's rho (Δ) correlation coefficient was used to statistically evaluate the stability of rank of importance between this study and the research undertaken by Al Omari, et al. [13]. The Spearman's rho is a non-parametric correlation suited for small sample sizes where a normal distribution is difficult to be assumed [42]. At the end of data analysis, individual rankings were combined to generate a total ranking score for each audit challenge, which was then used, together with the total ranking

score of the previous research to calculate the Spearman's rho coefficient. There was a strong, positive correlation between ITG audit challenges' ranking score of both studies, which was statistically significant ($\rho = .666, p < .001$).

Early-versus-late response bias was examined by dividing the responses into an early-response group and late-response group. Independent sample t-tests were used to test for such bias in the data. Conducting t-tests showed the absence of early-versus-late response bias at ($t(29) = 1.389, p = .176$). This result suggests that there was no significant difference of rank scores between early-response group and late-response group.

RESULTS

The results demonstrated a strong perception of a reduction in the capacity and capability of existing IT governance systems. The perceived negative effect of political and policy changes on the stability of ITG in public sector organisations was measured using attributes (impact, required effort, and ranking of importance) of previously identified ITG audit challenges as follows.

The empirical data showed an overall increase of 4% in the total average rating of impact (from 3.6 to 3.8 on 5-point scale) in comparison to the previous study by Al Omari, et al. [13] as the impact rating of 27 out of 30 challenges (90%) was subject to change. Furthermore, the five ITG audit challenges being perceived as to have the highest impact on public sector organisations in Queensland have noticeably changed (i.e., different challenges have more or less impact now) introducing three new challenges (O3, O4, and N5) into the list (see Table 2). Similarly, an increase of 6% in the overall average rating of required effort (from 3.2 to 3.5 on 5-point scale) is evident in comparison to the previous study by Al Omari, et al. [13] as the required effort rating of 24 of 30 challenges (80%) was subject to change. The five challenges being perceived as to require higher effort to address have also been subject to a noticeable change (i.e., different challenges require more or less effort now) introducing two new challenges (O3, and E2) into the list (see Table 2).

Table 3 shows audit challenges that recorded a higher increase (between 10 to 20%) in perceived impact and effort ratings than others.

Table 2: Top Five ITG Audit Challenges Based on Perceived Impact and Perceived Required Effort

Code	Challenge as identified by Al Omari, et al. [13]	Previous Rank	Previous Mean	New Mean	Growth Rate
<i>Based on perceived Impact ratings</i>					
O3	Lack of executive support for ITG audit programs.	12	3.8	4.5	+14%
O10	Organisational changes impacting stability of the ITG model.	5	4.0	4.3	+7%
O7	Lack of executive ITG ownership and accountability.	1	4.3	4.3	0%
O4	Reduced influence of audit committees and ill-established internal audit units.	14	3.7	4.2	+9%
N5	Poor training arrangements.	28	3.1	4.1	+20%
<i>Based on perceived Required Effort ratings</i>					
O3	Lack of executive support for ITG audit programs.	10	3.4	4.4	21%
O1	Limited knowledge within the audit team of emerging risk exposures.	1	3.9	4.1	4%
E2	Difficulty to recruit and retain experienced ITG auditors.	14	3.3	4.0	15%
O7	Lack of executive ITG ownership and accountability.	2	3.9	3.9	0%
O10	Organisational changes impacting stability of the ITG model.	5	3.6	3.9	6%

Table 3: Top IT Governance Audit Challenges Based on Growth-Rate

Code	Challenge as identified by Al Omari, et al. [13]	Previous Rank	Previous Mean	New Mean	Growth Rate
<i>Based on the perceived Impact growth-rate results</i>					
N5	Poor training arrangements.	28	3.1	4.1	+20%
O3	Lack of executive support for ITG audit programs.	12	3.8	4.5	+14%
E1	Inconsistent execution of audit methodology across PSOs.	24	3.3	3.9	+11%
O6	Perceived low value of ITG audits.	26	3.1	3.7	+11%
<i>Based on the perceived Required Effort growth-rate results</i>					
O3	Lack of executive support for ITG audit programs.	10	2.7	3.8	+21%
E5	Weak auditee and auditor relationship.	1	3.4	4.4	+21%
N5	Poor training arrangements.	14	2.7	3.7	+20%
N4	Lack of or inadequate understanding of the business context.	2	2.8	3.7	+19%
O6	Perceived low value of ITG audits.	5	3.0	3.8	+16%

In line with previous research, the means for impact and required effort for all the internal, external, and organisational challenges (see Figure 1) indicates that organisational challenges are in general perceived as having a higher impact on public sector organisations than external and internal audit challenges. It also appears that

external and internal audit challenges are perceived to require less effort compared to organisational challenges. However, the perceived required effort to address internal challenges has increased by 8.4% followed by the external challenges which have increased by 6.3% for the perceived required effort and 3.8% for the perceived impact.

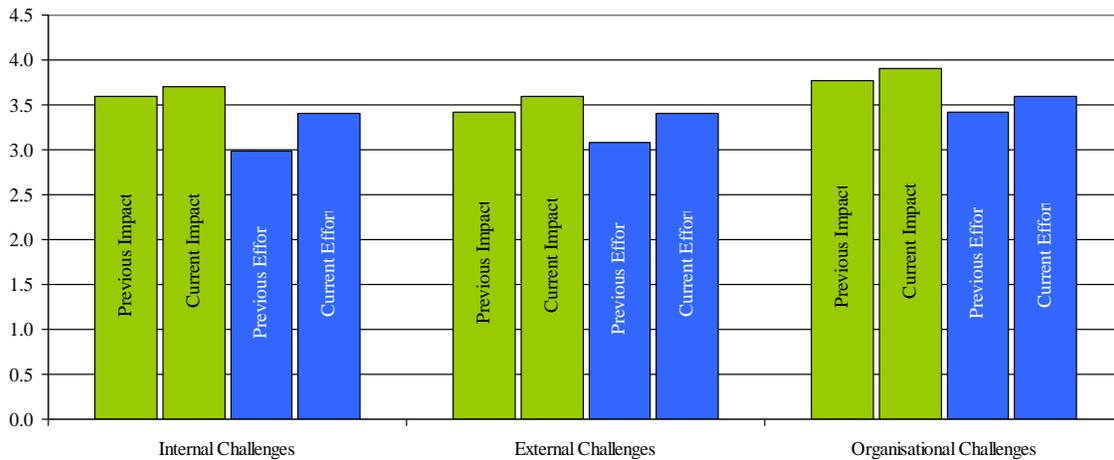


Figure 1: Perceived Impact and Perceived Effort Means for Internal, External and Organisational Audit Challenges

The re-ranking of the top-10 audit challenges was one of the objectives of this study. Taking the attributes of perceived impact, perceived required effort, together with previous ranking into account, respondents

were asked to re-evaluate the ranking list in terms of importance. Figure 2 displays the revised list resulting from this ranking exercise. Table A-1 shows the complete list of IT Governance audit challenges ranked by importance.

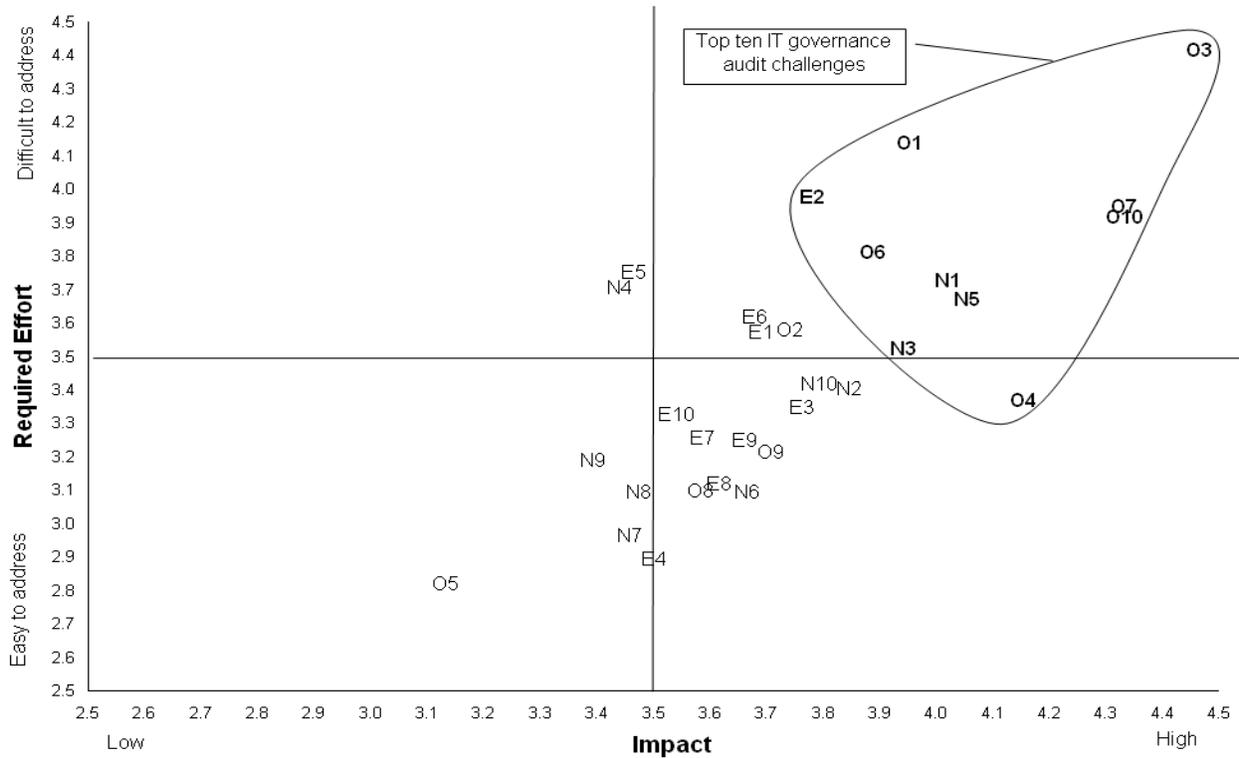


Figure 2: Average Perceived Impact and Perceived Effort to Address Internal, External, and Organisational Audit Challenges

DISCUSSION

The “lack of executive support for, resource allocation to and understanding of, extensive ITG audit programs” challenge has increased 14% and 21% in the perceived impact and required effort respectively. It has also moved from the eleventh to the third position on the top-10 list. Similarly, the “lack of executive ITG ownership and accountability” challenge moved to the first position on the top-10 list. These changes signify that commitment at the top and executive accountability are pillars of ITG audit in the public sector. Although ITG requires strong commitment at the top, it is argued that it is rather difficult for IT issues to make it to the board’s agenda because “in some cases, the board lacks members with the appropriate experience and expertise to be comfortable in addressing issues related to IT.” [43] While holding public sector more accountable toward the decisions and actions is one of the main objectives of public sector reforms [3], change in political direction and policy is suggested to has the

capacity to weaken accountability as it is “seen to create situations where the traditional means of accountability no longer fully apply.” [44]

As briefly alluded to in the results section, two closely related audit challenges have emerged as key issues from this study. The “poor training arrangements for public sector auditors” and “difficulty to recruit and retain experienced ITG auditors in the public sector” challenges have both moved up on the ranking list to become the 5th and 6th most important in PSOs. The association between these two challenges could be interpreted as a causation relationship, which means that respondents have placed high emphasis on the impact of the “poor training arrangements...” challenge because it has an effect on the required effort to overcome the “difficulty to recruit and retain experienced ITG auditors...” challenge. As technologies and standards change rapidly, it becomes essential for auditors in the public sector to undergo regular training and continuous knowledge development to build the required expertise to carry out high quality audit programs [45]. Possibly, the respondents' decision to rise the

importance of these two challenges is connected to reducing the importance of the “insufficient skills and competencies to undertake effective ITG audits” challenge. This suggests that respondents considered insufficient skills to be caused by the poor training and shortage in experienced ITG auditors, which are most likely the after-effects of executives’ lack of accountability and support for ITG in the public sector.

Another set of significant audit challenges were noted. The “organisational changes impacting stability of the ITG model” and “reduced influence of audit committees and ill-established internal audit units” challenges shifted to the 4th and 8th most important respectively. Despite the fact that IT is recognised as being integrated in the institution of government, and ITG is operating alongside and interacting with state-wide governance [46]; respondents considered a changing political environment to intensify the impact of organisational changes on the stability of ITG. Audit committees are considered as the cornerstone of successful and credible financial reporting systems and are widely recognised as a senior board committee with “front line” governance responsibilities [47]. As this study took place shortly after a change of government in the State of Queensland, it is anticipated that the machinery of government (MoG) processes were still in motion. Thus, PSOs were in what appeared to be a state of organisational restructure. In this so called transitional period, committees in general are often weakened if not already being disseminated to make place for new committees that are intended to support the new government policy outcomes. Organisational restructure, which is often induced by changes in government, is disruptive and unsettling for staff, and impacts negatively on productivity [48]. Adopting an incremental approach to organisational restructure instead of attempting a total and immediate revamp, together with recognising that the need for ITG model will remain constant and must be catered for in terms of reviews and adjustments during the change could yield better outcomes [46].

The “perceived low value of ITG audits in comparison to other IT audits” challenge has increased 11% and 16% in the perceived impact and perceived required effort respectively, which may in part be caused by a high engagement in compliance instead of performance audits in the public sector. As it stands, compliance audits take most of the auditors' time in conducting audit activities. However, compliance audits that do not comprise risk-based methods are not considered value-adding [49, 50]. Under the value-adding paradigm, and considering that “lack of or inadequate understanding of the business context to determine what aspects of audit best fit the relevant organisation” challenge increased 19% in perceived re-

quired effort, internal audit should consider working in close partnership with management to understand the customers' needs [51].

In analysing the empirical data based on challenge categories (internal, external, and organisational), the sharp increase in the required effort to address internal challenges (8.4%) stands out. This could be attributed to the view that an increase in the impact of organisational challenges leads to an increase in the required effort to address internal or external challenges. For example, the increase in impact for the organisational challenge “lack of executive support for, resource allocation to and understanding of extensive ITG audit programs” could be the basis on which the required effort to address internal audit challenges, such as “poor training arrangements” or “insufficient skills and competencies to undertake effective ITG audits”, have intensified. As shortly alluded to in the results section, we argue, that an increase in impact of organisational challenges (e.g., due to restructure) would infuse an increase in the required effort to address internal issues of IT governance within PSOs in Queensland.

CONCLUSION

The role of IT in transforming expectations about the effectiveness of state governments has been noted as result of the raising demands from the public, budget crises, and rapid changing technology. To that end, state governments are turning to IT governance as a solution to address many of the issues they are faced with. This study constituted quantitative empirical search to explore the potential effect of change in political direction and policy on the stability of ITG in public sector organisations. The results suggest that some of the audit challenges were more susceptible to change by a shifting political environment than others. Accordingly, commitment, ownership, and accountability from senior management to ITG in the public sector were perceived to be negatively impacted by a changing political environment and resultant instability. Subsequently, auditors’ skills and competencies; and recruiting and retaining experienced auditors were also perceived to be negatively impacted by change in political direction and policy. This paper suggests that reduced resourcing and institutional change, often accompanying changes in the political environment, can act indirectly on existing ITG systems leading to a reduction in the capacity and capability of ITG systems in PSOs, particularly when such change does not take into account the human and capital costs invested in these systems.

The findings propose that for PSOs, the basic points to consider for maintaining the stability of ITG systems within a political changing environment include

adopting an incremental approach to organisational re-structure; the use of active audit steering committees; the encouragement of senior management involvement in and commitment to ITG; and re-strengthening ITG ownership and accountability. From a practice viewpoint, the findings provide guidance to audit practitioners to use risk-based audit methods that focus on adding value to the organisation, and also to senior managers in regard to provisioning of professional development for public sector auditors.

This paper suggests that the alignment between ITG functionality and government context is to some extent critical, and that changes in government should not be actioned without consideration of the effect on existing ITG systems as it is important to work with, rather than against, the state's governance context. An emerging theme throughout the study was that once accountability at the executive level for ITG exists, political and organisational factors, which are considered to be important in shaping ITG audit agendas, turn into manageable issues. Most importantly, we suggest that, in line with the views of Raup-Kounovsky, et al. [46], the ultimate accountability for IT in general, and particularly IT governance systems in the public sector is held by State-level Chief Information Officers (CIO's). The CIO's are responsible for achieving IT-related goals of state governments, and often have a significant amount of political capital to exercise when driving ITG initiatives.

LIMITATIONS AND FUTURE RESEARCH

A constraint of this study was the small informant sample examined. In light of this limitation and the fact that the final number of participating government organisations within the sample could not be identified, the external validity of the findings was considered to be limited. In addition, as with most surveys, the results may have been sample-specific and/or time-specific. While findings might not be generalisable to other time periods, organisations, or jurisdictions, they do suggest a set of phenomena that warrant further consideration. Future research could test and validate these findings by collecting data from a different composition of subjects and compare results to other jurisdictions within Australia and worldwide.

Whilst undertaking this research, other factors that had an effect on ITG systems other than the changing political environment might have been active. However, additional factors were deemed irrelevant as the survey clearly drew respondents' attention to focus only on the

potential impact of change in political direction and policy and disregarded any others. It has also been recognised that respondents who remained in employment after the Queensland's public sector job cuts [52] understood the financial restrictions of which ITG systems were expected to operate under.

The audit challenges examined in this study were based on previous research within Australia and future studies could extend the list of challenges by incorporating constructs from other parts of the world. The authors were also aware that the study's consideration of the individual IT governance audit challenges as separate components within the governance structure moderates the study's findings. For instance, a positive relationship between the use of audit steering committees and the involvement of senior management was noted in this research. However, the examination of potential interaction effects was beyond the scope of this study and is left for future research.

One of the consistent themes emerging from this study was that the implementation of effective ITG in PSOs is an incremental process and is subject to different factors including changes in political direction and policy. For that reason, further research is proposed to explore possible solutions for the audit challenges in a state context. Further research could also explore how to design ITG audit frameworks that withstand the evolving nature of PSOs. As this study examined audit challenges that were perceived to have an increase in the attributes of impact, required effort, and ranking; it is proposed that further research is conducted to investigate audit challenges that were perceived to have a decline in these attributes.

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APPENDIX A: REVIEW OF IT GOVERNANCE AUDIT CHALLENGES RANK OF IMPORTANCE

Rank	Code	Challenge	Perceived Impact	Perceived Effort	Previous Rank
1	O7	Lack of executive management IT governance ownership and accountability for when audit commitments are not fulfilled.	4.3	3.9	3
2	E2	Limited knowledge within the audit team of emerging risk exposures related specifically to the audited organisation.	3.8	4.0	1
3	O3	Lack of executive support for, resource allocation to and understanding of extensive IT governance audit programs.	4.5	4.4	11
4	O10	Organisational changes impacting roles, responsibilities and stability of the IT governance model, both internally and externally driven.	4.3	3.9	19
5	N5	Poor training arrangements for public sector auditors.	4.1	3.7	23
6	O1	Difficulty to recruit & retain experienced ITG auditors in the public sector.	4.0	4.1	6
7	N1	Insufficient skills and competencies to undertake effective ITG audits.	4.0	3.7	2
8	O4	Reduced influence of audit committees and ill-established internal audit units.	4.2	3.4	13
9	N3	Lack of developed methodologies and tools to keep pace with changes occurring in the auditing and technology field.	3.9	3.5	10
10	O6	Perceived low value of ITG audits in comparison to other IT audits.	3.9	3.8	24
11	N4	Lack of or Inadequate understanding of the business context to determine what aspects of audit best fit the relevant organisation.	3.4	3.7	14
12	N10	Inadequate appreciation of risk management in the application of controls or in considering IT governance control weakness.	3.8	3.4	9
13	E5	Weak auditee and auditor relationship in the public sector.	3.5	3.8	12
14	O2	Tendency to focus on mere compliance with legislation rather than quality.	3.7	3.6	4
15	N2	Inadequate evaluation and testing of the effectiveness of ITG controls with the purpose of providing a "value-added" service to the organisation by the audit team.	3.8	3.4	5
16	E3	Audited public sector organisation lack of necessary skills or displaying reticence to co-operate.	3.8	3.3	8
17	E10	Lack of focus in or repetition of audit activity in place of identification of systemic control failures.	3.5	3.3	7
18	N9	Lack of specific legislative or mandatory framework to ensure a consistent audit approach.	3.4	3.2	21
19	E7	Insufficient evidence of ITG implementation (methodology, practices & processes).	3.6	3.3	15
20	N7	Poor scope management due to cross-agency service models resulting in imbalanced or incomplete perspective.	3.5	3.0	27
21	E6	Expectation gap between public sector perceptions of audit and actual audit practices.	3.7	3.6	17
22	O9	Public administration tendency to deny/conceal systemic IT governance problems which prevents identification and remediation.	3.7	3.2	16
23	E8	ITG assessment could be subjective or bias towards "more positive" findings.	3.6	3.1	28
24	N6	Failure of an audit team to appropriately apply required substantive auditing procedures, planning processes and reporting findings to the appropriate level.	3.7	3.1	18
25	E9	Discovery may be slow or non-existent if information is masked, inconsistent, unusable or made unavailable by the audited organisation.	3.7	3.3	20
26	O8	Lack of communication between business units responding separately to audit recommendations leading to gaps and duplication in compliance activities.	3.6	3.1	26
27	E1	Inconsistent execution of audit methodology across public sector organisations.	3.7	3.6	22
28	N8	Subsequent lack of objectivity in the conduct of audit due to familiarity with internal staff or fear of exposure of management weaknesses.	3.5	3.1	29
29	E4	Pressure to prematurely sign-off on audit reports whilst not following specific legislative requirements.	3.5	2.9	25
30	O5	Loss of continuity (audit cycle) due to mandatory audit rotation.	3.1	2.8	30