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DESIGN OF A GOVERNMENT OF ALBERTA BUSINESS UNIT RELEVANT BALANCED SCORECARD

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Abstract

This research was conducted in the domain of performance measurement, focusing specifically on the Balanced Scorecard (BSC) model as applied to a public sector business unit. Critical issues offering opportunities through this research included exploring the feasibility of implementing a BSC in the public sector, addressing change and resistance, and the need for relevance to minimize barriers to implementation. The research question was, "How can a public sector business unit design a BSC that is relevant and valuable to both the business unit and its stakeholders, and effectively measure performance?" The research discussed here facilitated the development of an effective, relevant, and valid BSC design, and implementation presented opportunities for future research. The approach included collection and analysis of relevant responses from a survey among staff and an inventory of the business unit's processes related to the perspectives of the BSC. The questionnaire responses (values) informed the illustration of causal relationships among strategic objectives between the four perspectives (strategy mapping) of the BSC: financial, customer (or stakeholder, for the public sector), internal business processes, and learning & growth perspectives. A linkage model with a number of strengths was developed. Criterion-related validation of the BSC design was performed using correlation analysis and showed significant relations between internal business processes and stakeholder perspectives ($\rho = .22$, $p < .0001$), financial and stakeholder perspectives ($\rho = .13$, $p = .01$), and internal business processes and learning & growth perspectives ($\rho = .11$, $p = .014$).

Keywords: Balanced Scorecard, public sector, performance management system, government, design, relevance

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List of Abbreviations

BSC: balanced scorecard

BU: business unit

GoA: Government of Alberta

PM: performance measurement (performance measures)

PMS: performance measurement system (performance management system)

QMS: quality management system

SWOT: Strengths, Weaknesses, Opportunities, Threats

Chapter 1. Introduction

Statement of the Problem

The research question addressed in this dissertation was, "How can a public sector business unit design a BSC that is relevant and valuable to both the business unit and its stakeholders, and effectively measure performance?" The business unit (BU) should be the focus of value considerations, as in this environment, greater value for the BU through improved process effectiveness and efficiency translates to increased value for external stakeholders. The research question can best be addressed through a well-designed, relevant, and validated scorecard. Therefore, the primary research framework consisted of a balanced scorecard (BSC), and the outcome was a BSC design well suited for the public sector.

As a Director, I am partially responsible for my BU in the Government of Alberta (GoA) and believe that the unit's performance can be improved to provide greater value and be of increased relevance to its stakeholders. The BSC is the mechanism best suited to enhance this performance and guide strategy, making the unit relevant to the government's mission and adding value. This is because the BSC is the most widely used performance measurement and management system (PMS), and its balance across multiple perspectives rather than a focus on financial indicators of performance makes it suitable for application in the public sector. However, an inappropriate or irrelevant design will be of no value to the BU, resulting in the development and maintenance of an ill-suited BSC and an expensive and time-consuming exercise in frustration by the unit. Instead of improving performance, a poorly designed BSC can have the opposite effect and may be prone to "gaming," where reasoned justification becomes merely instrumental rationalization focusing on non-relevant objectives determined without a

dialogic approach. Unless the features of both technical and social views of the BSC are integrated into the design, the outcomes may be of little or no value.

Purpose and Significance of the Study

In contrast to a PhD project, a DBA has a greater focus on applied rather than academic research. However, designing a scorecard with relevance and value thus extending BSC theory to the public sector represents a theoretical contribution to PMS theory. This constitutes the value proposition of the thesis. A review of the literature and the research design and validation process identified problems with application of the Kaplan & Norton (1996c) BSC design to a public sector BU, and improvements were developed capable of changing the implementation of the BSC from one of instrumental rationalization (focusing solely on technical inquiry and achieving performance objectives in the most efficient way possible) to one of relevance and value. This research focused on the design and validation of a scorecard with relevance to the public sector.

This research was motivated by the lack of understanding in public service institutions of how well their teams perform from the perspectives of various stakeholders (Gomes & Gomes, 2011). In discussing performance measurement in the public service, Mackor (2010) noted that government lacks performance information about the providers as do the providers about themselves. Governments invest significant money and resources in the development of policies and goals, but relevant performance measurement and management may not receive the same attention. It is important to know if resources are being applied in the best manner from the perspective of various stakeholders.

A clear vision for how to design a relevant PMS will be obtained by taking a business perspective for performance management in the public sector BU using the BSC approach, with

its associated dashboards and critical success factors. The BSC is the most widely adopted PMS, with 62% of organizations (Atkinson et al., 2012) and 60% of Fortune 1000 companies (Jiang & Liu, 2014) using the framework. These proportions are far greater than for the next most common frameworks, that is, none or customized at 15% and total quality management at 13%. Although the BSC is the most prevalent type of PMS used by companies, Jiang & Liu (2014) noted that this method has not generally been adopted by government organizations.

This research centred on a case study of a BU due to the magnitude and importance of the service it provides. This case study deals with a new BU responsible for Alberta industrial property assessment worth approximately $180B annually, which centralizes the process as it moves the assessment practices from local municipalities to the Alberta Department of Municipal Affairs. Centralization is expected to be completed by 2028. The province's 344 municipalities rely on the timely, fair, and equitable industrial property assessment by the BU to form property valuations upon which they create and distribute their annual taxation notices to industrial companies. Therefore, it is a major driver of their annual budgets. The GoA receives $300M in industrial property tax annually from the assessment of industrial property, representing a significant addition to the provincial budget, especially during an extended period of fiscal restraint (2012 to current year, 2024). The BU also requires a relevant and well-designed PMS, as it currently has only a single performance outcome, developed before 2012, which is considered unrealistic by management and employees. Further, the BU has encountered barriers to effective use of PMS (Atkinson et al., 2012).

The GoA Treasury Board and Ministry of Finance provides 4-year business plans annually with fiscal targets, outcomes, objectives, and performance metrics. Each GoA department, including the Ministry of Municipal Affairs, creates business plans in similar

formats with the same frequency. The Alberta Public Service Commission supports the need for each department to continuously assess organizational performance to support the achievement of corporate and ministerial vision and these business plans. The deputy heads are responsible for establishing and maintaining department performance goals and measures growing out of a department's business plans. The "key objective" related to the Assessment Services Branch of Municipal Affairs is effective delivery of industrial property assessments that are consistent, transparent, and fair across the province. However, performance measurement is associated with the more general "outcome" ("Albertans live in viable municipalities and communities with fiscally responsible, collaborative, and accountable local governments"). The performance measure is the percentage of municipalities that have met or exceeded the minimum performance targets for financial and governance risk indicators. The outcome is general and there are no measures that can quantitatively determine that the objective of "consistent, transparent, and fair industrial property assessments" has been met. The somewhat intangible outcome is determined from an objective that is not measured, and as result BUs operationalize PMS backwards by attempting to apply methodology that may not be relevant before an appropriate theoretical framework has been reviewed and selected. A comparison of the evaluation function (PMS) in GoA ministries found that of 15 departments, 7 had evaluation units with dedicated staff; only 3 had evaluation guidance documents, policies, standards, and procedures; none had evaluation governance; and none had documented processes that planned evaluation in the sense of using a "differentiating" strategy, which requires at least two characteristics: identification of a unit's competitive advantage and the strategic leveraging of that advantage (in the BSC design, across the four perspectives (financial, customer, internal business processes, and learning & growth perspectives).

A department request was made in 2012 to review and redevelop BU performance measures but was cancelled in the same year. The unit continues to operate in a rather ad hoc performance environment, working *around* the unrealistic performance measure developed over a decade ago, namely, "How many appeals (complaints) were submitted by industrial property owners to the quasi-judicial tribunal related to properties assessed by the business unit?" However, this measure is unrelated to the performance of the BU and can be the result of property stakeholders testing legislation or the tribunal or to taxation companies representing the companies attempting to earn their business commission. This was never a measure of the number of assessment appeals compared to the total number of property assessments, but was always an absolute rather than a relative number. Further, property assessments that may be determined to be inaccurate are typically the result of property owners and tax agents submitting incomplete and inaccurate information to the business unit to run in its valuation models. The business unit also generates "amended" notices, according to legislation, that correct assessments if new or improved information becomes available to the BU at a later date. This corresponds to the situation noted by Townley et al. (2003) in their case study of the GoA—when designing performance measures, reasoned justification often becomes instrumental rationalization, that is, focusing solely on technical inquiry and achieving performance objectives in the most efficient way possible. The development of efficient processes is a laudable objective for a public sector BU. Efficiency in the sense of lean Six Sigma-type process improvements is not tied to strategy as it is in the BSC design, and efficiencies that are not relevant to the BU (i.e., those that are for "show" or "red tape reduction") are not valuable. Processes should be mapped with a differentiation strategy using the BSC to determine if they are valuable and relevant to the BU. A differentiation strategy must accomplish two functions: create a clear statement of the advantage

of the BU over other comparable BUs (competitive advantage, which can exist in the public sector), and develop and state the scope of how best to allocate resources (i.e., spread them effectively over the four BSC perspectives) to achieve that advantage (i.e., deliver the value proposition). The BU did implement a short-term (2-week) program called "Operational Excellence," which was essentially Lean Six Sigma, that is, a drive to seek efficiency in processes. However, the program did not question whether the processes were relevant to the BU in the current position in its life cycle. A GoA efficiency drive is laudable, but the public sector community often values effectiveness over efficiency, especially at the start of a process. The government is expected to take time and provide sufficient funding to ensure safety of products and services during their development, but it is pointless to obtain efficiencies in processes that are neither relevant to the BU and GoA nor effective.

At present (2024), the unit is attempting to design and implement a quality management system (QMS), but this is not a substitute for a PMS. Although desirable, the focus of a quality management program is to make existing processes better, faster, and cheaper (Atkinson et al., 2012). The metrics drive and allow evaluation of continuous improvement but do not link to a company's differentiation strategy. Therefore, such scorecards produce incremental improvements but do not align the enterprise around successful execution of its strategy. This is an important distinction between QMS and PMS—the research is not designed to accelerate business operations, but rather to *link* to a strategy of innovation and establish a new approach to progress. Public service strategy, at least in the GoA, begins and ends with SWOT (Strengths, Weaknesses, Opportunities, Threats) discussions and inventories but does not extend to a full differentiation strategy.

First attempts to develop BSCs often encounter problems due to a lack of clear strategy; Atkinson et al. (2012) suggested that, to apply the BSC model, government organization thinking must shift from what it plans to *do* to what it must *accomplish*, representing a shift from *activities* to *outcomes* (i.e., process goals vs. outcomes). Otherwise, any new scorecard will be just a list of key performance indicators (KPIs) of operational performance and not a system to communicate and implement its strategy.

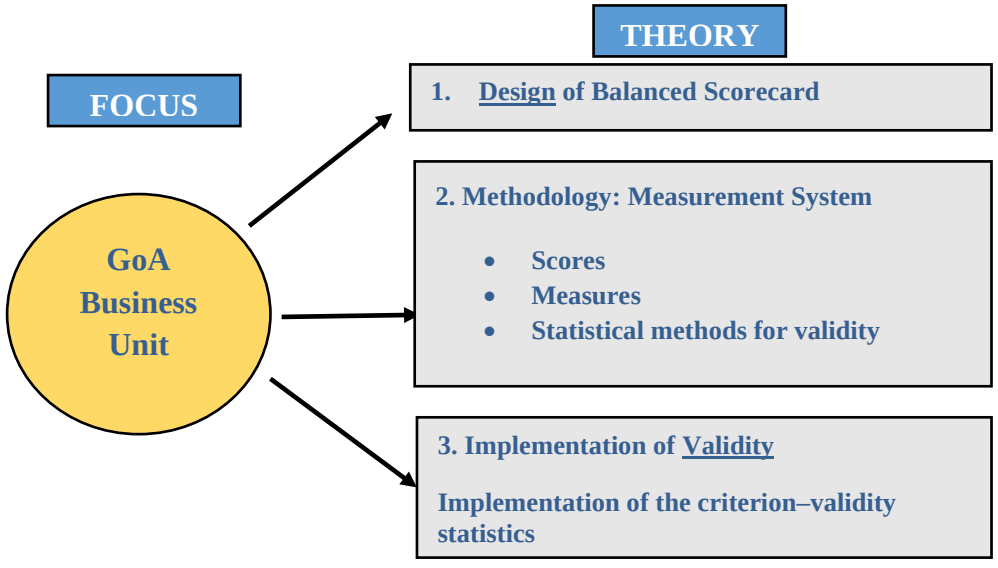
Assessing the performance of public organizations contributes to strategic planning by setting milestones related to stakeholder expectations (Gomes & Gomes, 2011). Assessment of performance can be used to optimize the efficiency and effectiveness with which government institutions can acquire and maintain resources necessary for survival. Stakeholder engagement is also important to identify areas for optimization. My BU created an "Executive Advisory Committee" including property assessment representatives from Alberta urban and rural municipalities, industry representatives, and Municipal Affairs GoA representatives for consultation.

Northcott & Taulapapa (2012) discussed the need for improved theoretical discussion regarding challenges in designing and implementing the BSC model in local government, which they identified as an under-researched area. Their findings showed low adoption rates of the scorecard in local government, with managers perceiving its value primarily in performance measurement and reporting, while its potential for performance *management* was both underutilized and underappreciated. The original purpose of the scorecard was for multidimensional performance measurement, but the links between its four perspectives allow efficient performance management. Kaplan & Norton (1996a) also noted that the BSC can be used as a strategic control system to handle the problem of strategy implementation and not just

measure performance. The linkages between the BSC perspectives offer potential for performance management, but investing financial resources, time, and effort in relationships between the four perspectives that do not demonstrate strong cause-and-effect correlations represents a waste of resources and a barrier to the development of successful public sector scorecards. Therefore, special consideration was applied to this aspect of the scorecard design in this research. Churchill's (1979) eight-step procedure for developing better measures was used to provide design guidance for reliability and validity of construct, with reference to Hair et al. (2014) and Cooper & Schindler (2014) for analytical strategies. A study by Christensen & Carlile (2009) describing use of the case method to build management theory and how a cognitive leap occurs from generalizations about the past (descriptive theory) and explaining the past to predict the future (prescriptive theory) was used to assist with development of the BSC design. Their paper was also useful in this research for describing the types of data that can be trusted to yield reliable theory.

The focus of this research was the design of a relevant (valued) scorecard based on a case

Figure 1 *Applying the Research in Three Theoretical Steps*



study, which was shown previously to be an appropriate approach for public administration by Agranoff & Radin (1991). The case study approach can be used to address the research question, "How can a public sector business unit design a BSC that is relevant and valuable to both the business unit and its stakeholders, and effectively measure performance?" Yin (2014) suggested that the case study method is most suitable when the research question seeks to explain some social phenomenon, especially complex organizational phenomena with real-world perspectives. This dissertation presents a real case, which probably contains contextual conditions. Case study research allows investigation of a given phenomenon within the context of the BU and the public sector. In contrast, experimentation separates the phenomenon from its context with a control. A historical form of research considers the phenomenon and context, but the events are non-contemporary. The survey method, as in this research where a survey was used to collect data, limits the ability to investigate the phenomenon because of the limited number of questions and respondents (i.e., limited sample size). Therefore, the case study approach is suitable for this research. This represents a complex organizational problem using both action research and design science research, where there is a social phenomenon of identifying value in public sector intangible assets and converting those to measurable tangible assets.

Some literature (Yin, 2014) diminishes the research importance of the case study method, suggesting that it is not generalizable, predictive, or useful due to the small sample size. Yin (2014) concluded that case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. The goal of the research will be to expand and generalize theories (analytic generalizations) and not to extrapolate probabilities (statistical generalizations). However, we must start somewhere, so a case study is almost equivalent to a proof of concept.

One can see *if* one can predict and generalize to other times and places before devoting resources toward multiple cases.

This case study examining a public sector BU that generates $3 billion annually in provincial tax revenue represents a compelling example in the public sector where both relevance and value are of paramount importance. Application of theory generated evidence of what does and does not work, which parts of the design have gaps, and what holds true in time and place. Adoption of performance measures is often ignored in public service because managers are unaware that there is a structure to the relationships among strategic objectives—or links between objectives and their measures across scorecard perspectives associated with accurate performance measurement. Institutional theory holds that the best practice performance measure is often simply what other BUs are doing regardless of evidence to the contrary; that is, *common* practice rather than *best* practice. The assumption is that common practice leads to structural efficiencies and reduction of transaction costs. However, organizational business practices can be common, while not being best, due to institutional isomorphic factors—the tendency for similar organizations to adopt similar behaviours through normative, coercive, and mimetic pressures (DiMaggio and Powell, 1983). However, PMS theory drives the design of a relevant BSC. Institutional theory and isomorphism are distal frameworks. This research requires a true best practice scorecard design based on the mission, vision, and values of the BU without being concerned about institutional isomorphism.

The intention was for this research to have applied value and assist in real work decisions. The research will be applicable to *this* sector, but not *all* public sectors, designing a PMS for a *single* GoA BU using the BSC. However, if criterion validity analysis provides

evidence that the new design instrument is concurrently and predictively valid, then the design could also be used for other public sector BUs and for future scenarios.

Additional to the main research intention of bringing BU value and relevance to the BSC design, orientation of the four BSC perspectives to visualize the best linkage model for a cost-recovery public sector unit, with multidirectional links between the perspectives and the coefficients of strengths of relationships indicated by the links, represents a secondary yet still key design choice.

Case Study

The trajectory for this case study has involved overcoming barriers and identifying windows of opportunity to conduct the research. In 2016, the executive and senior management concluded that they found no value in this research but did not say why. Some executive-level support has since developed due to my indication of the importance of audit preparation in the BU, which is also one of my initiatives. This will be done by the GoA Corporate Internal Audit System group, who will expect the BU to make use of a PMS. An audit would expect evidence that Alberta Industry (the stakeholders funding the industrial property assessment model) are getting value for money and the constructs of "centralized and standardized" are being achieved effectively and efficiently. I collected data with informed consent using a survey among staff (management and non-management) for the BSC four perspectives to determine what "value" means to staff. Several unsuccessful attempts were made to obtain clearance from Municipal Affairs Human Resources to conduct this research in the department commencing in 2016. However, there was no internal body with authority to grant approval for research, and requests received no responses. Another attempt was made in January 2019, and written permission was

received from the Deputy Minister and a new Assistant Deputy Minister (ADM) to conduct the research. This research received no funding (or funding in kind) from the GoA.

The research was divided into three phases. Phase one, which is now complete, consisted of the development of a prototype BSC design for the BU. The focus was on strategy mapping and the learning & growth perspective, as well as the drafting of initial objectives and measures for all four perspectives. A draft strategy for the BU was developed in the absence of any existing formal strategy, which included a first-time inventory of the four BSC perspectives: business processes, customer (in government, often considered "stakeholder") perspectives, learning & growth, and financial data. A first-time benchmark of skills (minimum required standards and assets) and training was also completed for the learning & growth perspective. A survey with questions categorized according to the BSC perspectives was conducted among staff to collect data regarding what they considered "relevant" and "valuable," with 82 of 110 survey questions using a Likert scale (80 used a 5-point scale, 2 used a 6-point scale). Non-Likert scale questions had binary (yes/no, agree/disagree) or discrete range (e.g., 0–4, 5–9, 10–14, > 14) responses. The survey was distributed to 40 staff members, and 35 completed responses were received (response rate: 87.5%).

Phase two began with finalization and use of the survey questionnaire. The survey was intended to capture what BU staff considered relevant and valuable in each of the four scorecard perspectives.

Some analysis of the survey results attempted to determine whether there are distortions of discourse, that is, claims made by the BU that are not valid in that they are not borne out by evidence and outcomes. What the BU staff consider to be valuable and relevant for goals, objectives, and measurements of those objectives should be based on claims that are

comprehensible, true, legitimate, and sincere. Collection and preliminary analysis of the data, plus the first measurement and scoring toward objectives (targets), completed this phase.

Phase three focused on analysis of the results, consideration of alignment and appropriateness of the survey questions, objectives, and strategy, and the relevance of the first iteration of the scorecard design. The research findings were compiled and written up during this phase.

As mentioned previously, no vision or strategy map exists for the BU, at least in the sense of containing the essential components discussed by Atkinson et al. (2012), who concluded that the development of a scorecard should be based on a clear strategy. With some assistance from colleagues in senior management, it was determined that the vision of the newly created BU is to deliver a quality industrial assessment value to stakeholders. The two essential strategy components are a clear statement of the competitive advantage of the BU and the scope of this advantage in the sense of how resources are allocated to maintain it. For the BU, the competitive advantage is that it centralizes and standardizes property assessment (provincial rather than municipal scale). The outcomes are that the public sector sees performance measurement/management design value (relevant value) for money when achieving its legislative deliverables, and the BU can pass a complete internal and external audit of all processes by following ISO conventions and adopting a well-designed PMS for effective and efficient delivery. The advantage of the linear property (wells, pipelines, telecommunications, etc.) assessment model over the municipal assessment model was valued sufficiently highly by industry to be requested for expansion to all industrial assessments. I developed much of this linear model using concepts learned in the Athabasca University MBA program. The unit maintains this advantage by the identification and effective allocation of relevant and valuable

resources, including people, time, equipment, applications, and software at the BU. The unit still lacks any PMS (balanced or not) to properly manage our advantage. As the design phase of the BSC research proceeds, the current state of the research developments is described below. It has become apparent that an appropriate design is relevant and valuable to the strategy requirements.

Chapter 2. Review of the Literature

What is Known About the Balanced Scorecard That is Relevant to My Mission: Description of the Underlying Theory

A review of the literature was performed to determine what is known about the BSC that is relevant to this research. It showed what has been done already, what is good about it, what is missing, and what needs to be done to make it useful for the research purpose.

The literature review highlighted some changes required to the architecture of the scorecard design for the public sector compared to the private sector along with further way in which the design of the content (strategy, performance measures, targets, initiatives, and the use of non-financial measures to evaluate their performance) should be adapted to fulfill the requirements of the BU.

The BSC model is a management accounting and strategic management system, the most widely adopted performance measurement (and management) framework, with a number of useful performance measures including input and output measures as well as lag and lead indicators (Atkinson et al., 2012). Introduced by Kaplan & Norton in 1996, the framework was expanded beyond financial measures (lagging performance indicators) to include non-financial measures (leading indicators) derived from the strategy of a business. The basic design of the framework includes a strategy mapping process used by a business to develop performance objectives for tangible and intangible assets, and not just physical and financial assets. Strategy mapping is described further in the “Core Components of the Balanced Scorecard” section of this chapter. The framework continues with associated financial and non-financial measures of the performance objectives. The key is that the optimization is accomplished with the “balance” of the objectives across four perspectives: financial, customer (or stakeholder, for the public sector),

internal business processes, and learning & growth perspectives. The balancing is not equal but involves weighting to optimize individual measurements based on importance (weighted scores) and a balanced overall score. The balance for the BU discussed in this research is defined in the Methodology section and relies strongly on the design of relevant BU objectives and multidirectional and weighted links between BSC perspectives, which elaborates on the gold standard default design of cause-and-effect links described by Kaplan & Norton (1996b). Each of the perspectives addresses or maps fundamental questions determined during the strategy development phase (see Fig. 2).

Another characteristic of the BSC design that contributes to its balance is the chain of BSC perspective relationships originally described by Kaplan & Norton (2004) as "cause and effect" and later broadened to include "logical relationships." Semantically, individual "links" are connections between the four perspectives of the BSC, whereas the combination of links forms a "linkage" model. Cause and effect means that the effect can only be determined empirically from the cause and not inferred logically. However, Norreklit (2000) concluded that their description was ambiguous, and provided evidence that the relationships between the perspectives cannot be both cause and effect *and* logical. They may also represent "finality" relationships. A "logical" relationship means that the event can be inferred (logically) from the cause, while a "finality" relationship places a focus on the *means* rather than the *end*, with the end causing an action. Using Norreklit's descriptions, this research identified the linkage relationships between the four BSC perspectives in this BU design as finality and not cause-and-effect relationships. In this case the "ends" are the outcomes rather than a focus on activities, which the strategy mapping is trying to achieve.

Ultimately, the design produces readiness reports that compare the actual performance, determined based on tracking and monitoring, with the targets set by the initial strategy, thus highlighting gaps between actual and target performance.

Core Components of the Balanced Scorecard

Strategy Map

The BSC strategy map represents the causal relationships between the strategic objectives developed by the BU across the four BSC perspectives outlined above. The strategy mapping process consists of a series of four logical steps performed by the BU. First, long-run financial objectives are identified by the business, which Atkinson et al. (2012) referred to as the ultimate destination for the strategy. For this research in a public sector environment, however, the ultimate driver may not be the financial perspective but rather the BSC customer perspective satisfying legislation and stakeholder objectives. Financial objectives tend to have efficiencies driving objectives, while public sector legislative and regulative objectives require evidence that processes are first effective before efficiencies are applied. There is no value in achieving Lean Six Sigma efficiencies in BU processes that hold no relevance to the BU. In fact, it would be very inefficient to make an unnecessary process more efficient; that is, the best process would be no process if it is neither required nor relevant to the needs of the BU. The second step to map a strategy for the BSC is to focus on the customer perspective, which in this research geared toward the public sector will be referred to as the stakeholder perspective. The customers (stakeholders) that will generate revenue for the new strategy must then be identified and prioritized. The BU discussed in this research does have revenue in a sense through the requisitioning (billing) of funds to provincial industry via municipal industrial property assessment notices that recovers the cost of operations of the BU each year—preparing industrial

property assessments on which municipalities base their taxation notices to companies. This step involves the development of value propositions to attract, retain, and grow the business with these customers (stakeholders). The third strategy mapping step focuses on the BSC internal business processes perspective to identify opportunities for improvements in efficiencies and productivity for the internal business processes that are "critical" to the BU and that will ultimately flow to improve the performance measures of the financial perspective. Again, for the public sector, the focus may need to be on measures of effectiveness rather than simply on efficiencies. The fourth and final strategy mapping step focuses on the BSC learning & growth perspective to identify and prioritize the types of staff skills, training, culture, and information needs that will best contribute to the critical internal business processes identified in the previous step. Throughout the strategy mapping process, it is important for the BU to remember that objectives must be tangible (although intangible objectives can be linked to tangible processes to provide tangibility) so they can be measured; *if it can't be measured, it can't be managed*. The objectives must be aligned with the strategy, otherwise the measures produce only a series of KPIs that do not provide support for the strategy. For this research, importance was also placed on the relevance (value) of the objectives for the BU. It is possible for objectives to be in alignment with strategy but not operationally relevant to the BU if the strategy is driven by political considerations. There can be alignment without relevance if the organization makes a political strategic decision to adopt an institutional isomorphic factor, such as mimicking the objectives of other organizations that will not be appropriate for the BU.

Financial Perspective

The objectives and measures of the BSC financial perspective represent "the ultimate success measures for profit-seeking companies" (Atkinson et al., 2012, p. 26). The performance

objectives seek to improve financial performance through improvements in productivity and revenue growth. However, operational and capital budgets are typically assigned (allocated) to a public sector BU by a treasury department. The public sector BU in the case study presented here is focused entirely on cost recovery and generates no revenue, so there is no opportunity for revenue growth. However, there is flow of "revenue" to the government through a billing requisitions chain: the BU (government) bills provincial municipalities for providing its service of assessing their industrial properties; municipalities tax the companies owning the properties; and municipalities provide a portion of that tax back to the government to accommodate the BU cost recovery fee. This form of GoA revenue fluctuates with the amount of provincial industrial property inventory. For example, some oil wells are removed from the property inventory as they are abandoned, and new renewable industrial properties (e.g., wind turbines and solar power generation stations) become operational. The financial objective of productivity improvements remains such that the "centralization" initiative of transferring industrial property assessment from local municipal assessors to the GoA BU improves (increases) over time, which is expected to be completed by 2028.

Customer (Stakeholder) Perspective

The customer (or stakeholder, for the public sector) perspective is the "heart" of the strategy mapping BSC processes (Atkinson et al., 2012). Specific objectives should be developed for a minimum of two areas—the scope of the strategy and the advantage of the strategy over its competitors. The government does not have competition in the traditional private sector sense. Through legislation, it takes over competitors by transitioning all municipalities' industrial property assessment performed by local assessors to a centralized model where that assessment is done by the BU assessors. The BU has a competitive "advantage" because industry in Alberta

perceives that it can perform this service with a greater degree of standardization, leading to more consistent taxation of properties across various municipalities. Successful outcomes from these objectives should lead to improvements in the financial perspective objectives. For this research, the design of objectives focused on value and relevance to stakeholders. Objectives should allow the measurement of improvements in centralization and standardization of provincial industrial property assessment by the Province compared with the previous local municipal assessment model.

Internal Business Processes Perspective

Outcomes from the strategy developed for the financial and customer (stakeholder) perspectives create objectives to measure *what* the business unit intends to deliver to its stakeholders. The internal business processes perspective focuses on setting objectives for *how* the BU can create and deliver its value proposition to its stakeholders and improve its financial objectives. These processes are typically categorized into operations management, customer management, innovation, and regulatory and social processes.

Learning & Growth Perspective

The learning & growth perspective identifies objectives for the people, information technology, and organizational alignment required for continuous improvement of the objectives of the internal business processes perspective. These three categories of assets are originally intangible and are made tangible by linking with measurable objectives, such as strategic competency availability, strategic information availability, goal alignment, and knowledge sharing.

Balanced Scorecard Linkage Model

The BSC design contains a strategic linkage model (Kaplan & Norton, 1996b). Simply mixing financial and non-financial measures and creating collections of KPIs does not create a BSC. As noted by Kaplan & Norton (1996b), non-financial measures are typically lagging generic non-strategic indicators that do not translate into a coherent business unit strategy. The linkage design of the BSC consists of "a linked series of objectives and measures that are both consistent and mutually reinforcing" and the result shows the "cause-and-effect relationships among the critical variables, including leads, lags, and feedback loops" (Kaplan & Norton, 1996b, p.64). Throughout the four BSC perspectives, the chain of cause and effect is designed such that performance drivers in a given perspective can affect outcomes in a different perspective. A design with outcome measures but no performance drivers is not aligned with the strategy of the BU. Performance drivers with no links to outcome measures in other perspectives are usually only short-term operational improvements. Kaplan & Norton (1996b) concluded that there can be no strategic learning without an explicit cause-and-effect linkage design.

Where is the Gap?

1. Rational Discourse

Schneiderman (1999) argued that much of the intrinsic and operational value of the BSC comes from the design process, and that a major reason for failure of the BSC in BUs is that remote consultants, rather than managers, played a greater role in the design development, and managers were not sufficiently engaged in the design process. This resulted in a lack of trust among managers in the design, which contained objectives and measures that were "inappropriate" (i.e., irrelevant). In a critical analysis of the BSC, Cooper & Ezzamel (2016) suggested a constrained "dialogic" approach, in which the value and relevance of strategic thinking and practices must be assessed rather than assumed. I believe this would be especially

relevant in the public sector as in this case study. In the private sector, financial performance measures are tied directly to the organization's strategy and become the top perspective. Kaplan & Norton (2004) placed long-term shareholder value within the BSC financial perspective.

In the public sector, measurable objectives are developed to determine whether the strategy is increasing constituent or *stakeholder* and social value (i.e., moving beyond money and measuring the relative importance on overall human well-being), rather than long-term shareholder value. In discussing public sector organizations, Atkinson et al. (2012) emphasized that "their success must be measured by their effectiveness in providing benefits to constituents, not by their ability to raise money, be efficient, or balance their budgets" (p. 43). The metric of "effectiveness" represents a measure of the ability to produce a better outcome with more value. For the BU discussed in this research, the GoA considers property assessments to be effective if they are "fair and accurate" (and now, "standard"). Industry measures effectiveness by centralizing and standardizing the property assessment processes, which will result in fairness and accuracy of the assessments. Here, the metric of "efficiency" can be used to measure whether the outcome has been produced with the least waste of resources.

2. Relevance and Values

A preliminary review of the literature indicated both a gap and a need to determine the value of a unit-based PMS design relevant for government service. In the absence of objective outcomes, more subjective political outcomes may become the goals.

The preliminary literature review indicated a gap in the predominance of PMS for public sector health care departments (i.e., government organizations responsible for management and delivery of health care services to their residents), with few non-health care public sector examples. Although the reason remains unclear, balanced performance measurement appears not

to be as pervasive in non-health care departments. Even for health care service, professionals often do not have a thorough understanding of the efficiency and effectiveness of their activities (Dawes et al., 2002). Further, in some cases, public service performance measurement is based on legally enforced measures or duty of care norms rather than performance norms (Mackor, 2010). There is a need for performance indicators to improve processes and goals (Connolly et al., 1980). A functional perspective that views the public institution as a machine, consistent with Morgan's (2006) metaphor, measures outputs and outcomes in an objective rather than subjective manner. In this metaphor, the human *parts* of the machine are seen as compliant and to behave in accordance with their design. Precision is at a premium, the same product can be produced repeatedly, the environment is stable, performance is straightforward, and there is a clear line of communication and control that impact the staff of the organization directly. This can lead to organizational forms that struggle to adapt to change, foster mindless and unquestioning bureaucracy, have a dehumanizing effect on employees, and reduce innovation.

Understanding the nature of relevant performance measures would help identify and reduce waste in use of resources. Pfeffer & Salancik (2003) suggested that the key to organizational survival is the ability to acquire and maintain resources. For public service performance in particular, performance can be measured by a variety of stakeholders. The key actors for public service measurement are their constituencies, as the organizations owe their survival to these agents (Pfeffer & Salancik, 2003).

Atkinson et al. (2012) recognized that public sector BUs also need to track and monitor their operational processes within financial constraints, but their success must be measured by their effectiveness in providing benefits to constituents rather than their ability to raise money, be efficient, or balance their budgets. That is, financial success is not their primary objective.

3. Design

Measuring performance in the public sector differs from that in the private sector. Public service holds certain subjective concepts for measurement that are less quantitative and more qualitative and intangible than the "bottom line" outcomes of publicly traded companies. This is the case with the GoA business plans; where the phrase "performance measurement" is mentioned, it is associated with very general "outcomes" and the measurements indicated are not at a level of resolution that would achieve accuracy. However, intangible perceptions and preferences can still be converted into tangibles and measured. In a study of over 11,000 cases from 28 private sector and 41 public sector organizations using principal component analysis, Parhizgari & Gilberta (2003) showed statistically significant differences in how effectiveness measures are applied between the two types of organizations. Marr & Adams (2004) argued that Kaplan & Norton (1996c) initially overlooked the concept of intangible assets in their original work, later incorporating it into the learning & growth perspective with classification of intangible assets into human capital, information capital, and organization capital. They argued that this attempt to evolve the BSC may have had an adverse effect and outlined how Kaplan & Norton "failed to acknowledge the large body of literature on intangible assets and, therefore, produced an inconsistent, incomplete, and potentially very confusing classification of intangible assets" (p. 18). At about the same time, Kaplan & Norton (2004) wrote a feature article for the *Harvard Business Review* titled "Measuring the Strategic Readiness of Intangible Assets," which included a systematic approach for allowing organizations to "measure what they want, rather than wanting only what they can currently measure."

Atkinson et al. (2012) described one case study where the non-governmental organization (NGO) design was modified to include five perspectives from top down in the order social

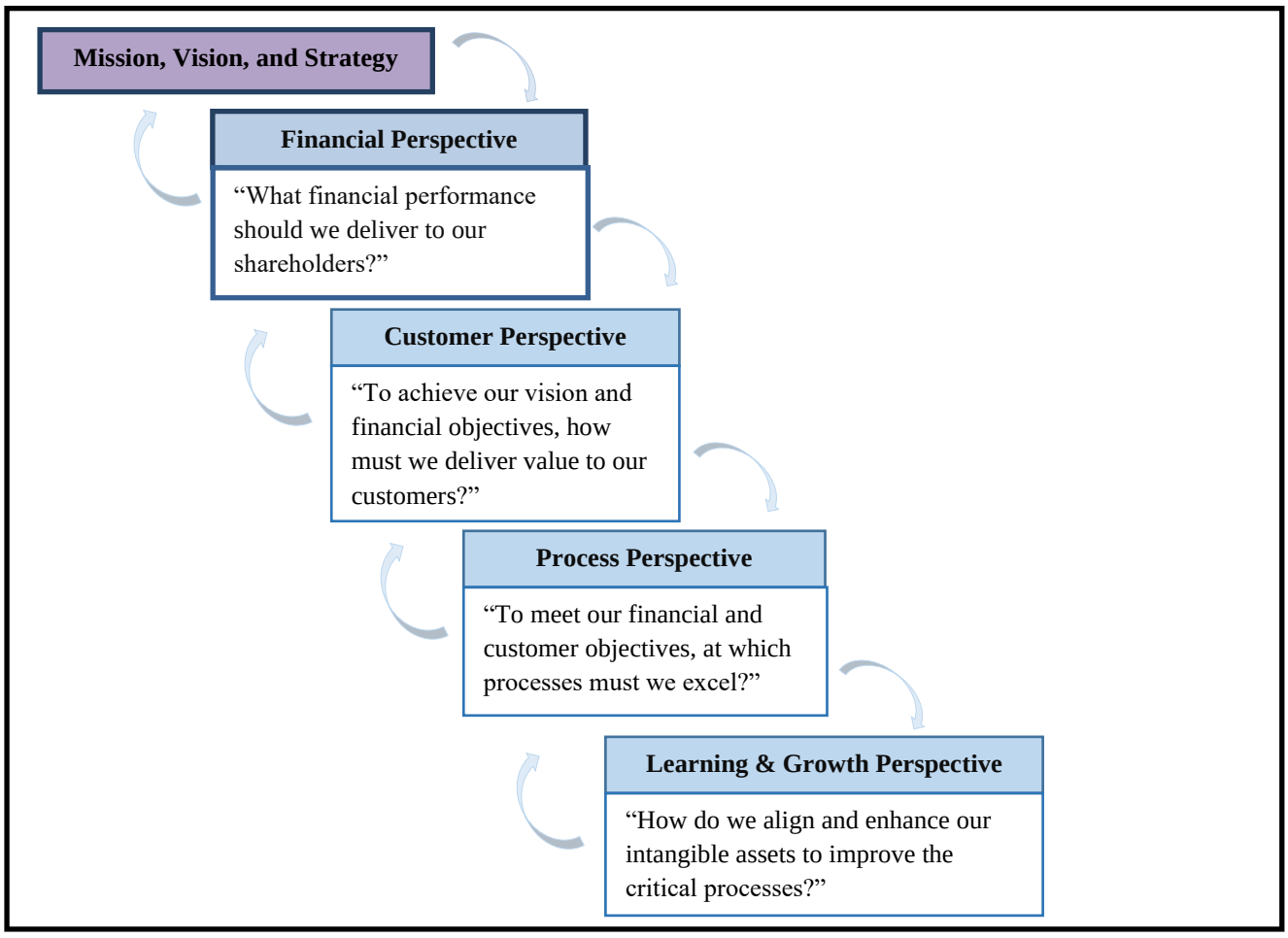
impact, constituent, operating processes, financial, and organizational capacity, similar to the conventional learning & growth perspective. Cascading performance measures represent a scorecard design element not exclusive to the public sector but that should be considered a necessity (Niven, 2003). This involves the process of developing BSCs at each level of an organization, which creates alignment and a two-way flow of information (learning) between the lowest and highest levels of objectives and performance measures of participating groups. Drucker (as cited by Niven, 2003, p. 228) argued that the design of a scorecard for a non-profit BU must be information-based, with information flowing in two directions: from those doing the work to those accountable at the top, and back down to the workers. He considered it essential for non-profit BUs to be learning organizations. The literature review revealed different designs for NGOs and public sector BUs, but none of these included the concept of validity, including concurrent validity.

This research experienced a gap identified for BUs by Atkinson et al. (2012) in that government managers may work with too narrow a focus to enhance the reported results of their individual functional units, and without balance between BSC perspectives or strategy mapping or alignment of measurable objectives to strategic outcomes. The BU in this case study focuses on generating its two most important required legislated products/services: industrial property assessment rolls and notices. The industrial property assessment rolls are digital records containing the names and contact information of property owners. The term is derived from the medieval practice of posting parchment “pipe rolls” of financial records, including property rights and assessments, on the doors of municipal office buildings for viewing. The notices are summaries and detailed reports of the specifications and characteristics of properties and their estimated assessed values. Another gap indicated by Atkinson et al. (2012) common to the public

sector and actually experienced here is that the units encountered difficulties developing their initial scorecard because their strategy focused on a lengthy list of planned programs and initiatives without specifying relevant objectives and measures for those objectives. For some public sector BUs, the linkage is not necessarily cause and effect and the links do not necessarily flow in the idealized design from top to bottom and bottom to top through ordered perspectives. The framework does not indicate any varying strengths associated with links in relation to each other. Balance is not inherent in the design simply because of multiple perspectives with multiple objectives and measures, especially if the objectives are irrelevant and the measures are not valuable. Public sector BUs must also expand the definition of who is the customer to include stakeholders who pay for or receive the services provided.

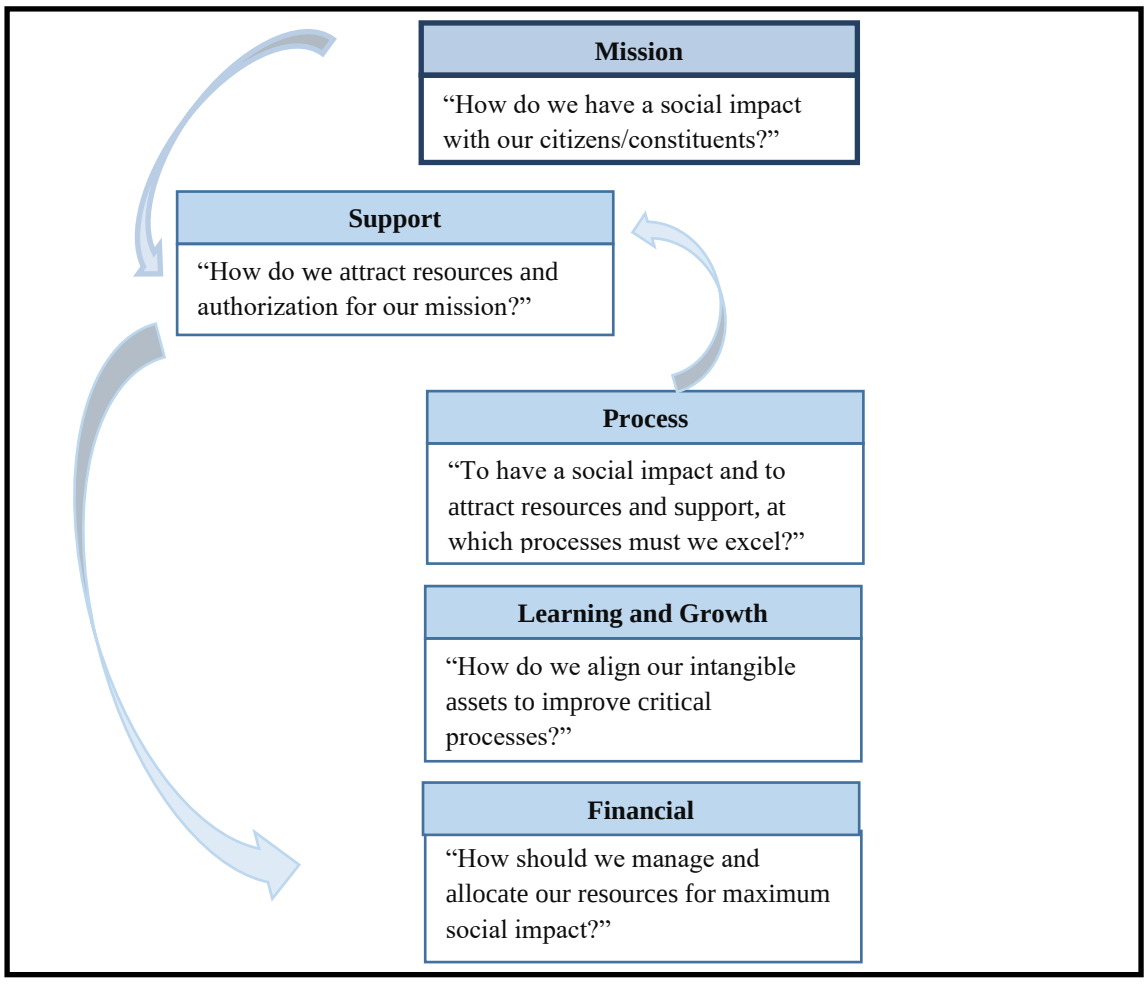
At the BU discussed in this research, strategy is done as planning rather than a differentiation strategy, which requires at least two characteristics: identification of a unit's competitive advantage and the strategic leveraging of that advantage. There has been no executive knowledge (i.e., the head of the BU) of how to progress from the strategy mapping phase (which should be a "differentiating" strategy) to the development of objectives and measures. As argued by Atkinson et al. (2012, p. 428), "the drivers—found in the customer, process, and learning & growth perspectives--are selected from an explicit and rigorous translation of the organization's strategy into tangible objectives and measures."

Figure 2 *The Balanced Scorecard Model for the Private Sector*



The financial perspective for this public sector BU is its budget (Figure 2, from Atkinson et al., 2012). The other three perspectives and their corresponding strategy maps will shape the financial perspective, but the budget amount requested from the treasury by the BU is not guaranteed, even with the ability to change the industrial requisition amount. This is not unusual, especially during periods of GoA fiscal restraint. A shortfall in budget means that the financial perspective is still the driver that constrains (especially during periods of fiscal restraint) or optimizes the other three BSC perspectives. The precise types and number of *relevant* measures for each perspective on the scorecard cannot be selected until the research determines what the BU considers valuable for each perspective (i.e., the value propositions).

Figure 3 *The Balanced Scorecard Model for Public Sector and Non-Profit Organizations*



"Social impact" is measured by the ability of the organization to effectively provide benefits and accountability to its constituents, rather than raising money, efficiency, and balancing budgets (Figure 3, from Atkinson et al., 2012). When critical processes, especially from the internal business processes perspective, are identified, intangible assets should be aligned to optimize these processes. Intangible assets exist within three categories in the BSC framework: human resources (skills, talent), information technology (strategic information availability from systems and applications), and organizational culture and alignment (shared employee values, vision, strategy, knowledge sharing, and goals and incentives aligned with the strategy). To learn processes and grow toward greater sophistication, BUs require appropriate

baseline KPIs and tracking of the learning & growth perspective. The content for the perspective should include the minimum required standards and assets for staff, onboarding requirements, knowledge transfer and succession planning, and learning requirements at different stages of the business cycle and lifecycle. In addition, the perspective must link to the financial and other perspectives to assess the associated costs. For this research, the learning & growth perspective was almost "empty." When managers would request more training for staff, executive managers would ask how much had been spent on training and what the existing training and conferences costs were, but the answers were incomplete and were not measured accurately. The learning & growth perspective was run in a mostly ad hoc and reactive manner. The definition of the "customer" for this research and BU was expanded to include provincial industry, municipal and provincial governments, and taxpayers.

Niven (2003) proposed some adaptations that differentiate use of the BSC between public and non-public sectors through design. He described the differences in design but did not provide quantitative or qualitative evidence (measurement outcomes) for whether this new design was better than the conventional (i.e., private sector) design, and so it seems to have not been tested. Further, case studies described in the literature rarely changed the design of the scorecard from the conventional form. Niven (2003) suggested that one clear distinction between the public and private sector scorecard designs is that the mission is placed at the top of the BSC for the public sector, although this does not seem different from the original (i.e., for-profit private sector) scorecard design, where mission, vision, and strategy are already placed at the top, or core, above the financial perspective (Atkinson et al., 2012).

As another design change, Niven (2003) suggested the elevation of the customer perspective above the financial perspective, as financial success is not the primary objective in

the non-profit and public sector. He argued that "Achieving a mission does not equate with fiscal responsibility and stewardship; instead, the organization must determine whom it aims to serve and how their requirements can best be met" and suggested that "Each group of customers (stakeholders) identified will likely result in different measures appearing in the other three perspectives" (p. 34). In the public sector, objectives related to the mission move to the top of the scorecard and strategy map while the financial perspective drops to the bottom, resulting in the design shown in Figure 3. Atkinson et al. (2012) noted that users of the scorecard also modify it to broaden the definition of their customers, expanding it to include both stakeholders who provide resources and those who use them.

The literature review briefly indicated the existence of linkages but did not explore them in depth. Early in the research, it became clear that feedback loops, bypass links, and cross-linkages would be needed in my design to increase flexibility. The constructs of value and relevance apply not just to the *content* of the perspectives (i.e., the objectives of the measures) but also to the *linkages* (i.e., flow, feedback, and bypass). While the core of the theory behind the scorecard remains unchanged, the literature review suggested that the BSC design must change to address the needs of the public sector that differ from those of the private sector. This research challenges this design assertion.

How the Research Design Can Fill the Gap

1. Rational Discourse

Rational discourse can improve outcomes in systems development (Cooper & Ezzamel, 2016), and so should improve outcomes if used in the development of a performance measurement and management system using the BSC. I adopted an approach of mutual understanding and consensus to avoid distortions of discourse for the survey questionnaire and

thus ensure that the responses obtained are true, clear, sincere, and legitimate. Cukier et al. (2004) argued that the technique has a strong theoretical foundation, and the "claims" of validity made by the BU during discourse are accessible, as "truthfulness, clarity, sincerity, and legitimacy are easily understood" (p. 239). These claims seem well-suited to identify performance objectives, measures, and outcomes with relevance and value in the BU discussed in this research. If the strategy and objectives used in my scorecard were lacking in any of these claims, there would be little point in continuing with scoring or developing strategic readiness.

Most approaches to management and planning rest on notions of *rationality* (Cukier et al., 2004, p. 236), and they proposed that the ideal speech act can be used as a benchmark for assessing rationality. The veracity versus verisimilitude of rationality is important to detect in public sector performance management and in the setting of objectives and measures in the scorecard. Performance management can identify what is or is not working in a BU but may not always explain *why*. The GoA Municipal Affairs reporting environment resembles what Cukier et al. (2004) identified in their study as offering a mere description of activities with no analysis of objectives or outcomes.

Building on the "*Where is the Gap?*" subsection above, the rational discourse gap and BSC design can be improved by adopting a dialogic approach integrating elements of both technical and social views of the BSC. Cooper & Ezzamel (2016) suggested that the BSC design requires a willingness to consider alternative languages and models of organization along with genuine communication and dialogue. They also argued that an organization can overcome some of its pragmatic and ethical limitations by building substantive communication or a constrained dialogue into the BSC. This highlights the importance of including intangible assets in the proposed research BSC design and the identification of which are relevant, valuable, and

measurable. The use of a dialogic approach to balance the BSC action with thinking requires the inclusion of intellectual capital intangible assets, such as reflexive thinking, culture, and the ability to navigate uncertainty. Cooper & Ezzamel (2016) also recommended assessing the validity of a dialogue according to the norms of communicative action and discourse ethics. Some of their recommendations were informed by earlier case studies of the GoA by Townley et al. (2003), which showed that managers, when not permitted to balance the BSC with a dialogic approach, sometimes "game" the PMS, where reasoned justification gives way to instrumental rationalization. Cooper & Ezzamel (2016) suggested that the "validity of dialogue should be assessed according to the norms of communicative action and discourse ethics" (p. 19).

Behn (2003, p. 589) argued that waiting for perfect information can stall progress in performance management, concluding that "What gets measured gets done" (Peters & Waterman as cited by Behn, 2003, p. 599). However, what is measured is not always what is necessary to accomplish, and hence my construct of *relevance*. With regard to the BSC approach, Kaplan & Norton (as cited by Behn) identified financial performance measurement as having a backward-looking focus, that is, it is not always prescriptive. Prescriptiveness is not expected for this research, but is a possible outcome from the criterion of validity (i.e., seeking concurrent or predictive validity) in the analysis. Portability of the BSC is also not a requirement, but if it can be applied for other BUs, this would represent a "bonus."

This section on rational discourse adds value as a critique of the literature by addressing gaps identified in the review. The topic of rational (communicative) discourse, which is present in the literature, may help fill these gaps and improve the BSC design in this research. Both Cooper & Ezzamel (2016) and Towley et al. (2014) examined the GoA performance

management environment and argued for the importance of relevant performance objectives and indicators.

2. Relevance and Value

Niven (2003) argued that "The *execution* of a strategy is more important, and more valuable, than the *formulation* of a strategy." While this seems very "action research"-oriented, the research discussed in this thesis showed that this is not part of a good BSC design. Without formulation (i.e., the BSC strategy "mapping" process), there can be no execution of the strategy. Townley et al. (2003) showed that strategy mapping in the GoA was not formulated well, with objectives selected or developed that were not relevant to the BU and poorly aligned to a poorly developed strategy. In many cases, objectives were the result of organizational isomorphism (i.e., mimicking similar organizations, coercion by regulations, or used as a best practice through normative pressure without adaptation to the BU). Execution of strategy is not more valuable than the formulation if the formulation itself is not valuable (i.e., relevant). Efficiency initiatives, rather than effectiveness initiatives, have been implemented in the BU discussed in this research. This approach may lead to achieving improper outcomes but with higher efficiency.

The appropriateness of execution of the BSC is important. Based on analysis of a questionnaire survey among Italian companies using the BSC approach, Lucianetti (2010) showed that a lack of development of strategy maps (i.e., formulation) for the BSC is related to a substantial decrease in its effectiveness (i.e., perceived expected benefits). Speckbacher et al. (2003) and Davis & Albright (2004), as cited by Lucianetti (2010), along with other reports, provided evidence through cause-and-effect diagrams, which resulted in a limited version of the BSC.

Based on the research question, which asks how a public sector BU can design a BSC that is relevant and valuable to both the unit and its stakeholders, it is important to determine which elements should be considered valuable. These elements are those deemed important and useful by the BU, as identified by implementation of the scorecard. Values appear at the core (or the very top) of the scorecard design as part of the strategy map comprised of mission (why we exist), followed by values (guiding principles), vision (word picture of the future), and strategy (differentiating activities). The scorecard attempts to translate these into performance metrics embedded within, and linked across, the scorecard perspectives (Niven, 2003, p. 101). Niven argued that values, and especially core values, "are the timeless principles that guide an organization and represent the deeply held beliefs within the organization and are demonstrated through the day-to-day behaviours of all employees" (p. 111). Values should be representative of the unique characteristics of the organization, be consistent, aggressively authentic, and support the achievement of the mission.

3. Design

Kaplan & Norton (2004) argued that freestanding intangibles do not provide value because they cannot be measured. Instead, they must be aligned with the organization's strategy (strategy mapping) to become relevant and valuable. An example they provide, which is applied to the learning & growth perspective in this case study, is that neither an organization's motivated and prepared workforce alone nor "*whether* its workforce is properly trained and motivated to pursue a particular goal" (p. 2) has value in the BSC perspectives. Carayannis (2004) did not connect intangibles to strategy as strongly as Kaplan & Norton (2004), but did argue that intangible assets must be linked/mapped into tangible resources. To improve the accuracy of this association, linkages must be reassessed during iterative processes. Although he

did not refer to the BSC approach, this would be considered equivalent to moving between the BSC perspectives. Importantly for my case study, Carayannis (2004) discussed linking intangible results to tangible outcomes: “This is not an exact science. It is not as important to measure the results accurately the first time as it is to establish a baseline upon which the measurements can be improved over time” (p. 65). This corresponds exactly to the findings with the proof-of-concept design and experimentation in the BU discussed here. The first set of research BSC objectives and measures for the learning & growth perspective does not allow comparison of any scores, as nothing is available yet to compare. Instead, an inventory of minimum required standards and assets for a training benchmark is established, which will be adjusted as the internal business processes perspective changes with the business lifecycle.

In their development of the BSC, Kaplan & Norton (2004) identified three types of intangible assets: human, information, and organization capital. Later, they integrated these assets into their strategy mapping process (objectives) to create what they called “strategic readiness,” a measured characteristic used to determine how much an intangible asset contributes (or does not contribute) to the performance of strategic objectives. They likened this strategic readiness to the accounting concept of liquidity, stating, “the higher their state of readiness, the faster they contribute to generating cash” (p. 4); in the context of the BSC, this corresponds to high performance. This research attempted to determine what this public sector BU considers to be relevant and valuable for these types of capital and performance measurements. Kaplan and Norton (2004) argued that human capital is most valuable when concentrated in a few strategic job families responsible for implementing the internal business processes critical to the organization’s strategy. Information capital generates the greatest value when it provides the necessary infrastructure and strategic applications to complement human capital. Organization

capital is most valuable when it fosters a culture that supports the other two types of capital and mobilizes and sustains the organization change agenda required to execute its strategy.

Figure 4 *Sample Readiness Report*

Owner	STRATEGIC OBJECTIVES	STRATEGIC MEASURES	PM SCORE	MEASURES / YOY	SCORE &TARGETS		
					2023 Score	2023 Target	2024/5 Target
FINANCIAL	Integration of Municipalities	New Munis come onboard – integration plan achieved	88%	% Integration	79%	Baseline	TBD
	Budget – Training/Courses	Timely and effective utilization of grants and external funding.	84%	% Budget Spent			
	DI Requisition Budget	Cost recovery estimates - Strategic Pointer	N/A	N/A			
	Municipal Contracts	Full intergration plan by 2028 - Zero contracts	65%	% Completed			
STAKEHOLDER	Audit Measures – Gap Analysis	Audit measures (% gap analysis), Internal Audit score	79%	% Gap Completed	68%	Baseline	TBD
	Presentations (Council Meetings, Sessions)	Presentations of relevant topics illustrating our principled approach (Number of presentations YOY / targets met	84%	% Achieved			
	Inspections (Planned vs Actualized)	Inspection planning and actualization (Target vs actual YOY)	57%	% Achieved			
	% Implementation of Internal Processes	Tracking and implementation of Internal Process systems that will help improve service attributes	53%	% Achieved			
INTERNAL PROCESSES	Implementation of Quality Models	Track Implementation BSC, QMS, Audit (% implemented YOY)	75%	% Completed	75%	Baseline	TBD
	ALPAS/CAMAlot – HR Resolution	ALPAS and CAMAlot evaluation (HR) Resolved YOY	96%	% Resolved			
	Server Software Requirements	Server upgrade requirements for ALPAS and CAMAlot	31%	% Completed			
	Sofware Requirements	Implement the correct high-quality software required by staff to do their job (desk).	98%	% Completed			
LEARNING & GROWTH	Succession Planning/Critical Roles/Cross-training	Succession planning implementation program / Identification of critical roles / Cross-training program	32%	% Completed	77%	Baseline	TBD
	Staff Training – Management Required	Staff training matrix and courses (% Trained per unit (YOY))	62%	% Trained			
	FTE	Number of FTEs to hire (Meet hiring goals - %YOY)	93%	% Complete			
	Staff Attrition Rates	Attrition rate of permanent or new hires	96%	% Achieved			
	Offer Acceptance Rates	Percentage of candidates who accepted a formal job offer (primary candiate)	100%	% Achieved			

Figure 4 illustrates the default design of Kaplan & Norton's (2004) readiness report for organization capital. The key is to ensure that the measures reflect the objectives and are SMART (specific, measurable, achievable, relevant, and time-bound). While measurability is important, it must also be valid and accurately capture the essence of the objective.

Addressing the gap in measurement also implies a gap in the management of relevant and valuable intangible assets alongside tangible assets within the BU. The value of intangible assets should be taken into consideration in the design of the BSC, particularly during the strategy mapping stage. Kaplan & Norton (2004) considered the value of these assets, including skills, IT systems, organizational culture, etc., exceeds that of the organization's tangible assets, describing their measurement as "the holy grail of accounting." Accurately estimating their value would allow these assets to be measured and managed effectively. The BSC approach incorporates

tangible forms of capital, such as financial and human capital, into its design perspectives. Intellectual and social assets are intangible forms of capital, and Copper & Ezzamel (2016) suggested that they should receive greater consideration in BSC design. Carayannis (2004) argued that the knowledge sharing associated with these intangibles is critical to a company's success and survival and must be measured. However, existing methods for measuring tangible capital may not be suitable, requiring the development of new metrics to effectively manage and translate these assets into tangible outcomes.

Kaplan & Norton (2004) define three categories of intangible assets, or "capital," essential for implementing a strategy in the BSC design: human, information, and organization capital. Human capital refers to the skills and knowledge of the employees. Information capital consists of IT components, such as databases, information systems, technology infrastructure, networks, and systems. Organization capital is the alignment of employees and their culture and leadership with the organization's strategic goals. Intangible assets are linked to the strategy of the BU in the strategy map. While they rarely create value by themselves, combining them with other assets during strategy mapping can lead to the development of tangible and measurable assets and goals.

Carayannis (2004) discussed examples of intangible intellectual capital, such as process generation, best practices, experience, intuition, and wisdom, and defined social intangible capital as consisting of internal networking, external relationships, good will, shared values, and internalized standards (p. 50). A gap was identified in that the measurement and management of these intangibles are greatly diminished compared with the better understood and more predictable financial and human tangible capital. Carayannis (2004) proposed four steps to

effectively measure these intangibles, which work well with the four perspectives and linkages of the BSC:

1. The organization must understand [find relevance, value] the intangible assets that it possesses.
2. These intangible assets must be linked to tangible resources [BSC strategy map].
3. The resources or outcomes must be included in the budgeting process [internal business processes perspective and financial perspective].
4. There must be a continual cycle of "link, measure, manage, and budget" that will allow the effective operationalization of steps 1 through 3.

Here, I present a story about the design of the BSC, drawing on Denning's (2001) argument that storytelling is the most effective way to communicate this type of information. In his research paper, which also focused on a case study, Carayannis (2004) provided insights into how intangibles can be measured using this methodology. He outlined four steps for measuring intangibles and provided explicit stages for building a knowledge baseline within an Intangibles Management Lifecycle consisting of link, measure, manage, and budget. This method was added to the application of the learning & growth perspective phase in the present case study. To make these steps work, it is also necessary to identify the knowledge content creators, knowledge managers or extractors, and knowledge users within the organization. The baseline should be constructed from the perspectives of these three groups. Carayannis (2004) emphasizes the importance of identifying the value of intangible assets, which is closely aligned with my research focusing on the metrics the BU considers valuable and relevant to measure using a BSC.

No single measure or attribute can be used to address all questions. Behn (2003) maintained that public sector managers require a set of performance measures even more

heterogeneous than those provided by the BSC, given the greater diversity of obstacles, demands, and stakeholders in the public sector compared to the private sector.

To invoke the common expression used to assess the relevance of a research problem—"*So what*?"—where does this review of the literature lead? Briefly, as the most widely adopted performance measurement and strategic management framework in both the private and public sectors, the theory underlying the BSC can serve as an ideal template for the government BU discussed here. Unlike the traditional focus on financial performance common in the private sector, the BSC emphasizes a balanced approach across four business perspectives, making it particularly well-suited for application in the public sector. While some organizations may use multiple performance indicators across various perspectives, creating the illusion of a BSC design, they will not be able to fully implement the framework without well-defined, strategically aligned objectives and cause-and-effect relationships.

Despite being a suitable design framework, a review of the literature regarding the BSC approach revealed gaps that could make it unsuitable for the government BU addressed in this research. An unsuitable design would increase the likelihood of poor implementation of the BSC by the organization.

One important gap is the lack of rational discourse in the design development phase. If the organization's claims are not valid or do not accurately reflect reality, the resulting distortions in discourse and lack of communicative rationality will cascade through the BSC design from strategy mapping to the development of poor-quality objectives and measures, ultimately leading to inaccurate links between BSC perspectives. That is, if the organization is not sincere, truthful, clear, and legitimate in its claims in relation to the reality experienced by

staff and managers involved in developing the strategy, this can lead to the setting of incorrect objectives.

A second gap is the lack of sufficient consideration of relevance and value in performance measurement. BSC objectives that are entirely politically driven or otherwise disconnected from or inappropriate for what is actually being done (accomplished) lack operational value for the BU.

The literature review identified a third gap: the standard BSC design does not adequately consider or classify intangible assets, such as talent and other human capital, which are of high value to government organizations that do not have a profit-motivated bottom line or brand value. Much of the literature assumes that public sector BUs must adopt a design that differs substantially from the private sector.

Reviewing the literature suggested some possibilities for addressing these gaps and thus improving the BSC design. To improve the rational discourse gap, performance management and critical discourse theory propose incorporating a "constrained dialogic" component into the BSC design (i.e., dialogue, but with valid claims that are true, clear, sincere, and legitimate).

The gap of insufficient relevance and value can be addressed in the BSC design by placing greater importance on the execution rather than the formulation of strategy, and prioritizing effectiveness as much as—or to a greater extent than—efficiency, especially in the public sector. The literature, including work by Kaplan & Norton themselves (1993, 1996a, 1996b, 1996c, 2000, 2004), suggests that a BSC design would benefit from greater emphasis on measurement and management of intangible assets, such as human, information, and organization capital, and that this deficiency can be remedied by integrating them with other assets to make them both tangible and measurable.

Chapter 3. Methodology

Overview

This chapter outlines the reasoning behind the approach to this research with regard to methods of data collection, organization, and analysis to address the research question with deductions and conclusions. The investigation made use primarily of qualitative research methods, and therefore the qualitative hypothesis did not examine the relations between variables with equations. The hypothesis allowed exploration of the goal of finding a new and as-good or better (i.e., more relevant and valuable) BSC design for the BU compared to the standard template without making any assumptions about the results. There are two "standards" for this research: the BSC design developed by Kaplan & Norton (1996b) for the private sector, and then applied to the public sector (Atkinson et al., 2012). The variables were also qualitative and therefore categorical with descriptive outcomes.

The survey included 82 questions (items) with ordinal responses, while the remaining 28 were quantitative interval variables. Ordinal Likert variables can be treated as quantitative "interval" variables if the intervals are equally spaced. According to the central limit theorem, the sample means will be normally distributed for a sample size of 30 or more. Therefore, the sample size for the survey in this research was 35.

Site and Sample

The unit of measure in this case study was the BU. While the initial objectives and measures for the BU are still being developed, benchmark inventories of processes for the four BSC perspectives have already been established.

Prior to this research, the BU lacked a defined learning & growth perspective, with only fragmented and minimal standards and assets, such as skills, expertise, and competencies,

included in job descriptions. Further, these items were not linked to a mission or vision through a strategy map. This research developed an initial strategy map and a skeleton design for the four perspectives. A survey of the BU was then conducted to populate the BSC learning and growth perspective with a preliminary skills inventory, benchmark, objectives, and measures. The development and scoring of the readiness reports—the BSC reports comparing actual to targeted readiness across the four perspectives described above—will be discussed later. The survey included a total of 82 Likert scale questions but had a sample size of only 35 respondents, which may yield unreliable results. Summary statistics were calculated for each of the four BSC perspectives, with each perspective forming a subscale. High subscale mean values indicated performance topics that employees considered important (i.e., of value). Processes within the four perspectives considered least valuable were excluded from advanced strategy mapping to avoid the creation of non-relevant objectives and a poorly designed BSC.

Data Collection

Data were collected through two methods. The first involved a survey with informed consent to gather employee opinions on the four BSC perspectives. The second involved collecting objective information, such as process documentation and workflows, from managers to create baseline "inventory" content for the four BSC perspectives. This baseline was necessary because strategy mapping, objectives, measurement, readiness reporting, determination of links between perspectives, and other BSC actions cannot be attempted on "empty" BSC perspectives.

Survey Design

The survey was designed with questions grouped into the four BSC categories. A preliminary proof-of-concept survey was administered to a small core group of respondents to test the reliability of the questions, which helped to refine the number of questions and their

weights. Measurements have value if they link to the objectives of the scorecard and have internal consistency. In this context, *value* applies to measures, while *relevance* applies to objectives. Of the 110 survey questions, 82 used a five-point Likert scale to assess the value and relevance of the organization's claims and whether sufficient resources are being provided to complete processes within the BSC perspectives. This approach is advantageous for designing a BSC with the expectation that it will be more effective and more widely adopted than a BSC imposed on the BU, such as a standard template or a custom design with goals and measures that are not relevant. If the analysis identifies misalignment between the organization's communicated goals and what the BU staff perceive as valuable and relevant, it will become apparent that there are distortions in discourse related to strategy, performance measurement, and performance management. For each of the four BSC perspectives, a strategy was developed—as described briefly below—as a starting point for design.

For the learning & growth perspective, information capital serves as the foundation for processes. Without adequate information capital—comprised of systems, databases, and networks—the human and organization capital types cannot achieve their full potential. This could hinder the flow of processes, necessitating timely maintenance and upgrades or replacement of equipment, applications, and software.

In terms of training for human capital, this BU allocates a fixed annual training budget for each employee. If an employee does not utilize the full training budget, it does not necessarily indicate low performance, as unused funds can be reallocated to other employees. While this may impact individual performance to some extent, it does not significantly affect the overall performance of the organization.

Projects were added to processes in the questions formulated for the internal business processes perspective. In addition, if management and staff consider internal business processes to be "working," this may simply mean that the processes are being completed rather than that they are effective and efficient or aligned with objectives that are relevant and valuable. The main management processes in the BU are communication (i.e., stakeholder relations, including newsletters and meetings), legislative (i.e., ensuring adherence to policies and compliance with regulations), and operational processes (i.e., property site inspections, determining property assessment values, preparation and distribution of assessment notices and rolls, allocating properties to their respective municipalities, data validation, data research and analysis, council presentations, session summaries, webinars, and E-newsletters).

In the customer perspective, customer interaction often forms an integral part of any business process. The GoA customers of the BU include the Minister, the Municipal Affairs Executive Team, a divisional team, department staff, Service Alberta (IT and security), Human Resources (HR), and partner ministries. The company and municipal customers include several groups, such as the Executive Advisory Council (EAC)—a group of industry and local government representatives created at the start of the Centralized Industrial Property Assessment (CIPA) initiative to provide recommendations to the GoA BU—municipalities, Designated Assessors, Designated Industrial property taxpayers, the Alberta Assessors Association, the Canadian Property Tax Association, the Canadian Energy Pipeline Association, the Canadian Association of Petroleum Producers, the Alberta Rural Municipal Administrators Association, the Local Government Administrators Association, the Alberta Energy Regulator (AER), the Alberta Utilities Commission (AUC), CanWEA (Canadian Wind Energy Association), the

Alberta Forest Products Association, Small Explorers and Producers Association of Canada (SEPAC), and Canada's Oil and Gas Entrepreneurs.

Initially, budget constraints were not a concern during the development of survey questions related to the financial perspective. A combination of well-prepared business cases for procurement and employee recruitment, the cost-recovery nature of the business model, and municipal and industry requests for the new BU resulted in minimal funding constraints during the first two years of the business lifecycle. However, a change in the provincial government led to immediate and severe budget constraints, requiring me to make rapid adjustments to the objectives. This instability in the BU's financial perspective is important for contextualizing and understanding the decisions made in developing the survey questions.

Analysis Methods

Qualitative: Discourse, Word Cloud, and Sentiment

The first concern in the analysis was to ensure that the responses were comprehensible, true, legitimate, and sincere. The questions for each perspective were grouped according to their dependencies on other perspectives and thus determine correlations among perspectives. Discourse (claims) and objectives and measures among staff were identified based on the first data collected using a survey questionnaire developed using the "Opinio" application. Questions were added for each strategy objective. The survey included 82 Likert scale questions (80 questions with scores of 1–5 and two with scores of 1–6) and 28 questions with frequency-based ranges. The results were aggregated and grouped according to the Likert scale ranges and then by each perspective to determine whether the survey could be considered relevant.

Word cloud analysis was used to determine whether the focus was more on short-term or long-term planning in the internal business processes perspective. The cloud was

generated based on the survey questions, which were aligned with the performance objectives associated with the current or most recent strategy. Words and phrases that appeared larger indicated a focus on short-term goals, while smaller word frequency representations suggested a focus on more distant, long-term goals. Sentiment analysis was used to assess the overall tone of survey responses across the four perspectives, categorizing them as *negative*, *neutral*, or *positive*.

Quantitative: Cronbach's Alpha and Correlation Analysis

Model estimation makes use of statistical analysis techniques to identify parameters that can best explain observed data. The models both planned and already implemented in this research were designed to capture the key research metrics. The primary objective was to ensure relevance and value of the BSC design, which guided the design parameters based on the required performance scores.

A case study was performed to corroborate and validate the assumptions underlying the BSC, and the criterion validity technique was applied to validate the BSC design. The aim of the research was to evaluate whether the BSC design was relevant, ensuring that the performance objectives aligned with what the staff of the BU considered valuable. External stakeholders were not consulted on value and relevance, as they had already expressed their support for centralizing and standardizing processes at the BU to replace the decentralized, non-standardized, and inconsistent methods used for industrial property assessment in the province. The assumption was that improvements within the BU would lead to enhanced outcomes for the stakeholders. A BSC design with misalignment between strategy and relevance risks being ineffective and is prone to being "gamed," where certain dimensions within the PMS are emphasized over others, reducing reasoned justification to mere instrumental rationalization.

The reliability and consistency of survey questions presented for each of the four BSC perspectives were tested using Cronbach's alpha. A sufficient number of responses would be required to demonstrate internal consistency of the variables in the questionnaire, and a sample size of 30–40 respondents may not yield a reliable alpha value. A smaller sample size of fewer than 30 can achieve a minimum desired effect size of 0.7 when the null hypothesis assumes a Cronbach's alpha coefficient of zero (Bujang et al., 2018). In the prototype design, the first perspective (learning & growth) used the survey response rate to calculate job readiness and scoring for each perspective. The survey items in the questionnaire each had five response options, which provided a good basis for reliability analysis. This approach helped to validate that the design template, consistent with the gold standard default design described by Kaplan and Norton, would be applicable in the context of a government BU.

The Cronbach's alpha value was calculated for each of the four groups of questions corresponding to the four BSC perspectives. While Churchill (1979) emphasized the importance of this statistic, it was considered less important in this research due in part to the small sample size. Predictive validity, a type of criterion-related validity, was used to evaluate the ability of the operationalization to predict outcomes that it should theoretically be able to predict.

Does the new design fill the gaps identified in the literature review? Correlation analysis was used to explore the relationships among the four BSC perspectives and revealed links and validated multidirectional connections. The correlations were based on the mean scores of the responses grouped according to the four BSC perspectives. High correlations indicated strong relationships (i.e., links) between the perspectives. This was important because the research aimed to identify and assess the relative strengths of multidirectional links, and not just conventional bidirectional links, between perspectives. This would provide insights helpful for

managers to use the design to better understand where to allocate resources based on causal relations. The expectation was that strong correlations would indicate strong links between BSC perspectives.

Validity

The research question was, "How can a public sector business unit design a BSC that is relevant and valuable to both the business unit and its stakeholders, and effectively measure performance?" However, the *implementation* of the BSC design and its effects on performance outcomes for the BU were outside the scope of this study and represent opportunities for future research. An established test or instrument (the design) was replaced with a different version of the same design that had greater relevance and value to a public sector BU.

Criterion validity, described further in Chapter 4, was examined to assess the accuracy of the new instrument (i.e., the BSC design) by comparison with the gold standard (i.e., the default Kaplan & Norton BSC design) for measuring the outcome it was intended to measure, along with the relevance and value of the new design. Such analyses would help establish the criterion validity of the BSC design, including its concurrent and predictive validity, and whether it represents a valid performance model. While Flamholtz (2003) argued that Kaplan and Norton provided no validation for the four BSC perspectives, Boulianne (2006) confirmed their validity.

Design and Challenges

Useful and challenging considerations for the design of the scorecard were identified during the design phase of this research. This was done qualitatively by observing current and past annual business cycles and their milestones for delivery of legislative goods and services and reviewing existing process documentation of internal business processes. Barriers to the

development of performance measurement and management systems were identified, and attempts were made to analyze gaps between processes that appeared to be driven largely by uninformed or misinformed intuition and groupthink with little emphasis on performance measurement.

The characteristics of this study aligned with both action research and design thinking and benefitted from linking these approaches together.

Action research aims for transformative change by simultaneously acting and conducting research in a process that is both educational and empowering (Eriksson & Kovalainen, 2015). This process is highly situational, as all data are contextually embedded and interpreted (p. 206). While emergent in nature, action research involves practical problem solving and systematically applying experience to research, which adds value. In addition, the driving force of such research should always be real-life problems. In action research, as in this thesis, there is little distinction between the research process and the organization being studied.

Design thinking sets a foundation for (and leads to) action research. Some sections of this thesis focus on design thinking, addressing business problems by adapting the BSC design to become more relevant to a public sector BU. Design thinking represents both a concept and a methodology. Action research can take over once the design has been embedded in an organization, moving beyond the proof-of-concept and criterion validity stages to actual implementation—that is, once it has become operationalized. This research incorporated design thinking through the use of non-verbal prototyping, such as BSC strategy mapping and workflow design diagrams. It also integrated elements of discourse theory to detect distortions in BU claims of truth, sincerity, clarity, and legitimacy as a means of analyzing survey responses of informed participants to determine what they consider relevant in their unit.

Over the lifecycle of the BU, does the design and implementation change (how), and does the scoring method need to change? That is, does the design need to reflect its temporal nature? Determining whether objectives are met requires measuring the performance of assets identified through strategic mapping. Some assets are intangible and must be combined with other assets to become tangible and measurable quantities. For example, a "motivated and prepared workforce" is an intangible asset for a BU, and Kaplan & Norton (2004) noted that its value "can be derived only in the context of the strategy" (p. 2). The strategy sets the goals, and this intangible asset becomes tangible by measuring whether staff training is achieving these goals.

To link objectives and measures effectively, it is becoming apparent that priority should be given to a few relevant measurements rather than many measurements of dubious relevance. Getting staff, especially management, to participate in goal development has been challenging and time-consuming in general, largely because it is new and involves theoretical frameworks that have not yet been practiced in the BU. This requires both patience and guidance. While operational risks (e.g., broken internal business processes) often go unnoticed, *reputational* risk usually attracts a great deal of attention. Attaching the importance of performance measurement and management to audit preparation, where the resulting report goes to the Deputy Minister, helps to drive action by connecting reputations to BSCs that support quality management programs. By focusing on a few key goals and objectives, it was possible to move the BSC design workflow forward more efficiently, from strategy mapping to readiness reports, and thus provide participants with tangible outcomes and feedback, keeping the action research process moving and motivating participants with the expectation that goals and measures will be based on evidence, availability, circumstances, discretion to use input and output measures, and survey results demonstrating relevance and value to the BU.

A strategy is required to *start* scorecard development, but not necessarily to make it permanent. Strategy may emerge as the design and implementation of the perspectives occur. Cooper & Ezzamel (2016) argued that constrained dialogic organizational debate (see p. 1, this dissertation) should take place regarding not only how the current organization operates and achieves results but also to facilitate constructive and open discussion of objectives and strategy.

Applying the financial perspective can be more difficult for a public sector BU, although it may be possible to determine how budget constraints can affect training and development in this context.

Inappropriate existing BU performance indicators were identified during the scorecard design phase. For example, property assessment value total by year does not indicate whether performance is good, as values can fluctuate due to a number of factors, including inventory, inflation, economics, and reporting practices. On a larger scale, the new provincial government is beginning to emphasize measurement and evaluation, a focus that has been absent for the past 7 years.

A new BSC design for the BU was developed and compared to the standard design outlined by Kaplan and Norton. The new design must be shown to be relevant to be of value, while the standard template inherently lacks relevance to this public sector BU. While the standard design recommends strategy mapping to align objectives and measures with the strategy, this alone does not ensure that the design or objectives are relevant. In their research on the use of performance measurement in the GoA, Townley et al. (2003) found that strategy development is often politically and policy-driven rather than operational, and objectives that are thus imposed on the BU from outside may not be relevant and valuable to the BU and its staff and management. This can lead to the “gaming” of performance measurement by management,

focusing on non-relevant objectives. Efficiencies may also be imposed on the BU for a number of reasons, including institutional isomorphism (e.g., mimicry), but the design must first be effective before it can be efficient. This research aimed to identify what is relevant and valuable to the BU and to align the design of the BSC with strategy through strategy mapping. SWOT analysis conducted in partnership with management informed the creation of a strategy map, including the mission, vision, and objectives for each of the four BSC perspectives using the standard BSC template.

Chapter 4. Analysis

Overview of Analysis Strategy

Step 1. Qualitative Interpretation and Grouping of Links Between Perspectives

The questions were first categorized according to the four BSC perspectives. To explore potential links between these perspectives, qualitative analysis was performed with the questions grouped based on how they impacted or were influenced by other perspectives. For example, a question from the learning & growth perspective—"Is the budget sufficient for training?"—was classified as linking between the learning & growth and financial perspectives. This analysis showed that the perspectives are interconnected through multiple links in multiple directions, a characteristic not seen in the standard model. These linkage results were then subjected to quantitative correlation analysis to evaluate the validity of the multidirectional links. To be considered valid, the scale was expected to follow a normal distribution and to have an acceptable and reliable Cronbach's alpha (≥ 0.7).

Step 2. Coefficient of Variation

To evaluate the consistency and uniformity of the data distributions, the coefficients of variation (CVs), defined as the ratio of the standard deviation to the mean, were calculated. A higher CV indicates greater variation within the data set. Generally, a CV between 20 and 30 is considered acceptable, while a CV greater than 30 is regarded as unacceptable.

The grouping of questions in step 1 was used to calculate the variation. As shown in Table 5, the learning & growth-to-stakeholder, stakeholder-to-financial, and stakeholder-to-learning & growth links showed low variation, indicating that they were reliable.

Step 3. Correlation

To assess the strength of the links and examine the relationships among the four perspectives, the Pearson correlation coefficients and their associated *p*-values were calculated as metrics reflecting the strength and direction of the associations between two or more variables. The correlation coefficient can take values ranging from −1 to +1, with −1 indicating a perfect negative correlation, 0 indicating no correlation at all, and +1 indicating a perfect positive correlation. A positive correlation indicates change in the same direction for both variables, while a negative correlation indicates change in opposite direction.

The results revealed significant positive correlations between the internal business processes and learning & growth perspectives ($\rho = .11$, $p \leq .014$), financial and stakeholder perspectives ($\rho = 0.13$, $p \leq .01$), and stakeholder and internal business processes perspectives ($\rho = .22$, $p \leq .01$).

Step 4. Cronbach's Alpha

Cronbach's alpha is widely used to assess the internal consistency of a questionnaire or survey comprised of multiple Likert-type scales and items and takes a value between 0 and 1. The Cronbach's alpha values for the survey Likert questions grouped into a single category exceeded 0.9, indicating a high degree of consistency. This showed that the questionnaire was well-suited for assessing the correlations between BSC perspectives and exhibited strong internal reliability. Furthermore, these observations also validated the grouping based on the Kaplan & Norton private sector template, confirming its value and relevance to the BU.

Step 5. Qualitative Interpretation of Discourse, Word Cloud, and Sentiment Analysis

The survey responses were interpreted and analyzed based on discourse/communicative actions to assess whether the responses for each perspective were truthful, sincere, legitimate, and clear.

Word cloud analysis was used to highlight the main themes and identify the short- and long-term focus of the BU. The alignment with strategy, business objectives, and perspective goals demonstrated the relevance and value of the BSC template and the questionnaire to the BU.

Sentiment analysis was performed on the grouping of the Likert scale responses, which provided insight into the fairness of the survey questionnaire. The results helped to confirm that the survey was aligned with the business objectives. The greater numbers of responses interpreted as neutral and positive validated the relevance and value of the survey and the BSC template to the BU.

Data Collection

Data were collected from a survey questionnaire to measure the BU staff objectives of relevance and value. Additional data were also obtained from documents and meetings with managers of BU subunits to create inventories of processes for each of the four BSC perspectives. The use of these inventories allowed identification of links between the perspectives and assignment of their strengths.

Learning & Growth Perspective

Metrics (objectives and measures) for all four BSC perspectives in this research were determined via a participatory process involving staff of the BU, beginning with Management. Only one objective was identified for the BSC design: having continuous improvement of skills and training. The focus and measures for this objective consisted of the three types of capital

outlined by Kaplan & Norton (2004): human capital (skills, training knowledge), organization capital (culture, leadership, teamwork), and information capital (systems, databases, networks).

Setting objectives is part of the design phase (strategy mapping), while measurement and reporting occur in the implementation phase after the design, offering an opportunity for future research. The ultimate performance indicator for this and the other BSC perspectives is the "readiness report," which measures the actual percentages of objectives achieved relative to the target percentage. The number of staff with job-appropriate skills and competencies is a metric relevant to the BSC. Minimum Required Standards (MRS) of skills—a GoA HR mandatory standard for hiring of candidates—is a possible measure, with the target set to 100%. However, as MRS changes over time, staff recruited earlier may not meet the current MRS requirements. In addition to the MRS, GoA HR job postings request that applicants indicate how many of a list of job-related non-mandatory desirable skills ("assets") they have. These can serve as additional performance indicators for the readiness report. Measurement of relevant and valuable employee assets exceeding the MRS will provide an advantage over local (municipal) assessment.

Internal Business Processes Perspective

Two relevant BU objectives were identified through strategy mapping in this research: faster turnover time to enhance management of internal resources, and the viability of innovation. Management selected two key categories—customer management processes (communication, regulatory, and operational) and innovation (organizational, management, and technical)—as areas of focus and measurement relevant to the BU.

The objectives focus on faster turnaround time to improve the management and effective allocation of the unit's internal resources. Measurements will allow calculation of the percentage of progress toward meeting this objective, as indicated in BSC readiness reports. This will allow

assessment of whether the unit can allocate and manage resources more effectively and thus improve outcomes. The second objective—the viability of innovation—measures whether there are faster ways in which the unit can move its proofs of concept through pilot projects to production (i.e., achieve full operationalization). The unit can measure whether each idea successfully completes a full business cycle, from proof of concept to production.

In addition, the design's objectives and measures take into consideration the presence or absence of knowledge and process succession planning and continuity. The first run of the BSC should assess whether there is operational depth (e.g., backup/backfill for a given role/skill), which is crucial for knowledge continuity. While the BU does have relevant and valuable written knowledge (e.g., Standard Operating Procedures and process documentation), there is also a great deal of tacit knowledge that has yet to be transferred or documented. Although the BU lacks a Knowledge Management system, I am in the process of developing one, which will serve as a link to the learning & growth perspective.

Customer (Stakeholder) Perspective

Three BU objectives relevant for each group of customers (typically called internal and external stakeholders in the public sector) were identified through strategy mapping in this research. The unit's first objective for its GoA customers (e.g., the Minister, etc.) is to meet all its legislative requirements, which can be addressed by focusing on and measuring the delivery of programs and services. While this is an expected objective because it is mandatory, its fulfillment and measurement are not guaranteed and may not be conducted appropriately.

In the design of the scorecard, it became apparent that objectives need to be met in a specific sequence, in order of priority, and according to legal requirements due to interdependencies and cause-and-effect relationships. Operationally, legislation and regulations

provide the business rules that guide the development of internal business processes. In this case, the sequence consists first of meeting the objectives for the GoA using heuristics or business rules to develop assessment models, then those for companies ensuring accurate self-reporting of property specifications and characteristics, and finally the municipalities, adapting property assessments into municipal property taxes. As part of the GoA, the BU has a mandate to fulfill all legislative requirements, to apply its business model for industrial property assessment effectively and efficiently, and to provide consistent and standardized assessments to the municipalities. Standardization of internal business processes is expected to increase predictability and generalizability.

The second objective is relevant for the second category of customers (stakeholders), including industry, and involves the application of a consistent and standardized linear property assessment model both effectively and efficiently.

The third relevant objective mapped to the prototype customer perspective is related to municipalities as customers and consists of the provision of a consistent and standardized assessment model upon which to base their taxes.

The objectives for both company and municipality customers (stakeholders) are intended to be achieved through the unit's products and services, balancing the needs of industry with those of municipalities.

Financial Perspective

To date, one BU objective relevant to the financial perspective has been identified. That is, to provide sufficient evidence, partly through use of the BSC, to secure a realistic budget to meet our stakeholder objectives. This research identified three key areas of focus and

corresponding measures: fiscal budget (impact of resource revenue), policies (balancing the budget and tax revenue), and the political environment and influence.

The BU's financial perspective combines elements of both private and public sector models. Although it exists within the GoA, the BU operates on a 100% cost-recovery funding model, providing property assessment services to its stakeholders. The municipalities include a special tax requisition in their tax notices to industrial companies, calculated as a portion of the assessed value of the companies' properties. The companies pay this amount to the municipalities, which then remit the funds to the GoA. However, these funds are directed to the GoA Treasury Department general revenue rather than directly to the BU.

Each year, the BU submits a forecast for the following year's operating and capital budget to the Treasury, providing explanations for any variances greater than 10% between actual and forecast amounts at quarterly intervals throughout the year. Unlike traditional financial models, the BU does not use profit or revenue indices in its financial perspective. Instead, the requisition amount, which changes annually based on the BU's operating budget, is communicated to the provincial municipalities and industrial property companies along with reasonable explanations for any variances.

The relationship of the financial perspective with other BSC perspectives is primarily dependency driven. That is, the extents of learning & growth, internal business processes, and customer engagement performed by the BU are largely determined by the funding available from the budget derived from the financial perspective. This makes the financial perspective fundamental for driving the other perspectives and achieving optimal performance of the BU. Therefore, the financial perspective was placed at the top of the BSC design, despite the public sector context.

While links between the perspectives are multidirectional, it is important to identify the starting direction or primary driver to avoid a "chicken-and-egg" scenario with the "tail wagging the dog." This is possible in a public sector BU that may lose sight of its "customers" by virtue of being large, overly inward-looking, and not having the motivation of a profit based KPI. For example, while the learning & growth BSC perspective is important, it does not define the BU's core purpose or the "Why" driver for the BU. Of course, the relationship also flows in the reverse direction, with the BU informing the GoA Treasury Board of its predicted budgetary needs based on insights from the inventories of the four BSC perspectives. To achieve its objectives, the BU must inform align its cost-recovery financial model with the financial perspective and ensure the budget is sufficiently realistic to meet the objectives of its customer (stakeholder) perspective.

Analysis Methods

Qualitative: Discourse, Word Cloud, and Sentiment Analysis

Qualitative interpretation, word clouds, and sentiment analysis were used to identify both the communicative rationality and distortions of discourse. Distortions indicate discrepancies between what the organization communicates and what actually occurs in the BU, as understood by the staff. If not identified and addressed during the strategy mapping phase, such distortions can lead to gaps with the development of a non-relevant design. Rational discourse can bridge these gaps, and help to create a relevant design with objectives and measures of value to the BU.

Qualitative interpretation of the survey questions (items) identified distortions in 31% of the financial perspective items, 40% of the learning & growth perspective items, 31% of the internal business processes perspective items, and 35% of the customer (stakeholder) perspective items.

Sentiment analysis involves the interpretation and classification of emotions within text data using techniques such as natural language processing, text analysis, computational linguistics, and biometrics. Sentiment analysis models detect polarity within text (e.g., a positive, negative, or neutral opinion), across various levels, including whole documents, paragraphs, sentences, or clauses. While sentiment analysis typically identifies overall sentiments of respondents, in this study, it was applied specifically to examine respondents' sentiments toward the four BSC perspectives based on the survey questionnaire items. The analysis showed that over 90% of the survey questions evoked positive or neutral sentiments. In addition, word cloud analysis was performed to extract the words occurring most frequently in the questionnaire. Of the 110 survey items, 65 were evaluated as neutral, 40 were positive, and 5 items were negative. The results of sentiment analysis for each item are shown in Appendix 3.

Table 1 *Sentiment Assignment to Each Questionnaire Item*

Sentiment	No. of items
Positive	40
Neutral	65
Negative	05

A word cloud is a visual representation of word frequency in a piece of text. The more frequently a word appears in the text, the larger it appears in the generated image, providing a rapid overview of the main themes discussed. The word cloud is increasingly being used in both the public and private sectors as a means of identifying key themes in written material.

After changing all questionnaire items to lower case and removing stop words (listed in Appendix 5), which are considered insignificant in natural language, all 110 questions (items) were included in the analysis.

The word cloud, bar diagram, and word count table shown below indicate that the words appearing most frequently in the questionnaire were “training,” “processes,” “project,” “stakeholder,” “employees,” and “budget.” The frequencies of words and their associated sentiments can be used to identify key concepts important to the BU staff, with importance typically correlated with value.

Figure 5 *Words Appearing Most Frequently in the Questionnaire*

Figure 6 *Frequency of Words in the Questionnaire*

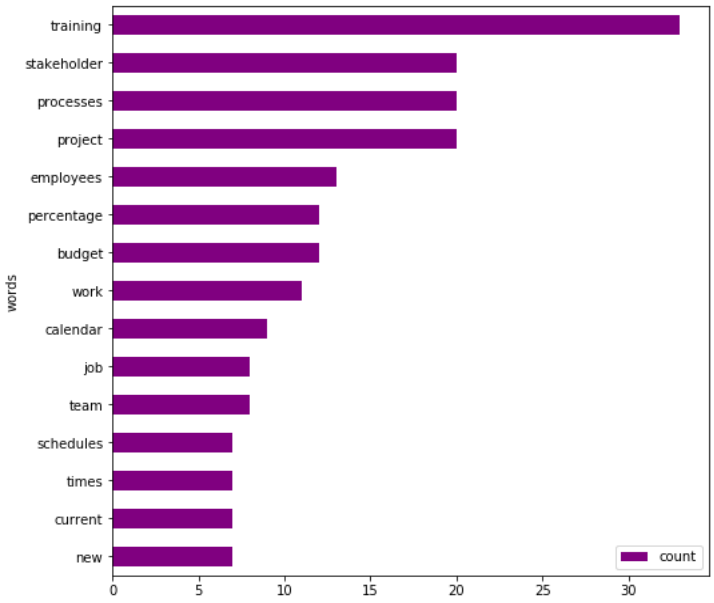


Table 2 *Questionnaire Word Frequency*

words	count
training	33
project	20
processes	20
stakeholder	20
employees	13
budget	12
percentage	12
work	11
calendar	9
team	8
job	8
new	7
current	7
times	7
schedules	7

Quantitative: Cronbach's Alpha, Descriptive, and Correlation Analysis

Assessing the internal consistency of the survey questions was a crucial step in the development of the BSC design. Strong consistency would validate the questions and show that

the design was relevant for the public sector BU. Here, the internal consistency of the survey questions was analyzed using PROC CORR in SAS. The raw overall Cronbach's alpha value was 0.95, indicating strong internal reliability and confirming that all survey questions were well-designed. A high percentage (overall 82%) of respondents selected "neutral," "agree," and "strongly agree" for the Likert scale questions.

Cronbach's alpha coefficient, developed by Cronbach in 1951 to provide a measure of the internal consistency of a test or scale, is expressed as a number between 0 and 1. Internal consistency describes the extent to which all the items in a test measure the same concept or construct, and hence it is connected to the interrelatedness of the items within the test. If the items in a test are correlated to each other, the alpha value is increased. A high alpha, however, does not always mean a high degree of internal consistency because the length of the test also affects the value; if the test is too short, the value of alpha will be reduced. Therefore, to increase the alpha value, a greater number of related items designed to examine the same concept should be added to the test. The formula for Cronbach's alpha is:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

where *N* is the number of items, $\bar{c}$ is the average covariance between item pairs, and $\bar{v}$ is the average variance.

General interpretations of alpha values for Likert scale questions are shown in Table 3.

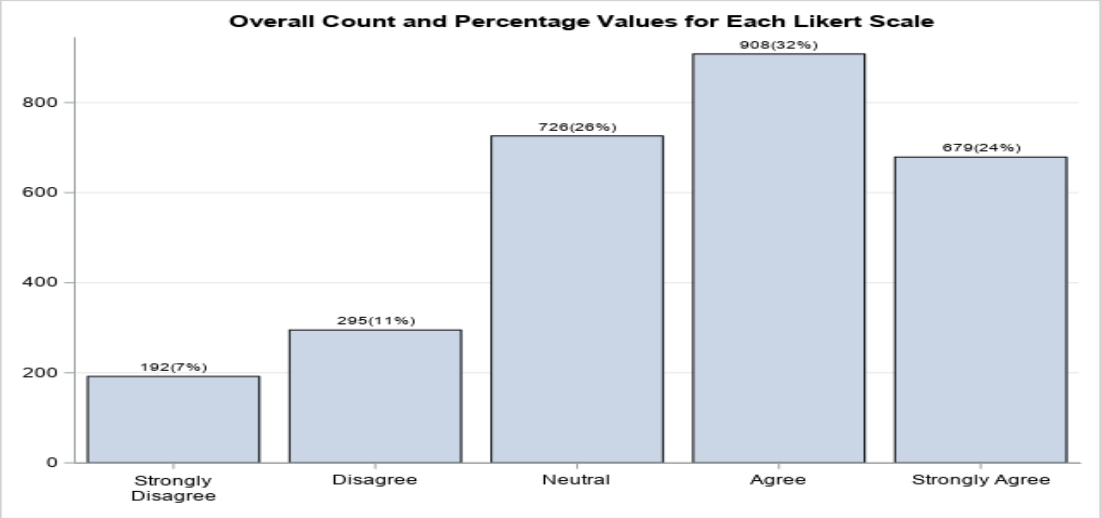
Table 3 *Interpreting Alpha for Likert Scale Questions*

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Of the 110 survey questions, 82 were scored on a Likert scale from 1 to 5. Both the raw and standardized Cronbach's alpha were used to calculate the internal consistency of the questions. The raw alpha coefficient is useful for reliability analysis, and both the raw and standard overall alpha values for this questionnaire were excellent ($\alpha > .9$), indicating that all questions were sufficiently well-designed to achieve high correlations and showed strong internal reliability. It is more relevant to compute the alpha for responses coded for each of the four BSC perspectives. With each question considered an "item," the learning & growth process consisted of 36 items ($\alpha = .94$), the internal business processes perspective consisted of 14 items ($\alpha = .84$), the stakeholder perspective consisted of 17 items ($\alpha = .87$), the financial perspective consisted of 13 items ($\alpha = .74$), and the total perspective consisted of 82 items ($\alpha = .95$).

Various descriptive statistical measures, including frequency, mean, standard deviation, count, minimum, and maximum values, were calculated based on the survey questionnaire. The values for each statistical measure are provided in Appendices 1A and 1B.

Figure 7 *Overall Count vs. % Values for Each Likert Score 1 to 5*



y-axis: overall count; x-axis, % values for each Likert score 1 to 5

Figure 7 shows the total counts (responses) and percentages of the total for the 82 Likert scale questions combined across the four BSC perspectives. Table 4 lists the descriptive statistics and distribution of responses for each of the four perspectives. *N* represents the number of responses for the survey questions (items) associated with each perspective. Mean refers to the mean score of *N* responses for each perspective (from 1 to 5 on the Likert scale), where a value of 3 indicates a neutral response. The learning & growth perspective had the highest count and the most highly dispersed data with $N = 1{,}260$ and standard deviation of 1.28, followed in decreasing order by stakeholder, internal business processes, and financial perspective.

Table 4 *Descriptive Statistics Among the Four Balanced Scorecard Perspectives (Dimensions)*

Variable	***N***	**Mean**	**SD**	**Minimum**	**Maximum**
Financial Perspective	455	3.45	1.15	1	5
Internal Business Processes Perspective	490	3.25	1.01	1	5
Learning & Growth Perspective	1,260	3.67	1.28	1	5
Stakeholder Perspective	595	3.72	0.97	1	5

The responses were distributed across 10 different links. More than 60% of responses fell into one of the two scales “Agree” or “Strongly Agree” in the customer-to-internal business processes link, customer-to-learning & growth link, customer to financial link, learning & growth-to-customer link, and learning & growth to internal business processes link. The linkages for financial-to-internal business processes, internal business processes-to-learning & growth, internal business processes-to-customer, and learning & growth-to-financial all showed more than 30% “Neutral” responses. On the other hand, the financial-to-learning & growth, internal business processes-to-customer, and learning & growth-to-internal business processes links had more than 20% “Strongly Disagree” or “Disagree” responses.

Table 5 *Response Distribution Among 10 Balanced Scorecard Perspective Links*

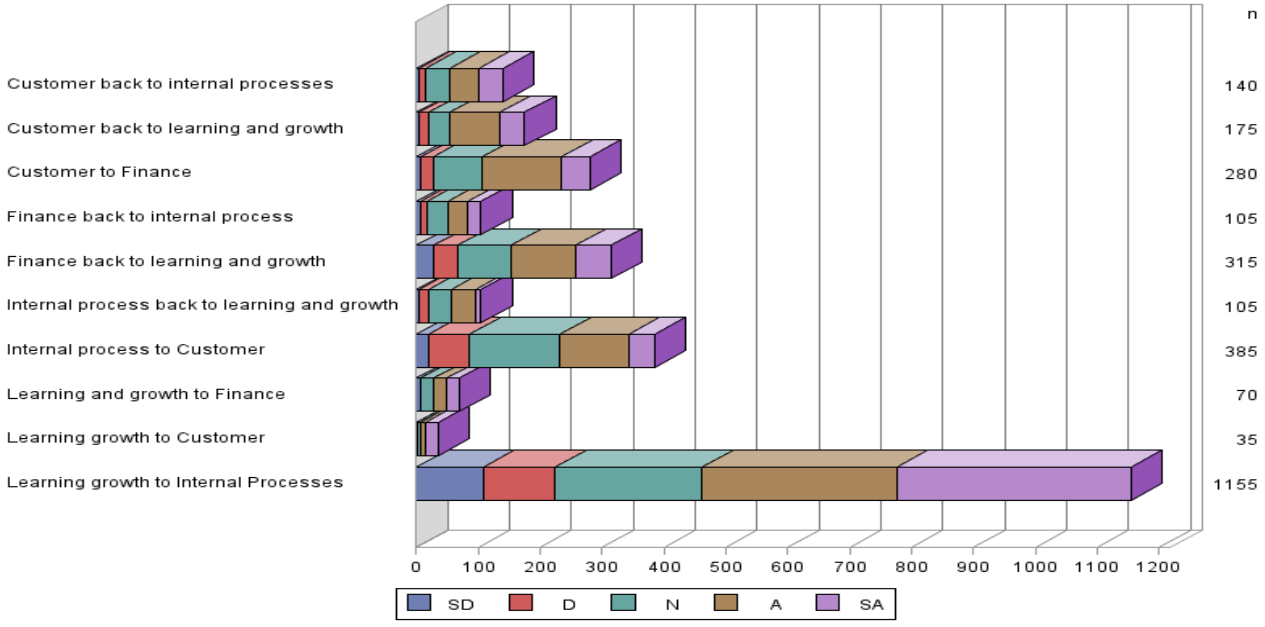
Linkages	Survey Scores					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N
Customer-back-to-internal business processes	5(3.57%)	9(6.43%)	40(28.57%)	47(33.57%)	39(27.86%)	140
Customer-back-to-learning & growth	4(2.29%)	16(9.14%)	34(19.43%)	80(45.71%)	41(23.43%)	175
Customer-to-financial	8(2.86%)	20(7.14%)	79(28.21%)	128(45.71%)	45(16.07%)	280
Financial-back-to-internal business processes	7(6.67%)	11(10.48%)	33(31.43%)	33(31.43%)	21(20%)	105
Financial-back-to-learning & growth	29(9.21%)	38(12.06%)	86(27.3%)	105(33.33%)	57(18.1%)	315
Internal business processes-back-to-learning & growth	4(3.81%)	16(15.24%)	36(34.29%)	39(37.14%)	10(9.52%)	105
Internal business processes-to-customer	20(5.19%)	66(17.14%)	146(37.92%)	112(29.09%)	41(10.65%)	385
Learning & growth-to-financial	6(8.57%)	1(1.43%)	22(31.43%)	21(30%)	20(28.57%)	70
Learning & growth-to-customer	1(2.86%)	0(0.00%)	5(14.29%)	9(25.71%)	20(57.14%)	35
Learning & growth-to-internal business processes	108(9.35%)	117(10.13%)	237(20.52%)	315(27.27%)	378(32.73%)	1,155

Each item (question) in the survey questionnaire was assigned to one of the four BSC perspectives, but each item also had the potential to show connections with other perspectives. For example, the question “Is the budget for training sufficient?” was categorized under the learning & growth perspective, but also formed a direct link to the financial perspective. These links are shown in Table 5, where *N* represents the number of responses with each link. The higher the CV, the greater the variability in the data set. Therefore, when comparing two or more linkages, the one with the highest CV indicates the greatest variation. The learning & growth-to-internal business processes link had more responses (N = 1,155) distributed across all scale values (SD = 1.28, CV = 35.30), while the learning & growth-to-customer link had fewer and less scattered responses among the different scales. The learning & growth-to-internal business processes, learning & growth-to-financial, internal business processes-to-customer, financial-to-learning & growth, and financial-to-internal business processes links all had CVs exceeding 30%.

Table 6 *Descriptive Statistics Among 10 Linkages*

Linkages	*N*	Mean	Median	Mode	SD	Min	Q1	Q3	Max	CV
Customer-back-to-internal business processes	140	3.76	4	4	1.04	1	3	5	5	27.81
Customer-back-to-learning & growth	175	3.79	4	4	0.98	1	3	4	5	25.87
Customer-to-financial	280	3.65	4	4	0.93	1	3	4	5	25.50
Financial-back-to-internal business processes	105	3.48	4	3	1.13	1	3	4	5	32.43
Financial-back-to-learning & growth	315	3.39	4	4	1.18	1	3	4	5	34.87
Internal business processes-back-to-learning & growth	105	3.33	3	4	0.98	1	3	4	5	29.32
Internal business processes-to-customer	385	3.23	3	3	1.02	1	3	4	5	31.69
Learning & growth-to-financial	70	3.69	4	3	1.16	1	3	5	5	31.51
Learning growth-to-customer	35	4.34	5	5	0.94	1	4	5	5	21.59
Learning growth-to-internal business processes	1,155	3.64	4	5	1.28	1	3	5	5	35.30

Figure 8 *Distribution of Responses by Linkages*



Pearson correlation analysis was performed to examine the relationships among the four perspectives. In this research, significant strong positive correlations were detected between the internal and stakeholder perspectives ($\rho = .2216$, $p < .0001$), financial and stakeholder

perspectives (ρ = .1262, *p* = .006), and internal business processes and learning & growth perspectives (ρ = .1113, *p* = .0136). The results of Pearson correlation analysis are shown in Table 5.

Table 7 *Pearson Correlation Coefficients, p > |r| under H0: ρ = 0*

	Financial	Internal Processes	Learning & Growth	Stakeholder
Financial				
Internal Processes	(0.002, 0.962)			
Learning & Growth	(0.041, 0.379)	(0.111,0.014)		
Stakeholder	(0.129, 0.005)	(0.221, <0.0001)	(0.069, 0.090)	

Validity

For a conventional example of criterion validity in a business context, consider a job applicant taking a performance test during the interview process. If the test accurately predicts how well the employee will perform on the job, it demonstrates criterion validity. Similarly, in this research, a government organization developed a BSC design with a structure of four dimensions. If the design can accurately predict how well the BU will capture all four perspectives for performance measurement and management with relevance and value, then the design is said to have criterion validity. Criterion validity is evaluated in two ways: *concurrent validity* established by a new measurement (test or instrument) against an independent criterion or standard and *predictive validity* involving the evaluation of an instrument against future performance. The research question was, “How can a public sector business unit design a BSC that is relevant and valuable to both the business unit and its stakeholders, and effectively measure performance?” In this research, concurrent criterion validity was evaluated by assessing whether the new design used in this public sector BU was similar to the gold standard Kaplan & Norton design typically used in the private sector. In the standard private sector design, the financial perspective is placed at the top. For the public sector, however, Kaplan writing in

Atkinson et al. (2012) recommended moving the stakeholder perspective to the top as the primary driving perspective.

In the new design developed in this research, the financial perspective remains at the top despite the public sector context of the BU. The validation process showed that this design is applicable to any government BU. In addition, the design included a revised linkage model with the addition of the number and directions of links between perspectives and the development of a weighting factor (i.e., coefficient of strength) for these links. Evidence based on survey feedback showed that there was no need to move the financial perspective from the top as the main driver of links, making it consistent with the gold standard design.

Predictive validity was established because the new BSC design developed in this research is applicable to not only the same organization but also to any other government organization in the future. This is because it demonstrated multiple correlated linkages between perspectives and the design with the financial dimension at the top as the primary driver will be applicable to any government organization.

Design and Challenges

Figure 9 *Multidirectional Links and Their Coefficients of Strength in the New BSC Design*

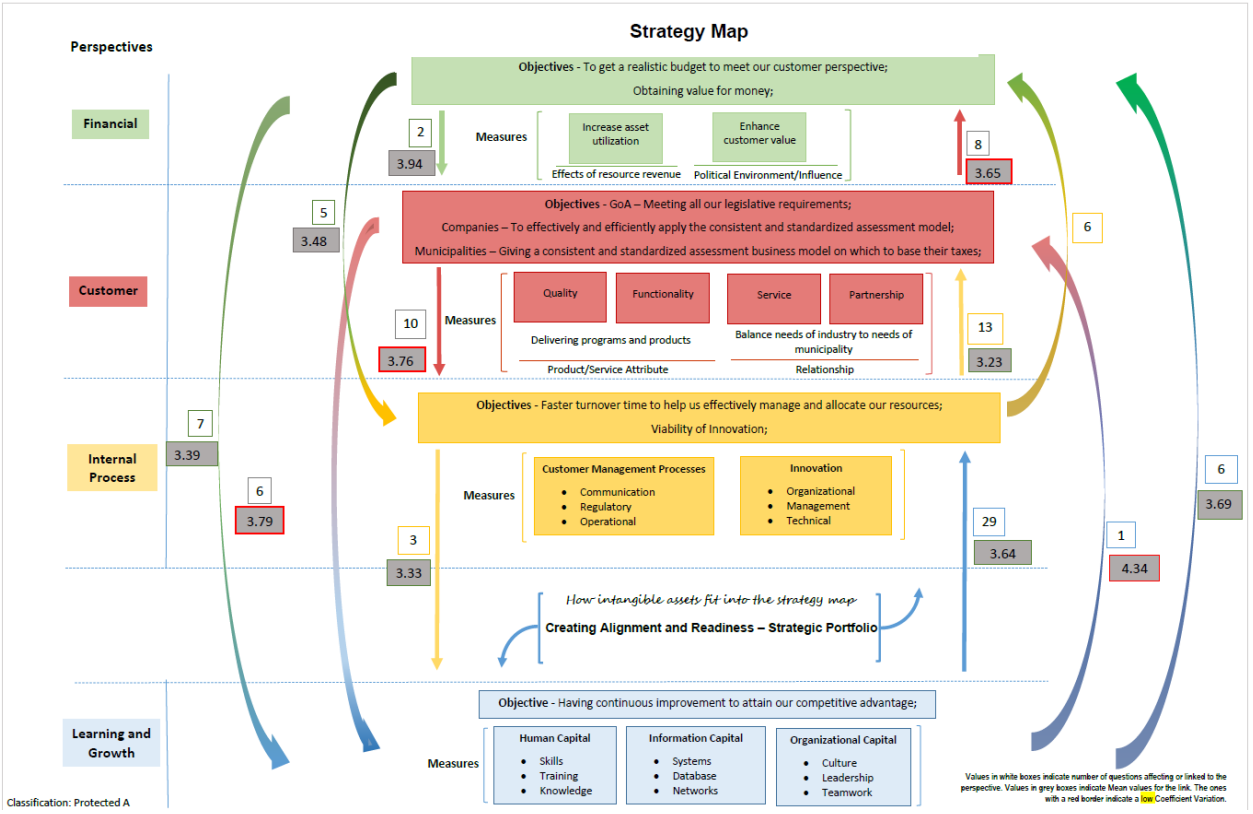


Figure 9 shows the new design of the BSC, where the financial perspective remains at the top of the four perspectives as the primary strategy driver, as in the Kaplan & Norton gold standard private sector design. This new design tracks the development of multidirectional links between the perspectives, which distinguishes it from the simpler cause-and-effect links in the Kaplan & Norton private sector model and allows it to keep the financial perspective as the primary driver. The multidirectional linkage was confirmed by the coefficient of variation value for each perspective relationship. It demonstrated the linked nature of the model, where each perspective can affect the others. The design also incorporated coefficients of strength for each link, as indicators of the strength (i.e., relevance) of each link based on evidence from the survey responses.

The numeric values in the white boxes for each link indicate the number of survey questions affecting or "linked" to the perspective. Values in grey boxes indicate the mean response values for the link, where high and low values indicate strong and weak links, respectively. Grey boxes with red borders indicate low CVs for the mean values.

In this research, concurrent validity established how closely the modified BSC design (the instrument) corresponded to the Kaplan & Norton private sector design. While Kaplan & Norton did propose a version for the public sector and non-government organizations, the private sector design represents the gold standard or "criterion variable," measuring the same construct but also capturing conceptually relevant behaviour or performance. The default Kaplan & Norton BSC design is widely accepted as a valid standard, with support beyond anecdotal references to its validity. Boulianne (2006) performed empirical analysis of the reliability and validity of the BSC measures and dimensions and concluded, based on evidence of its content validity, internal consistency reliability, and factorial validity, that the BSC is a valid performance model.

Criterion validity is used to validate the "instrument" (i.e., the design) being used to assess relevance. In this research, criterion validity determined the extent to which the new design could predict or correlate with the construct it is measuring (i.e., the value and relevance of BSC objectives for the four perspectives). The ability to predict real-life outcomes would demonstrate some predictive validity for the new design. To establish strong predictive validity, there must be a strong relationship (correlation) between the new design and the behaviour or performance (relevance) being predicted. Performance measures and objectives can be customized for use in the government BU that will use the design. Good predictive validity is important when choosing measures for public sector BSC objectives (i.e., performance indicators), as it will increase the likelihood of choosing objectives that are relevant and perform

well across the four BSC perspectives. Concurrent criterion validity was established by demonstrating that the research BSC design correlated well with external indicators (the criterion, i.e., the standard BSC design) measured at the same time. The concurrent approach is also useful when the focus is on practical outcomes rather than theoretical constructs, and a measure's concurrent validity, therefore, needs to be demonstrated in relation to some other measure of a similar outcome (Barrett et al., 1981).

Using Cronbach's alpha and factor analysis Boulianne (2006) confirmed the validity of the four BSC dimensions proposed by Kaplan & Norton (1996a). The research discussed in this thesis used Cronbach's alpha, correlation coefficients, and discourse theory to confirm the validity of Kaplan & Norton's four-dimensional BSC design.

The design was relevant because it fulfilled concurrent and predictive validity. Here, relevance was measured by the presence of rational discourse and absence of distortions of discourse determined based on the survey questionnaire responses and the results of sentiment analysis. Value was measured by Cronbach's alpha and accuracy was confirmed by correlation analysis of the linkages.

Criterion validity was achieved as the new design was similar to the gold standard. The outcome of the design was consistent with the standard Kaplan & Norton model, meaning that it can be implemented and readiness reports can be generated for each perspective.

The multidirectional linkages between the perspectives in the new design confirmed that it was similar to the gold standard design, and thus indicated concurrent validity.

Other public sector BUs can apply either the gold standard or this new design without the need for major modifications to the standard approach. Using the standard design as a starting point, they can still develop objectives and measures through the strategy mapping process and

produce readiness reports incorporating improved relevance and value, thus indicating predictive validity.

Chapter 5. Conclusions

A larger sample size would have increased confidence in the results when addressing the research question, “How can a public sector business unit design a BSC that is relevant and valuable to both the business unit and its stakeholders, and effectively measure performance?” However, collecting data from the BU was a significant challenge, requiring 2 years of intermittent back-and-forth consultations between the department’s executive leadership and the GoA Human Resources Branch. The GoA does not appear to have a formal protocol for managing and approving academic research of its organization.

The literature review identified gaps falling into three main categories related to this research. First, there was a lack of rational discourse between the larger organization (GoA department) and BU staff (including management). The frequent lack of discourse free from distortions acted as a barrier to the development of a suitable design for BUs, subsequently hindering implementation of the BSC. When organizational claims regarding the four BSC perspectives—financial, customer (stakeholder), internal business processes, and learning & growth—are not comprehensive, true, legitimate, or sincere, BU management faces challenges in selectin objectives and associated measures during the strategy mapping phase and complicates initial scorecard development.

These issues have created a second category of gaps related to the lack of relevance and value of the BSC to the BU. Objectives and measures misaligned with the strategy of the BU or derived from distorted discourse can result in the development of a scorecard that begins with reasoned justification but gives way to instrumental rationalization. In such cases, good intentions lead to a focus on efficiency rather than effectiveness, and the system may be “gamed” with a focus on objectives that are unsuitable for the BU.

The third and final category of gaps identified in the literature review concerned the design of the BSC. In many cases, the outcomes described were general and intangible. Links between the four BSC perspectives have been rarely explored beyond cause-and-effect relationships, and the strengths of these links were not measured, despite suggestions that they may have different "weights." In addition, examples of applications of the BSC model in the public sector have been largely limited to the health sector, with designs that must be tailored for social environments (that is, health is influenced by the environments in which people work, live, and learn). Reports in the literature regarding actual validation of public sector BSC designs for concurrent or predictive validity are also rare. One study did validate the four perspectives of Kaplan & Norton's default private sector BSC design according to common measures typically used in that sector. This confirmed its status as the gold standard and established it as a benchmark for comparing the public sector BU design described here for criterion validity.

The relevance of the design was evaluated based on the presence of rational discourse and absence of distortions of discourse based on the survey questionnaire responses and the results of sentiment analysis. The design was shown to be relevant because it fulfilled both concurrent and predictive validity. The outcome of the design mirrored Kaplan & Norton's standard design in that it could be implemented and allowed the generation of readiness reports for each perspective not only for private sector BUs but also for those in the public sector.

The multidirectional linkages between the perspectives confirmed that the new design is similar to the gold standard, indicating concurrent validity. Other public sector BUs can apply either the gold standard or this new design without having to make major changes to the standard design. They can begin with the standard design, incorporate the enhancements of the new design from this research, and still develop objectives and measures through the strategy

mapping process and generate readiness reports. All of these will have improved relevance and value, indicating predictive validity.

This research focused on building relevance into the *design* of the BSC for a public sector BU. Opportunities for further research include refining the survey questions to maintain relevance as the BU evolves over its life cycle and studying the *implementation* of this BSC design in the public sector. Further research should also assess the extent to which each requirement is fully met. It is important to note that the measures examined here were intended solely to provide evidence for the design of the BSC, and measurements to determine whether the objectives met their targets falls under the implementation stage and was outside the scope of this research.

Discourse analysis, use of word clouds, and sentiment analysis were performed to identify and measure what the BU values. This analysis provided insights into whether the design, goals, and objectives were aligned with strategy.

The internal consistency, strengths, and the multidirectional linkage model with multiple connections demonstrated the relevance of grouping by the four standard BSC perspectives. Placing the financial perspective at the top of the BSC design was also effective for the public sector BU, as the characteristics of the links influence and help balance all of the perspectives.

The evidence of relevance and value presented here indicated that this new scorecard design is not only aligned with the Kaplan & Norton design but is also applicable to any government BU, both now and in the future. This supports the criterion validity of the research, as the design is currently not only comparable to the Kaplan & Norton gold standard template but can also be applied to other government BUs.

This research will be beneficial for both the government and the BU, as a relevant and high-value performance measurement and management system will enable the provincial industry community sponsoring the property assessment initiative to obtain value for money.

Using the new scorecard design, the BU and government departments will be able to develop more effective strategies and align them with relevant and valuable goals. Achieving these goals will provide transparency to taxpayers and show better governance. As a result of this research, the BU now has, for the first time, an inventory of resources and a baseline for the four BSC perspectives. This will lead to increased awareness and understanding of the inputs, which in turn will help the BU predict how changes in one perspective may impact other areas.

The increased awareness, understanding, and knowledge provide a better foundation for policymaking and legislation. The implementation of a relevant and valuable PMS in the BU will have a positive impact and improve government strategies and overall public perception.

There are opportunities for further research based on the results of implementing the scorecard design and management of performance based on the outcomes.

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Appendix 1: Descriptive Statistics for the Survey Questionnaire

Note: Q1, Q2, Q98–Q107, and Q109 are not Likert scale questions so do not appear here.
SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree
Count = number of responses

Questions	Objective	Perspective	SD	D	N	A	SA	Count	Min	Max	Mean	STD
Q3. Applications and systems are upgraded yearly	Information capital	Learning & growth	5	0	18	9	3	35	1	5	3.14	1.09
Q4. I receive identical software and hardware as my team for projects and processes	Information capital	Learning & growth	4	4	11	12	4	35	1	5	3.23	1.17
Q5. Employees receive software and hardware that meet our operational minimum requirements	Information capital	Learning & growth	3	3	9	11	9	35	1	5	3.57	1.22
Q6. Employees receive software and hardware that exceed our operational minimum requirements	Information capital	Learning & growth	9	4	16	5	1	35	1	5	2.57	1.12
Q7. Our business unit has enough autonomy when making IT decisions	Information capital	Learning & growth	7	10	11	5	2	35	1	5	2.57	1.14
Q8. Does your system database/network improve the quality of your work?	Information capital	Learning & growth	3	3	6	12	11	35	1	5	3.71	1.25
Q9. Teamwork is important to me	Organization capital	Learning & growth	1	0	1	12	21	35	1	5	4.49	0.82
Q10. I am encouraged for innovation	Organization capital	Learning & growth	3	5	6	11	10	35	1	5	3.57	1.29
Q11. There is leadership and guidance for helping me achieve my goals	Organization capital	Learning & growth	6	5	6	12	6	35	1	5	3.20	1.37
Q12. Training affects teamwork and team dynamics (related to team communication and depth of operation)	Organization capital	Learning & growth	1	1	6	7	20	35	1	5	4.26	1.04
Q13. Training helps in more communication and collaboration	Organization capital	Learning & growth	1	0	5	9	20	35	1	5	4.34	0.94

Questions	Objective	Perspective	SD	D	N	A	SA	Count	Min	Max	Mean	STD
Q14. Change in policy due to change in Government/annual budget uncertainty affects training and development of employees	Organization capital	Learning & growth	1	1	4	12	17	35	1	5	4.23	0.97
Q15. Planning training at the beginning of each fiscal year will help in obtaining and managing training and development	Organization capital	Learning & growth	2	0	7	14	12	35	1	5	3.97	1.04
Q16. Increase in training is a significant opportunity cost to the organization	Organization capital	Learning & growth	6	9	10	6	4	35	1	5	2.74	1.20
Q17. Competitive advantage is affected negatively without training	Organization capital	Learning & growth	3	0	0	12	20	35	1	5	4.31	1.13
Q18. Increase in training is time lost to the organization	Organization capital	Learning & growth	16	14	3	0	2	35	1	5	1.80	1.02
Q19. I have confidence in my skills required for my job	Human capital	Learning & growth	1	2	5	15	12	35	1	5	4.00	1.00
Q20. I am able to use my skills in projects	Human capital	Learning & growth	2	3	8	14	8	35	1	5	3.66	1.11
Q21. Training helps me improve my work	Human capital	Learning & growth	1	0	1	9	24	35	1	5	4.57	0.81
Q22. Without training my performance would be affected	Human capital	Learning & growth	1	1	5	12	16	35	1	5	4.17	0.98
Q23. Training adds to my experience and marketability	Human capital	Learning & growth	1	0	4	5	25	35	1	5	4.51	0.92
Q24. Training is focused toward minimum required standards of my job description	Human capital	Learning & growth	4	9	12	8	2	35	1	5	2.86	1.09

Questions	Objective	Perspective	SD	D	N	A	SA	Count	Min	Max	Mean	STD
Q25. Training is focused beyond minimum required standards of my job description	Human capital	Learning & growth	5	6	11	9	4	35	1	5	3.03	1.22
Q26. Training is focused on growth and development of employees	Human capital	Learning & growth	2	3	10	10	10	35	1	5	3.66	1.16
Q27. It is reasonable to expect an annual increase in the amount in quality of skills, training, and knowledge	Human capital	Learning & growth	2	1	6	11	15	35	1	5	4.03	1.12
Q28. All employees are eligible for training as identified in their job description (required skill, asset skill)	Human capital	Learning & growth	1	2	12	9	11	35	1	5	3.71	1.05
Q29. Team allocation is easier with better job descriptions and knowledge of skills	Human capital	Learning & growth	1	1	5	14	14	35	1	5	4.11	0.96
Q30. Training helps in complementing the job skills/description of employees	Human capital	Learning & growth	1	0	5	16	13	35	1	5	4.14	0.88
Q31. Internal training is essential for job/business processes	Human capital	Learning & growth	1	0	3	12	19	35	1	5	4.37	0.88
Q32. Without internal training employees would find it hard to perform their job	Human capital	Learning & growth	1	2	5	9	18	35	1	5	4.17	1.07
Q33. Without internal training employees would find it hard to understand business	Human capital	Learning & growth	1	1	6	8	19	35	1	5	4.23	1.03
Q34. Training should be considered mandatory for all employees	Human capital	Learning & growth	1	1	8	11	14	35	1	5	4.03	1.01
Q35. Without training, performance of employees would be affected	Human capital	Learning & growth	1	2	2	11	19	35	1	5	4.29	1.02

Questions	Objective	Perspective	SD	D	N	A	SA	Count	Min	Max	Mean	STD
Q36. Employees have equal access to training resources	Human capital	Learning & growth	6	6	7	8	8	35	1	5	3.17	1.42
Q37. Training funding allocated per employee is adequate/sufficient	Human capital	Learning & growth	6	13	10	2	4	35	1	5	2.57	1.20
Q38. Training hours allocated per employee is adequate/sufficient	Human capital	Learning & growth	5	6	18	3	3	35	1	5	2.80	1.08
Q45. New/priority project/process schedules are always met	Customer management process	Internal business processes	3	3	11	12	6	35	1	5	3.40	1.12
Q46. Schedules for newer processes often change	Customer management process	Internal business processes	1	1	8	16	9	35	1	5	3.86	0.91
Q47. Schedules are planned for new projects/processes	Customer management process	Internal business processes	1	3	16	14	1	35	1	5	3.31	0.80
Q48. There is sufficient depth of operation for processes	Customer management process	Internal business processes	1	10	18	4	2	35	1	5	2.83	0.79
Q49. There is adequate succession planning and continuity for business processes	Customer management process	Internal business processes	6	16	9	3	1	35	1	5	2.34	0.97
Q50. We have too many concurrent processes	Customer management process	Internal business processes	1	7	15	8	4	35	1	5	3.20	0.99
Q51. Processes take too long to complete	Customer management process	Internal business processes	0	9	13	8	5	35	2	5	3.26	1.01
Q52. We have qualified people participating in the processes (adequate capability)	Customer management process	Internal business processes	2	4	9	17	3	35	1	5	3.43	1.01
Q53. We have enough people participating in the processes (adequate capacity)	Customer management process	Internal business processes	2	10	12	9	2	35	1	5	2.97	1.01
Q54. Process changes affect my project deliverable schedules	Customer management process	Internal business processes	0	3	15	12	5	35	2	5	3.54	0.85

Questions	Objective	Perspective	SD	D	N	A	SA	Count	Min	Max	Mean	STD
Q55. Process changes or new processes help me use my potential	Customer management process	Internal business processes	0	2	15	13	5	35	2	5	3.60	0.81
Q56. Direction from management during any process change is adequate	Customer management process	Internal business processes	3	7	14	9	2	35	1	5	3.00	1.03
Q57. We have the technical ability to handle process change	Customer management process	Internal business processes	2	2	12	13	6	35	1	5	3.54	1.04
Q58. Employees are adequately assigned to ensure delivery schedules	Customer management process	Internal business processes	2	5	14	11	3	35	1	5	3.23	1.00
Q68. Stakeholder communication is important for our work processes	Delivering programs and services	Stakeholder	0	1	1	7	26	35	2	5	4.66	0.68
Q69. Stakeholder training is required for efficiency of business processes	Delivering programs and services	Stakeholder	0	3	6	9	17	35	2	5	4.14	1.00
Q70. Stakeholders are satisfied with our products and services	Delivering programs and services	Stakeholder	1	3	14	14	3	35	1	5	3.43	0.88
Q71. Stakeholders are satisfied with our processes	Delivering programs and services	Stakeholder	2	5	18	9	1	35	1	5	3.06	0.87
Q72. The accuracy and schedules of information requests affects the time and quality of products and services delivery	Delivering programs and services	Stakeholder	2	0	7	16	10	35	1	5	3.89	0.99
Q73. Stakeholders see value and relevance in our products and services	Delivering programs and services	Stakeholder	1	1	10	17	6	35	1	5	3.74	0.89
Q74. I am confident in defending the assessment (in person or in a supporting role)	Delivering programs and services	Stakeholder	1	3	6	18	7	35	1	5	3.77	0.97

Questions	Objective	Perspective	SD	D	N	A	SA	Count	Min	Max	Mean	STD
Q75. I have had the opportunity to implement skills learned in courses related to stakeholder relations	Delivering programs and services	Stakeholder	2	8	5	15	5	35	1	5	3.37	1.17
Q76. There is awareness and familiarity with Government's role and responsibility toward stakeholders	Delivering programs and services	Stakeholder	1	3	7	17	7	35	1	5	3.74	0.98
Q77. There is transparency about Government's role and responsibility toward stakeholders	Delivering programs and services	Stakeholder	4	2	8	17	4	35	1	5	3.43	1.14
Q78. I can effectively select strategies in communicating with stakeholders based on goals, issues, priorities	Delivering programs and services	Stakeholder	1	2	10	17	5	35	1	5	3.66	0.91
Q79. I have an understanding of perspective, motives, methods related to stakeholder relationships	Delivering programs and services	Stakeholder	0	3	10	17	5	35	2	5	3.69	0.83
Q80. I am able to summarize, analyze and prioritize information from stakeholders	Delivering programs and services	Stakeholder	0	0	7	21	7	35	3	5	4.00	0.64
Q81. Legislative requirements are met for products and services	Products and services	Stakeholder	0	0	7	19	9	35	3	5	4.06	0.68
Q82. Legislative requirements help in refining newer products	Products and services	Stakeholder	0	6	9	13	7	35	2	5	3.60	1.01
Q83. Stakeholder and communication strategy provides awareness of how it impacts our work	Products and services	Stakeholder	1	1	17	12	4	35	1	5	3.49	0.85

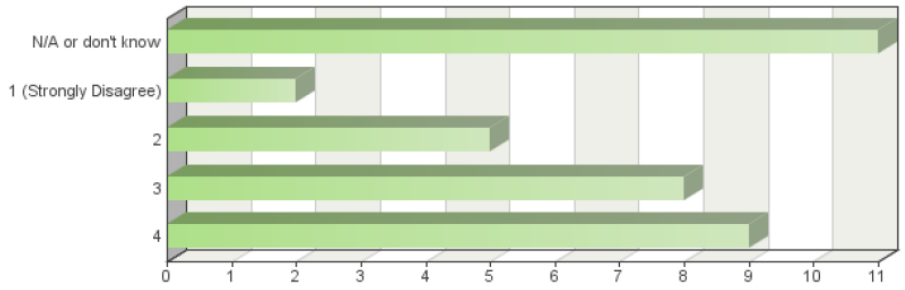
Questions	Objective	Perspective	SD	D	N	A	SA	Count	Min	Max	Mean	STD
Q84. We always align understanding and priorities of stakeholder strategy with our work processes	Products and services	Stakeholder	1	4	11	15	4	35	1	5	3.46	0.92
Q85. I receive enough annual funding for training	Fiscal budget	Financial	6	7	9	12	1	35	1	5	2.86	1.17
Q86. I believe there is enough fiscal stability to maintain or improve my job position	Fiscal budget	Financial	3	5	16	10	1	35	1	5	3.03	0.95
Q87. I receive pay and benefits comparable to the community standard for my qualifications	Fiscal budget	Financial	9	9	8	7	2	35	1	5	2.54	1.24
Q88. Budget constraints affect funding to proceed with new ideas	Fiscal budget	Financial	2	3	12	9	9	35	1	5	3.57	1.14
Q89. Budget constraints affect costs of upgrading IT systems	Fiscal budget	Financial	2	2	8	13	10	35	1	5	3.77	1.11
Q90. It is appropriate that training is annually allocated based on budget	Fiscal budget	Financial	2	2	12	14	5	35	1	5	3.51	1.01
Q91. Current budget provide enough funding to meet our learning objective	Fiscal budget	Financial	4	9	14	7	1	35	1	5	2.77	1.00
Q92. Current budgets provide enough funding to meet our objectives of internal operational processes	Fiscal budget	Financial	4	6	13	12	0	35	1	4	2.94	1.00
Q93. Low budget per employee leads to lesser training and development	Fiscal budget	Financial	0	1	3	15	16	35	2	5	4.31	0.76
Q94. Political environment and budget changes affect my work	Policies/political environment	Financial	1	2	8	12	12	35	1	5	3.91	1.04

Questions	Objective	Perspective	SD	D	N	A	SA	Count	Min	Max	Mean	STD
Q95. The political environment affects our objectives	Policies/political environment	Financial	2	2	9	12	10	35	1	5	3.74	1.12
Q96. The political environment influences and drives changes in our financial objectives	Policies/political environment	Financial	0	1	8	19	7	35	2	5	3.91	0.74
Q97. Our cost recovery financial model is beneficial to meet our objectives	Policies/political environment	Financial	1	1	7	15	11	35	1	5	3.97	0.95

Q108 and **Q110** are Likert scale questions but used a different, 6-score scale with: 0 = N/A or Don't Know, 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree, and are summarized outside the Q3–Q97 scale report (above). Reports are data-driven, so scores (levels) not appearing indicate no responses received for those levels.

Question 108

My area receives a budget that is realistic to meet our stakeholder objectives (stakeholder objective : to meet all our legislative requirements for providing an effective and efficient, consistent, and standardized assessment)



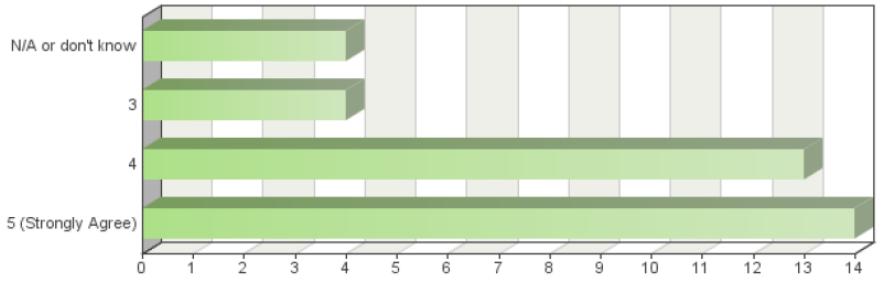
Frequency table

Levels	Absolute frequency	Relative frequency	Adjusted relative frequency
N/A or don't know	11	29.73%	31.43%
1 (Strongly Disagree)	2	5.41%	5.71%
2	5	13.51%	14.29%
3	8	21.62%	22.86%
4	9	24.32%	25.71%
Sum:	35	94.59%	100%
Not answered:	2	5.41%	-

Total answered: 35

Question 110

The political environment influences and drives changes in policies



Frequency table

Levels	Absolute frequency	Relative frequency	Adjusted relative frequency
N/A or don't know	4	10.81%	11.43%
3	4	10.81%	11.43%
4	13	35.14%	37.14%
5 (Strongly Agree)	14	37.84%	40%
Sum:	35	94.59%	100%
Not answered:	2	5.41%	-

Total answered: 35

Appendix 2: Sentiment Analysis for Survey Questionnaire

Questions	Polarity Score	Neutral Score	Negative Score	Positive Score	Sentiment
Q1. How many applications/ systems do you use per week for a project? (Specialized software, e.g., ALPAS, CAMAlot and so on, but not MS Office)	0	1	0	0	NEUTRAL
Q2. How many new software applications were installed in your machine last year?	0	1	0	0	NEUTRAL
Q3. Applications and systems are upgraded yearly	0	1	0	0	NEUTRAL
Q4. I receive identical software and hardware as my team, for projects and processes	0	1	0	0	NEUTRAL
Q5. Employees receive software and hardware that meet our operational minimum requirements	0	1	0	0	NEUTRAL
Q6. Employees receive software and hardware that exceed our operational minimum requirements	0	1	0	0	NEUTRAL
Q7. Our business unit has enough autonomy when making IT decisions	0	1	0	0	NEUTRAL
Q8. Does your system database/network improve the quality of your work?	0.44	0.76	0	0.24	POSITIVE
Q9. Teamwork is important to me	0.2	0.69	0	0.31	POSITIVE
Q10. I am encouraged for innovation	0.62	0.28	0	0.72	POSITIVE
Q11. There is leadership and guidance for helping me achieve my goals	0.3	0.82	0	0.18	POSITIVE
Q12. Training affects teamwork and team dynamics (related to team communication and depth of operation)	0.27	0.86	0	0.14	POSITIVE
Q13. Training helps in more communication and collaboration	0.38	0.7	0	0.3	POSITIVE
Q14. Change in policy due to change in Government/annual budget uncertainty affects training and development of employees	0	1	0	0	NEUTRAL
Q15. Planning training at the beginning of each fiscal year will help in obtaining and managing training and development	0.4	0.86	0	0.14	POSITIVE
Q16. Increase in training is a significant opportunity cost to the organization	0.71	0.5	0	0.5	POSITIVE
Q17. Competitive advantage is affected negatively without training	0.27	0.43	0.17	0.4	POSITIVE
Q18. Increase in training is time lost to the organization	0	0.6	0.2	0.2	NEUTRAL
Q19. I have confidence in my skills required for my job	0.51	0.71	0	0.29	POSITIVE

Questions	Polarity Score	Neutral Score	Negative Score	Positive Score	Sentiment
Q20. I am able to use my skills in projects	0	1	0	0	NEUTRAL
Q21. Training helps me improve my work	0.67	0.42	0	0.58	POSITIVE
Q22. Without training my performance would be affected	−0.15	0.79	0.21	0	NEGATIVE
Q23. Training adds to my experience and marketability	0	1	0	0	NEUTRAL
Q24. Training is focused toward minimum required standards of my job description	0	1	0	0	NEUTRAL
Q25. Training is focused beyond minimum required standards of my job description	0	1	0	0	NEUTRAL
Q26. Training is focused on growth and development of employees	0.38	0.76	0	0.25	POSITIVE
Q27. It is reasonable to expect an annual increase in the amount in quality of skills, training, and knowledge	0.32	0.88	0	0.12	POSITIVE
Q28. All employees are eligible for training as identified in their job description (required skill, asset skill)	0.36	0.86	0	0.14	POSITIVE
Q29. Team allocation is easier with better job descriptions and knowledge of skills	0.69	0.64	0	0.36	POSITIVE
Q30. Training helps in complementing the job skills/description of employees	0.38	0.76	0	0.25	POSITIVE
Q31. Internal training is essential for job/business processes	0	1	0	0	NEUTRAL
Q32. Without internal training employees would find it hard to perform their job	−0.1	0.89	0.11	0	NEGATIVE
Q33. Without internal training employees would find it hard to understand business	−0.1	0.88	0.12	0	NEGATIVE
Q34. Training should be considered mandatory for all employees	0.08	0.84	0	0.16	POSITIVE
Q35. Without training, performance of employees would be affected	−0.15	0.81	0.19	0	NEGATIVE
Q36. Employees have equal access to training resources	0	1	0	0	NEUTRAL
Q37. Training funding allocated per employee is adequate/sufficient	0	1	0	0	NEUTRAL
Q38. Training hours allocated per employee is adequate/sufficient	0	1	0	0	NEUTRAL
Q39. What is the average number of projects you work on in a year (calendar year)?	0.08	0.91	0	0.09	POSITIVE

Questions	Polarity Score	Neutral Score	Negative Score	Positive Score	Sentiment
Q40. How many projects/processes did your team complete in the current (calendar) year?	0	1	0	0	NEUTRAL
Q41. For how many weeks are you out for inspection in a year (calendar year)?	0	1	0	0	NEUTRAL
Q42. What percentage of your team (employees) is allocated per project?	0	1	0	0	NEUTRAL
Q43. How many new/priority processes/projects were included in the current year?	0	1	0	0	NEUTRAL
Q44. How many times were deliverable schedules met for priority project/ processes in the current (calendar) year?	0	1	0	0	NEUTRAL
Q45. New/priority project/process schedules are always met	0	1	0	0	NEUTRAL
Q46. Schedules for newer processes often change	0	1	0	0	NEUTRAL
Q47. Schedules are planned for new projects/processes	0	1	0	0	NEUTRAL
Q48. There is sufficient depth of operation for processes	0	1	0	0	NEUTRAL
Q49. There is adequate succession planning and continuity for business processes	0.4	0.68	0	0.32	POSITIVE
Q50. We have too many concurrent processes	0	1	0	0	NEUTRAL
Q51. Processes take too long to complete	0	1	0	0	NEUTRAL
Q52. We have qualified people participating in the processes (adequate capability)	0	1	0	0	NEUTRAL
Q53. We have enough people participating in the processes (adequate capacity)	0	1	0	0	NEUTRAL
Q54. Process changes affect my project deliverable schedules	0	1	0	0	NEUTRAL
Q55. Process changes or new processes help me use my potential	0.4	0.77	0	0.23	POSITIVE
Q56. Direction from management during any process change is adequate	0.23	0.81	0	0.19	POSITIVE
Q57. We have the technical ability to handle process change	0.32	0.78	0	0.22	POSITIVE
Q58. Employees are adequately assigned to ensure delivery schedules	0.38	0.73	0	0.27	POSITIVE
Q59. How many innovative/ new products have you been part of in a year (current calendar year)?	0	1	0	0	NEUTRAL
Q60. How many innovations/ new products/processes has your team come up within the current (calendar) year?	0	1	0	0	NEUTRAL

Questions	Polarity Score	Neutral Score	Negative Score	Positive Score	Sentiment
Q61. What percentage of new ideas were selected for funding?	0	1	0	0	NEUTRAL
Q62. Percentage of work interacting with stakeholders - GoA	0	1	0	0	NEUTRAL
Q63. Percentage of work month interacting with stakeholders - Industry	0	1	0	0	NEUTRAL
Q64. Percentage of work month interacting with stakeholders - Municipalities	0	1	0	0	NEUTRAL
Q65. How many emails/ phone calls/ face to face interactions on average does it take to resolve issues related to stakeholder - GoA queries	0.38	0.89	0	0.11	POSITIVE
Q66. How many emails/ phone calls/ face to face interactions on average does it take to resolve issues related to stakeholder - Industry queries?	0.38	0.89	0	0.11	POSITIVE
Q67. How many emails/ phone calls/ face to face interactions on average does it take to resolve issues related to stakeholder - Industry queries?	0.38	0.89	0	0.11	POSITIVE
Q68. Stakeholder communication is important for our work processes	0.2	0.8	0	0.21	POSITIVE
Q69. Stakeholder training is required for efficiency of business processes	0.36	0.76	0	0.24	POSITIVE
Q70. Stakeholders are satisfied with our products and services	0.42	0.71	0	0.29	POSITIVE
Q71. Stakeholders are satisfied with our processes	0.42	0.64	0	0.36	POSITIVE
Q72. The accuracy and schedules of information requests affects the time and quality of products and services delivery	0	1	0	0	NEUTRAL
Q73. Stakeholders see value and relevance in our products and services	0.34	0.79	0	0.21	POSITIVE
Q74. I am confident in defending the assessment (in person or in a supporting role)	0.73	0.62	0	0.38	POSITIVE
Q75. I have had the opportunity to implement skills learned in courses related to stakeholder relations	0.42	0.82	0	0.18	POSITIVE
Q76. There is awareness and familiarity with Government's role and responsibility toward stakeholders	0	1	0	0	NEUTRAL
Q77. There is transparency about Government's role and responsibility toward stakeholders	0	1	0	0	NEUTRAL
Q78. I can effectively select strategies in communicating with stakeholders based on goals, issues, priorities	0.44	0.81	0	0.2	POSITIVE

Questions	Polarity Score	Neutral Score	Negative Score	Positive Score	Sentiment
Q79. I have an understanding of perspective, motives, methods related to stakeholder relationships	0	1	0	0	NEUTRAL
Q80. I am able to summarize, analyze and prioritize information from stakeholders	0	1	0	0	NEUTRAL
Q81. Legislative requirements are met for products and services	0	1	0	0	NEUTRAL
Q82. Legislative requirements help in refining newer products	0.4	0.69	0	0.31	POSITIVE
Q83. Stakeholder and communication strategy provides awareness of how it impacts our work	0	1	0	0	NEUTRAL
Q84. We always align understanding and priorities of stakeholder strategy with our work processes	0	1	0	0	NEUTRAL
Q85. I receive enough annual funding for training	0	1	0	0	NEUTRAL
Q86. I believe there is enough fiscal stability to maintain or improve my job position	0.44	0.81	0	0.2	POSITIVE
Q87. I receive pay and benefits comparable to the community standard for my qualifications	0.3	0.71	0.1	0.19	POSITIVE
Q88. Budget constraints affect funding to proceed with new ideas	0	1	0	0	NEUTRAL
Q89. Budget constraints affect costs of upgrading IT systems	0	1	0	0	NEUTRAL
Q90. It is appropriate that training is annually allocated based on budget	0	1	0	0	NEUTRAL
Q91. Current budget provide enough funding to meet our learning objective	0	1	0	0	NEUTRAL
Q92. Current budgets provide enough funding to meet our objectives of internal operational processes	0	1	0	0	NEUTRAL
Q93. Low budget per employee leads to lesser training and development	−0.27	0.81	0.19	0	NEGATIVE
Q94. Political environment and budget changes affect my work	0	1	0	0	NEUTRAL
Q95. The political environment affects our objectives	0	1	0	0	NEUTRAL
Q96. The political environment influences and drives changes in our financial objectives	0	1	0	0	NEUTRAL
Q97. Our cost recovery financial model is beneficial to meet our objectives	0.44	0.78	0	0.23	POSITIVE
Q98. What is CIPA's per capita training investment per year?	0	1	0	0	NEUTRAL
Q99. How many mandatory training hours per year are allocated per employee (based on 7.25 hours workday)?	0.08	0.93	0	0.08	POSITIVE

Questions	Polarity Score	Neutral Score	Negative Score	Positive Score	Sentiment
Q100. How many optional (non-mandatory) training hours per year are allocated per employee?	0	1	0	0	NEUTRAL
Q101. What percentage of working time is acceptable for training?	0.32	0.78	0	0.22	POSITIVE
Q102. Percentage of times projects are under budget in a calendar year	0	1	0	0	NEUTRAL
Q103. Percentage of times projects are on budget in a calendar year	0	1	0	0	NEUTRAL
Q104. Percentage of times projects are over budget in a calendar year	0	1	0	0	NEUTRAL
Q105. Percentage of times projects are under schedule (expected project end date/product delivery date)	0	1	0	0	NEUTRAL
Q106. Percentage of times projects are on schedule (expected project end date/product delivery date)	0	1	0	0	NEUTRAL
Q107. Percentage of times projects are over schedule (expected project end date/product delivery date)	0	1	0	0	NEUTRAL
Q108. My area receives a budget that is realistic to meet our stakeholder objectives	0	1	0	0	NEUTRAL
Q109. What is the average budget cost of all projects per year for your team?	0	1	0	0	NEUTRAL
Q110. The political environment/influences and drive changes in policies	0	1	0	0	NEUTRAL

Appendix 3: Correlation Analysis Among the Four Balanced Scorecard Perspectives

Pearson Correlation Coefficients ***p*** **> |*r*| under H0: ρ = 0** **Number of Observations**				
	Financial	**Internal Business Processes**	**Learning & Growth**	**Stakeholder**
Financial Perspective	1.00000 NA 455	0.00224 0.9620 455	0.04126 0.3799 455	0.12916 0.0058 455
Internal Business Processes	0.00224 0.9620 455	1.00000 N/A 490	0.11137 0.0136 490	0.22163 < .0001 490
Learning & Growth	0.04126 0.3799 455	0.11137 0.0136 490	1.00000 N/A 1260	0.06947 0.0904 595
Stakeholder	0.12916 0.0058 455	0.22163 < .0001 490	0.06947 0.0904 595	1.00000 N/A 595

Appendix 4: List of Stop Words

i	me	my	myself	we	our	ours	ourselves	you	you're
you've	you'll	you'd	your	yours	yourself	yourselves	he	him	his
himself	she	she's	her	hers	herself	it	it's	its	itself
they	them	their	theirs	themselves	what	which	who	whom	this
that	that'll	these	those	am	is	are	was	were	be
been	being	have	has	had	having	do	does	did	doing
a	an	the	and	but	if	or	because	as	until
while	of	at	by	for	with	about	against	between	into
through	during	before	after	above	below	to	from	up	down
in	out	on	off	over	under	again	further	then	once
here	there	when	where	why	how	all	any	both	each
few	more	most	other	some	such	no	nor	not	only
own	same	so	than	too	very	’s	t	can	will
just	don	don't	should	should've	now	d	ll	m	o
re	ve	y	ain	aren	aren't	couldn	couldn't	didn	didn't
doesn	doesn't	hadn	hadn't	hasn	hasn't	haven	haven't	isn	isn't
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Appendix 5: Informed Consent Form

Consent to Participate in a Research Study*

Public Sector Business Unit Performance Measurement: Survey

Doctor of Business Administration student Michael Tautchin invites you to be a part of a research study that looks at: *What is the nature of accurate and prescriptive performance measurement outcomes for business units in the public sector?*

The purpose of the study is to help managers understand the meaning and assess the validity of Unit-based performance measurement. As an ultimate result, the public receives improved and more accurate policies directed to them. We are asking you to participate because you are a manager in the Department of Municipal Affairs.

If you agree to be part of the research study, you will be asked to complete a computer survey about your experiences as a manager developing, interpreting, and implementing performance measurement. We expect this survey to take 30 to 45 minutes to complete.

Researchers will not be able to link your survey responses to you, but they will know that you participated in the research because you will be asked to log in. The survey software keeps your identifying information separate from the answers you provide to the survey. We plan to publish the results of this study but will not include any information that would identify you.

Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. You may choose to not answer an individual question, or you may skip any section of the survey. Simply click "Next" at the bottom of the survey page to move to the next question.

If you have questions about this research study, you can contact Michael Tautchin, Michael.Tautchin@gov.ab.ca.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher, please contact Dr. Fathi Elloumi, Head, Review Ethics Board, Athabasca University, Fathie@athabascau.ca.

By clicking on the link below, you are consenting to participate in this research survey.

[final survey link here]

If you do not wish to participate, click the "x' in the top corner of your browser to exit.

*Adapted from http://www.irb.umich.edu/policies/consent/samples/Sample_OnlineSurvey2014.pdf Retrieved 15MAR2015.

Appendix 6: Summary of Distortions of Discourse by the Balanced Scorecard Perspectives

This table presents a qualitative summary of distortions of discourse observed (or not) for each of the four BSC perspectives categorized by the survey questionnaire. Communicative rationality is categorized by clarity, truth, sincerity, legitimacy (Cukier et al., 2004). The newly created validity claim of "certainty" and its associated distortion of "ambivalence" were identified from questionnaire responses.

Learning & Growth	
Clarity	Managers understand that training decreased significantly, employees don't. That is not clear to employees. In data collection for training inventory many employees marked that in 2020 they would acquire/want to acquire training.
Truth	No distortion of truth. It is just not disseminated or communicated enough. There is misrepresentation due to lack of dissemination.
Sincere	False assurance. Much discourse from executive level is intended to assure employees of their relevance or value but considering the extreme cutbacks in training it is difficult to maintain the relevance and value. They can either cut back on training or salary, but limitations of both indicate false assurance.
Legitimacy	This is legitimate. What organizational discourse is: appropriate in light of existing norms of fiscal restraint but the distortion that exists is in conflict with the values of the business unit. Both sides believe they are legitimate.
Certainty	There is ambivalence. Discourse is lack of confidence. Answers are neutral. Even though the business unit has enough evidence for completion of projects, responses were neutral about having knowledge of that which indicates that they are neutral or do not care.
Internal business processes	
Clarity	1. Majority are neutral or agree. They cannot be neutral when a higher number have responded "schedules often change," i.e., a planned scheduled cannot be often changing, which indicates distortion. Validity claims exist for clarity/confusion of schedules and priorities. 2. Strong neutrality indicates distortion. Validity claims of clarity and confusion. 3. There is confusion. Org/management gives direction, but responses are negative.
Truth	1. Org says it should be there, but the business unit observes from responses that there is not much succession planning. It is a normal to have succession planning but the BU does not have it. 2. Org claims it is proper and good to be innovative, but the survey shows a small portion is selected for funding.
Sincere	Org claims it is proper and good to be innovative, but survey shows a small portion is selected for funding. Truth/sincerity/legitimacy.

Legitimacy	1. Distortion within business unit. Equal No. of opposite responses. Strong neutrality indicates negative or lack of confidence. Validity claims—legitimacy—normative value but not sure if No. of people is adequate. 2. Org claims it is proper and good to be innovative, but survey shows a small portion is selected for funding.
Certainty	1. There is also strong neutrality in some responses, even when there is evidence that the business unit is providing direction for business processes. 2. Identified a gap. For many projects budget is pay-as-we-go, hence it is difficult to decide. As a norm we should have an estimated budget. This is important to form links with financial objectives and to measure it.
Customer Perspective	
Clarity	Distortion is not very strong. A strong claim is made for transparency, but the responses indicate a distortion. *Use sentiment analysis to measure the relative strength of distortions.
Truth	1. We know that stakeholder communication is important. However, in reference to earlier answers, we see communication is limited. 2. Distortion is not very strong. A strong claim is made for transparency, but the responses indicate a distortion.
Sincere	Distortion exists depending on whether the group sees relevance and value in performance measurement.
Legitimacy	Stakeholder training is important. Claims through the financial perspective indicate the sacrifice of training which conflicts with respondents.
Certainty	1. No measures or no objectives at the time the data was collected, respondents have no evidence to back up the claim. General claim is that they are satisfied. That explains why there is high frequency of neutrality, i.e., uncertainty. In the absence of evidence there is a possibility for distortion. 2. Stakeholder and communication strategy provides awareness of how it impacts our work. 3. We always align understanding and priorities of stakeholder strategy with our work processes. A small distortion in the form of ambivalence. "We need to talk"—this discourse should be held but respondents are uninformed. They should be informed because it links to other perspectives. The design and data collection has revealed a gap in staff awareness.
Financial Perspective	
Clarity	1. Q “I receive enough annual funding for training”—there are multiple strong claims supporting this statement but greater than 60% of the respondents are neutral or negative. 2. It is appropriate that training is annually allocated based on the budget (financial perspective), with the org. claim made that “you will be able to do their job.” Our learning objective is different from the objective of the claim. 3. What percentage of working time is acceptable for training? If we translate this into hours of monetary equivalence it would far exceed the claim made for allowed time or money.
Truth	

Sincere	Q "I receive enough annual funding for training": There are multiple strong claims supporting this statement but > 60% of the respondents are neutral or negative.
Legitimacy	
Certainty	What is the average budget cost of all projects per year for your team?

Appendix 7: Scoring Questionnaire Responses for Communicative Rationality

Communicative rationality "validity tests" were applied to the four BSC perspective categories (grouped questions in the questionnaire) rather than to individual items because observing them as a group helps in describing with a stronger narrative. First, it was identified whether a claim has been made by the org/GoA. If so, attempts were made to validate the claim. If the item response agreed with the claim, then rational discourse exists, otherwise distortion of discourse exists. Strong validation in all four perspectives indicates rational discourse. The presence of strong distortions in multiple perspectives indicates dysfunctional discourse.

Q. #	Questions	Objective	Perspective	Validated or Distorted	Comments
1	How many applications/ systems do you use per week for a project? (Specialized software, e.g., ALPAS, CAMAlot and so on, but not MS Office)	Information capital	Learning & growth	N/A	This group of questions was meant to create benchmark inventory not discourse check.
2	How many new software applications were installed in your machine last year?	Information capital	Learning & growth	N/A	This group of question was meant to create benchmark inventory not discourse check.
3	Applications and systems are upgraded yearly	Information capital	Learning & growth	N/A	This group of question was meant to create benchmark inventory not discourse check.
4	I receive identical software and hardware as my team, for projects and processes	Information capital	Learning & growth	N/A	No claim made
5	Employees receive software and hardware that meet our operational minimum requirements	Information capital	Learning & growth	V	Discourse claim is made that minimum is desired. Survey partly agrees with the claim.
6	Employees receive software and hardware that exceed our operational minimum requirements	Information capital	Learning & growth	D	There is distortion.

7	Our business unit has enough autonomy when making IT decisions	Information capital	Learning & growth	D	Even within the org/GoA and not the business unit there is distortion, i.e., two conflicting claims are made.
8	Does your system database/network improve the quality of your work?	Information capital	Learning & growth	N/A	No claims but there is strength in linkage. Financial-Internal business processes links.
9	Teamwork is important to me	Organization capital	Learning & growth	N/A	The org/GoA has made no claim on teamwork so we can't test its validity; the frequency response does show that there is discourse. Could the high frequency be because of normative validity?
10	I am encouraged for innovation	Organization capital	Learning & growth	N/A	A general claim is made that innovation is good and necessary. Based on half of responses indicating neutral or disagree, there may be distortion in claim.
11	There is leadership and guidance for helping me achieve my goals	Organization capital	Learning & growth	N/A	Some discourse exists but not substantial enough to call it claim.
12	Training affects teamwork and team dynamics (related to team communication and depth of operation)	Organization capital	Learning & growth	N/A	Some discourse exists but not substantial enough to call it claim.
13	Training helps in more communication and collaboration	Organization capital	Learning & growth	N/A	In general, the results of this question show how we could measure the strengths of linkage/links between training and development and internal business processes (communication) and customer perspective (collaboration). Unable to validate as no claim

					has been made. Normative validation may be occurring here. This can be measured because an intangible question was combined with a tangible scale.
14	Change in policy due to change in Government/annual budget uncertainty affects training and development of employees	Organization capital	Learning & growth	V	The claim made by the org/GoA there is a change in budget, and we agree that it changes or is affected. Just because there is no distortion, i.e., the business unit agrees with the claim does not mean both sides are correct and could be normative validation between org and the business unit.
15	Planning training at the beginning of each fiscal year will help in obtaining and managing training and development	Organization capital	Learning & growth		
16	Increase in training is a significant opportunity cost to the organization	Organization capital	Learning & growth	D	There is claim that there is opportunity cost, i.e., we are supposed to cut back on training survey indicates distortion.
17	Competitive advantage is affected negatively without training	Organization capital	Learning & growth	D	Claim made is opposite—unaffected if there are cuts in training. Survey agrees with this.
18	Increase in training is time lost to the organization	Organization capital	Learning & growth	N/A	No strong claim made. Not applicable but there is strong linkage, because time is identified as strong resources for competitive advantage. Learning & growth-Internal business processes
19	I have confidence in my skills required for my	Human capital	Learning & growth	D	The org/GoA portrays employees as confident and capable. However,

	job				survey indicates distortion.
20	I am able to use my skills in projects	Human capital	Learning & growth	D	8 employees indicate 3 as Neutral. However, it was concluded that it is negatively inclined as they don't have the confidence to say they are able to use their skills.
21	Training helps me improve my work	Human capital	Learning & growth	D	There is distortion as GoA/org indicates through finance that there are fiscal restraints. Therefore, although employees think that training helps in their work, GoA/org doesn't.
22	Without training my performance would be affected	Human capital	Learning & growth	D	There is distortion as GoA/org indicates through finance that there are fiscal restraints. Therefore, even though employees think that training helps in their work, GoA/org doesn't.
23	Training adds to my experience and marketability	Human capital	Learning & growth	D	GoA /org may not agree as they are put on hold on training through budget cuts.
24	Training is focused toward minimum required standards of my job description	Human capital	Learning & growth		The org/GoA focus is a 5 on this question. HR says one should have MRS, but distortion on this is highest frequency indicates 3 neutral. GoA/org discourse is far from MRS. We either don't know or don't care.
25	Training is focused beyond minimum required standards of my job description	Human capital	Learning & growth	Not much discourse	GoA /org. training should focus on MRS (Min. Required Standards).

26	Training is focused on growth and development of employees	Human capital	Learning & growth	D	Questions hereafter, focus on all and not individuals. Not individual observations but individual's observations. Currently, training is not focused on growth and development. GoA/org says training will only be for current level not for next level. Apparent big distortion from what employees think.
27	It is reasonable to expect an annual increase in the amount in quality of skills, training, and knowledge	Human capital	Learning & growth	D	Questions hereafter, focus on all and not individuals. Not individual observations but individual's observations. Currently, training is not focused on growth and development. GoA/org says training will only be for current level not for next level. Apparent big distortion from what employees think.
28	All employees are eligible for training as identified in their job description (required skill, asset skill)	Human capital	Learning & growth	D	Discourse check, but questionable distortion. We can go back to this question later.
29	Team allocation is easier with better job descriptions and knowledge of skills	Human capital	Learning & growth	N/A	Not discourse check as no opinion from org to compare it with. No org claim to validate this.
30	Training helps in complementing the job skills/description of employees	Human capital	Learning & growth	N/A	Not discourse check as no opinion from org to compare it with. No org claim to validate this.
31	Internal training is essential for job/business processes	Human capital	Learning & growth	V	In absence or limitation of external training, GoA/org wants to focus on internal training and employee responses

					indicate the same.
32	Without internal training employees would find it hard to perform their job	Human capital	Learning & growth	V	Internal training for Internal business processes. We can go back to this question later.
33	Without internal training employees would find it hard to understand business	Human capital	Learning & growth	V	This is validated as employees need to know the business. Employee responses indicate the same.
34	Training should be considered mandatory for all employees	Human capital	Learning & growth	D	GoA/org does not indicate about training being mandatory.
35	Without training, performance of employees would be affected	Human capital	Learning & growth	D	GoA/org does not indicate that performance can be affected without training.
36	Employees have equal access to training resources	Human capital	Learning & growth		What does the claim mean by “equal”? Standard training amounts are given but they are not equal. They are based on positional power or proportional to level. It is a distortion if we don’t have equal funding, we don’t have equal access.
37	Training funding allocated per employee is adequate/sufficient	Human capital	Learning & growth	D	GoA/org thinks its adequate, employees think it’s not.
38	Training hours allocated per employee is adequate/sufficient	Human capital	Learning & growth		Uncertain—by far the most frequent response is neutral. Claim is “strongly agree.”
39	What is the average number of projects you work on in a year (calendar year)?	Customer management	Internal business processes	N/A	
40	How many projects/processe	Customer management	Internal business processes	N/A	

	s did your team complete in the current (calendar) year?				
41	For how many weeks are you out for inspection in a year (calendar year)?	Customer management	Internal business processes	N/A	
42	What percentage of your team (employees) is allocated per project?	Customer management	Internal business processes	N/A	
43	How many new/priority processes/projects were included in the current year?	Customer management	Internal business processes	N/A	
44	How many times were deliverable schedules met for priority project/ processes in the current (calendar) year?	Customer management	Internal business processes	N/A	
45	New/priority project/process schedules are always met	Customer management	Internal business processes	N/A	
46	Schedules for newer processes often change	Customer management	Internal business processes	N/A	
47	Schedules are planned for new projects/processes	Customer management	Internal business processes	D	Majority are neutral but greater number also agree. They cannot be neutral when higher people have responded schedules often change, i.e., a planned scheduled cannot be often changing indicates distortion. Validity claims—clarity/confusion on schedules and priorities.
48	There is sufficient depth of operation for processes	Customer management	Internal business processes	D	Strong neutrality indicates distortion. Validity claims of clarity and confusion.

49	There is adequate succession planning and continuity for business processes	Customer management	Internal business processes	D	Org says it should be there, but business unit observes as responded that there is not much succession planning. It is a norm to have succession planning but we don't have it.
50	We have too many concurrent processes	Customer management	Internal business processes	Not much discourse	Strong distortion is interpreted as the right No. of concurrent process
51	Processes take too long to complete	Customer management	Internal business processes	N/A	
52	We have qualified people participating in the processes (adequate capability)	Customer management	Internal business processes	N/A	
53	We have enough people participating in the processes (adequate capacity)	Customer management	Internal business processes	D	Distortion within business unit. Equal No. of opposite response. Strong neutrality indicates negative or lack of confidence. Validity claims—legitimacy—normative value but not sure if No. of people is adequate
54	Process changes affect my project deliverable schedules	Customer management	Internal business processes	N/A	
55	Process changes or new processes help me use my potential	Customer management	Internal business processes	N/A	
56	Direction from management during any process change is adequate	Customer management	Internal business processes	D	There is confusion. Org/management gives direction, but responses are negative.
57	We have the technical ability to handle process change	Customer management	Internal business processes	N/A	
58	Employees are adequately assigned to ensure delivery schedules	Customer management	Internal business processes	V	Affirmative.

59	How many innovative/ new products have you been part of in a year (current calendar year)?	Innovation	Internal business processes	N/A	
60	How many innovations/ new products/processes has your team come up within the current (calendar) year?	Innovation	Internal business processes	N/A	
61	What percentage of new ideas were selected for funding?	Innovation	Internal business processes	D	Org claims it is proper and good to be innovative, but survey shows a small portion is selected for funding. Truth/sincerity/legitimacy
62	Percentage of work interacting with stakeholders - GoA	Products & services	Stakeholder	N/A	
63	Percentage of work month interacting with stakeholders - Industry	Products & services	Stakeholder	N/A	
64	Percentage of work month interacting with stakeholders - Municipalities	Products & services	Stakeholder	N/A	
65	How many emails/ phone calls/ face to face interactions on average does it take to resolve issues related to stakeholder - GoA queries?	Products & services	Stakeholder	N/A	
66	How many emails/ phone calls/ face to face interactions on average does it take to resolve issues related to stakeholder - Industry queries?	Products & services	Stakeholder	N/A	

67	How many emails/ phone calls/ face to face interactions on average does it take to resolve issues related to stakeholder - Industry queries?	Products & services	Stakeholder	N/A	
68	Stakeholder communication is important for our work processes	Products & services	Stakeholder	D	We know that stakeholder communication. Is important. However, in reference to earlier responses, we see, communication is very limited.
69	Stakeholder training is required for efficiency of business processes	Products & services	Stakeholder	D	Stakeholder training is important. Claims through Financial indicate the sacrifice of training, which conflicts with respondents.
70	Stakeholders are satisfied with our Products & Services	Products & services	Stakeholder	D	No measures or no objective at the time of data collection, respondents have no evidence to back up the claim. General claim is that they are satisfied. That explains why there is high frequency of neutrality, i.e., uncertainty. In absence of evidence, there is huge possibility for distortion.
71	Stakeholders are satisfied with our processes	Products & services	Stakeholder	D	No measures or no objective at the time of data collection, respondents have no evidence to back up the claim. General claim is that they are satisfied. That explains why there is high frequency of neutrality, i.e., uncertainty. In absence of evidence, there is huge possibility for distortion.

72	The accuracy and schedules of information requests affects the time and quality of Products & Services delivery	Products & services	Stakeholder	D	Distortion exists depending on whether the group sees relevance and value in performance measurement.
73	Stakeholders see value and relevance in our Products & Services	Products & services	Stakeholder	V	Some stakeholders, such as industry, saw the potential for value and relevance but are still waiting for measured evidence. Are we doing it better than the alternative or competitor?
74	I am confident in defending the assessment (in person or in a supporting role)	Products & services	Stakeholder	N/A	
75	I have had the opportunity to implement skills learned in courses related to stakeholder relations	Products & services	Stakeholder	N/A	As half of the respondents are neutral or disagree, this may identify a gap in a necessary form of training. Just identifying gap.
76	There is awareness and familiarity with Government's role and responsibility toward stakeholders	Products & services	Stakeholder	N/A	
77	There is transparency about Government's role and responsibility toward stakeholders	Products & services	Stakeholder	D	Distortion is not very strong. A strong claim is made for transparency. However, the responses indicate a distortion. * Use sentiment analysis to measure the relative strength of distortion.
78	I can effectively select strategies in communicating with stakeholders based on goals, issues, priorities	Products & services	Stakeholder	N/A	For now, N/A. No claim is made. A claim should be made in next iteration. There should be claim as this is linked to other

					perspectives. Internal business processes and financial claim should also be made to measure. Claim equals expectation.
79	I have an understanding of perspective, motives, methods related to stakeholder relationships	Products & services	Stakeholder	N/A	Should be measured in next iteration. Relationships are not standard. Requires a variety of understanding, and will therefore require variety of measures to be relevant and valuable.
80	I am able to summarize, analyze and prioritize information from stakeholders	Products & services	Stakeholder	N/A	Should be measured in next iteration. Relationships are not standard. Requires a variety of understanding, therefore will require variety of measures to be relevant and valuable.
81	Legislative requirements are met for Products & Services	Products & services	Stakeholder	N/A	We have relevance and value for both time and content—delivery and accuracy.
82	Legislative requirements help in refining newer products	Products & services	Stakeholder	N/A	Legislative requirements indicate business rules, which guides our internal business processes.
83	Stakeholder and communication strategy provides awareness of how it impacts our work	Products & services	Stakeholder	D	Strong distortion—Ambivalence
84	We always align understanding and priorities of stakeholder strategy with our work processes	Products & services	Stakeholder	D	Small distortion in form of Ambivalence. "We need to talk"—This discourse should be held but respondents are uninformed. They should be informed because it links to other perspectives. So, our design and data collection revealed a

					gap in awareness.
85	I receive enough annual funding for training	Fiscal budget	Financial	D	There are multiple strong claims supporting this statement but > 60% of respondents are neutral or negative. Sincerity and Clarity.
86	I believe there is enough fiscal stability to maintain or improve my job position	Fiscal budget	Financial	V	Discourse check but not distorted.
87	I receive pay and benefits comparable to the community standard for my qualifications	Fiscal budget	Financial	V	Sentiment analysis indicates positive. Affirms the question not contrary to the claim. Hence, no distortion this time. Could be discourse check later.
88	Budget constraints affect funding to proceed with new ideas	Fiscal budget	Financial	V	Sentiment Analysis indicates positive. Affirms the question not contrary to the claim hence no distortion this time. Could be discourse. Check later.
89	Budget constraints affect costs of upgrading IT systems	Fiscal budget	Financial	V	Positive by sentiment analysis. People who do not know financial info. For analysis, ignoring the neutral and comparing negative to positive.
90	It is appropriate that training is annually allocated based on budget	Fiscal budget	Financial	D	Claim made that one will be able to do one's job. Our learning objective is different from the objective of the claim.
91	Current budget provides enough funding to meet our learning objective	Fiscal budget	Financial	D	Less distortion

92	Current budgets provide enough funding to meet our objectives of internal operational processes	Fiscal budget	Financial	D	Less distortion
93	Low budget per employee leads to lesser training and development	Fiscal budget	Financial	V	
94	Political and budget changes affect my work	Policies/political	Financial	V	64% positive. No distortion. Red tape reduction. They expect political change will affect our work.
95	The political affects our objectives	Policies/political	Financial	V	Positive. Political change will affect objectives.
96	The political influences and drives changes in our financial objectives	Policies/political	Financial	V	Claim made is same.
97	Our cost recovery financial model is beneficial to meet our objectives	Policies/political	Financial	N/A	No claims.
98	What is CIPA's per capita training investment per year?	Human capital	Learning & growth	D	Our training investment per year converted per capita is much higher than the claim.
99	How many mandatory training hours per year are allocated per employee (based on 7.25 hours workday)?	Human capital	Learning & growth	V	Could be uncertain
100	How many optional (non - mandatory) training hours per year are allocated per employee?	Human capital	Learning & growth	D	All training should be mandatory.
101	What percentage of working time is acceptable for training?	Human capital	Learning & growth	D	If we translate these hours to monetary equivalent, it will far exceed the claim made for allowed time or money.

102	Percentage of times projects are under budget in a calendar year	Innovation	Internal business processes	N/A	There is no claim that projects are under or over budget. * This is a benchmark year. Questions like this can be used for comparisons but we don't have any numbers at present.
103	Percentage of times projects are on budget in a calendar year	Innovation	Internal business processes	N/A	There is no claim that projects are under or over budget. * This is a benchmark year. Questions like this can be used for comparisons but we don't have any numbers at present.
104	Percentage of times projects are over budget in a calendar year		Internal business processes	D	We have **identified a gap**. For many projects, budget is pay-as-you-go. Hence, it is difficult to decide. Projects are sometimes pay-as-you-go. As a norm, we should have estimated budget. This is important to form links with financial and objectives and to measure it.
105	Percentage of times projects are under schedule (expected project end date/product delivery date)	Innovation	Internal business processes	N/A	
106	Percentage of times projects are on schedule (expected project end date/product delivery date)	Innovation	Internal business processes	D	Ambivalence
107	Percentage of times projects are over schedule (expected project end date/product delivery date)	Innovation	Internal business processes	D	Ambivalence
108	My area receives a budget that is realistic to meet	Fiscal budget	Financial	D	Less distortion. Counterclaim made.

	our stakeholder objectives				
109	What is the average budget cost of all projects per year for your team?	Fiscal budget	Financial	N/A	Quantitative. Certainty claim could be used.
110	The political /influences and drive changes in policies	Policies/political	Financial	V	No distortion. Positive sentiment analysis of more than 70%

Appendix 8: Research Ethics Approval

Athabasca University
RESEARCH CENTRE

CERTIFICATION OF ETHICAL APPROVAL

The Athabasca University Research Ethics Board (REB) has reviewed and approved the research project noted below. The REB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) and Athabasca University Policy and Procedures.

Ethics File No.: **23720**

Principal Investigator:
Mr. Michael Tautchin, Graduate Student
Faculty of Business\Doctor of Business Administration (DBA)

Supervisor:
Dr. Fathi Elloumi (Supervisor)

Project Title:
Designing a Performance Management System for a Government of Alberta Business Unit Using the Balanced Scorecard

Effective Date: December 13, 2019 **Expiry Date**: December 12, 2020

Restrictions:

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date: December 13, 2019**

Saud Taj, Chair
Faculty of Business, Departmental Ethics Review Committee

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