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Approval of Dissertation

The undersigned certify that they have read the dissertation entitled

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Abstract

There is an intense focus in business today on digital transformation, with technology departments as a key enabler. In a large organization, a trusting relationship between business stakeholders and their technology department is critical to enable the delivery of their strategic imperatives. This doctoral dissertation details the findings of a quantitative research study conducted at Loblaw Companies Limited in the fall of 2020 to understand trustworthiness and fairness as key antecedents of a trusting relationship between the organization's technology department (Loblaw Technology) and its business stakeholders. The study sets out to determine how closely that level of trust is connected to the level of satisfaction the stakeholders have in the outcomes Loblaw Technology delivers. The level of trust in Loblaw Technology from the perspective of its business stakeholders is a key measure of the value that the Loblaw Technology department produces for the organization, because trust facilitates the exchange relationships between Loblaw Technology and its business stakeholders and results in their satisfaction with outcomes delivered. This quantitative study examined the category-based trust relationship between individuals (business stakeholders) and a service department that supports them (Loblaw Technology) and explored the antecedents that affect trust as the Loblaw Technology department makes decisions and provides services to their business stakeholders. These antecedents include the three antecedents of trustworthiness: ability, benevolence, integrity, and the four elements of organizational justice and fairness experienced by the business stakeholders, i.e., distributive, procedural, interpersonal and informational justice. The most important positive antecedents of trust were found to be ability, integrity, and distributive justice, although issues with discriminant validity weaken the results of this study. Higher levels of trust are required for high levels of satisfaction, with satisfaction being a key indicator of the value that Loblaw Technology delivers to the organization. Understanding the strength of the relationships between the antecedents of trust enables the leadership of Loblaw Technology to build programs focused on the most important antecedents, which

will foster improved trust with their business stakeholders, thus increasing the satisfaction in the delivery of key strategic technology enablers, increasing the value realized through Loblaw's investments in technology.

Keywords: trust, antecedents, trustworthiness, intergroup, information technology, IT, stakeholder, value measurement, organizational justice, fairness, depersonalized trust, category-based trust, satisfaction, structural equation modelling

Table of Contents

Approval Page ii
Acknowledgements iii
Abstract iv
Table of Contents vi
List of Tables ix
List of Figures x
Chapter 1 - Introduction 1
Background 1
Measures of Technology Value are Missing Something 2
Trust as an Enabler of Loblaw Culture 4
Social Exchange as the Outcome of Trust 5
The Dissertation Topic 6
Dissertation Overview 8
Chapter 2 - Literature Review 10
Introduction 10
Traditional Measures of Value for Technology Organizations are Missing Something 11
Technology Governance: Alignment of Outcomes with Business Value 12
Balanced Scorecard Metrics 13
Operational Service Level Metrics 14
Evolving the Measures of a Technology Department's Value 15
Interpersonal, Depersonalized, and Category-Based Trust 16
Social Exchange: A Lubricant of Performance 16
Interpersonal Trust 17
Depersonalized Trust 20
The Department as a Unit of Trust Measurement 25
Risk and Interdependence 27
Trust Between a Group and Interdependent Stakeholders 28
Organizational Justice 29
Trustworthiness 33
Satisfaction 35

Model and Hypotheses 36
Independent Variable Definitions 39
Dependent Variable 41
Outcome Variable 41
Categorical Variables (Used for Group Comparisons) 41
Literature Review Summary 42
Chapter 3 - Methodology 44
Introduction 44
Research Philosophy 45
Research Approach 45
Research Strategy 45
Research Design 46
Questionnaire Development 46
Questionnaire 47
Data Collection 48
Reflection on my Role in This Study 48
Pilot Data Collection 48
Main Data Collection 52
Chapter 4 - Data Analysis 54
Structural Equation Model Testing 54
Initial SEM Analysis 56
Factor Analysis 59
Enhanced SEM Model 67
Structural Equations 71
Reliability of the Constructs – AVE and CR 72
Data Exploration With MANOVA 75
Hypothesis Outcome Review 79
Summary of Data Analysis 81
Chapter 5 - Discussion 82
Overview 82
The Most Important Antecedents of Trust 82
Trust and Satisfaction 85

How it all Fits Together 86
Practical Applications: Measurement of Value 86
Limitations With the Research 92
Thoughts for the Future: Beyond this Research 95
Chapter 6 - Conclusion 98
End Notes 100
References 102
Appendix A 107
Perceived Trust 107
Cognitive Trust 107
Affective Trust 108
Appendix B – Certificate of Ethics Approval 110
Appendix C – Pilot and Full Survey Emails 111
Appendix D – Full Questionnaire 113
Appendix E – Lisrel Syntax for Model Using all Variables and Data 117
Appendix F – Lisrel Syntax for Improved Model 118

List of Tables

Table 1 – Goodness of fit Statistics for Full SEM Model…… 59

Table 2 – Structure Matrix With Factor Loadings From Confirmatory Factor Analysis…… 61

Table 3 – KMO and Bartlett's Test – Full Data Set…… 62

Table 4 – Structure Matrix With Factor Loadings Without Items with low Communalities…… 64

Table 5 – KMO and Bartlett's Test – Low Communalities Removed…… 65

Table 6 – Goodness of fit Statistics for Enhanced SEM Model…… 70

Table 7 – Covariance Matrix of Latent Variables…… 71

Table 8 – Average Variance Extracted (AVE) and Composite Reliability (CR)…… 73

Table 9 – Square Root (AVE) Compared to Latent Variable Construct Correlations…… 74

Table 10 – MANOVA Multivariate Tests…… 76

Table 11 – SPSS Code for MANOVA Analysis…… 76

Table 12 – MANOVA Construct Mean Factor Scores by Category…… 78

Table 13 – SEM Coefficients Compared to First Order Correlations…… 80

List of Figures

Figure 1 – Trust as the Missing Element in Traditional Measures of Value …………………..…..…..…..… 3

Figure 2 – Theoretical Model………………………..…..…..…..…..…..…..…..…..…..…..…..…..…..…..…..……..39

Figure 3 – Path Diagram of the Full Model - Observed and Latent Constructs and Path Weights…. 57

Figure 4 – Path Diagram of the Enhanced SEM Model…………………….…..…..…..…..…..…..……………69

Figure 5 – SEM Coefficients………………………..…..…..…..…..…..…..…..…..…..…..…..…..…..…..…..……..79

Chapter 1 - Introduction

Background

I started working in information technology over 25 years ago, and there has always been a love-hate relationship between the technology service departments and our business stakeholders. This tension has been consistent regardless of the country, industry, or structure of the organizations I have worked in. The business leaders know that their strategies require technology enablement to become a reality, but there is a constant fear that the technology department will let them down (Krotov, 2015). I know trust is extremely important for business success. I have worked my way up through the technology ranks from junior programmer to Chief Information Officer (CIO), and regardless of my level in the organization, this lack of trust from my business stakeholders has always been a point of frustration and source of questions for me.

Trust works as a social exchange lubricant of organizational functioning and increases voluntary compliance, altruistic behaviors, and individual and organizational performance (Dirks & Ferrin, 2001). How then, can a technology organization build trust with its business stakeholders? I have decided to focus my doctoral research on this problem, and thus I examine the antecedents of trust between the technology department I am responsible for at Loblaw Companies Limited (Loblaw) as the CIO (Chief Information Officer), and the individual stakeholders in the business units we support. These business units include our various operating divisions: Loblaws, Superstore, Shoppers Drug Mart PC Financial and Joe Fresh, and other service departments within the organization: Supply Chain, Finance and Human Resources. This research is grounded in my passion to understand and my desire to improve the exchange relationship between my department and our business stakeholders. Understanding the antecedents of trust will enable my leadership team and me to implement programs focused on the most important elements of the trust relationship with our business stakeholders, lay the foundation for a collaborative and reciprocal exchange relationship, and become the strategic value enabler we aspire

to be. The results of this research could be generalized to other organizations in terms of the key antecedents of trust between a technology department and its business stakeholders, but the primary focus is to yield internal benefits to Loblaw.

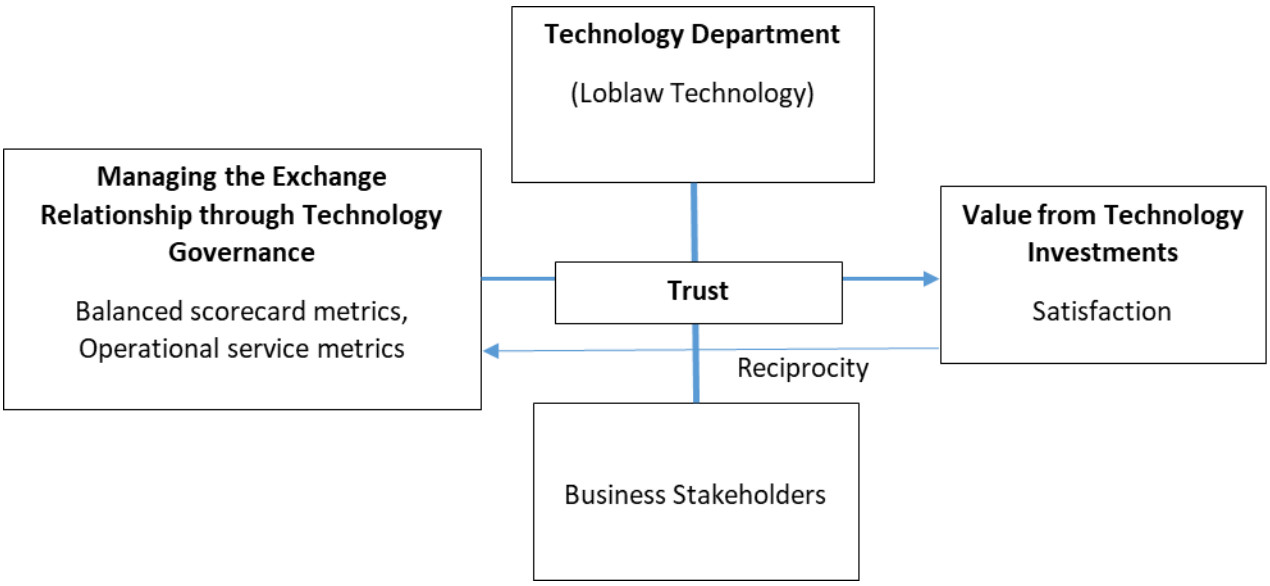
Measures of Technology Value are Missing Something

The value of technology to an organization is always under scrutiny, and business stakeholders' level of satisfaction with the outcomes produced by the technology department is always in flux. How much money is spent to keep the technology operations running, how much is spent on projects to deliver new business capabilities, what value is the sizable investment in technology returning to the organization, and how is it helping to enable the business strategy? These questions are consistently asked and the answers compared to existing measures of technology value. Are these measures sufficient to answer these questions, or are they missing something?

There are several traditional approaches to measuring the value of technology investments to organizations, including balanced scorecards and service levels. These measures constitute a technology governance process. Each has positive characteristics, but all have key deficiencies in that they measure only part of the complex interaction between the technology department and its business stakeholders as the technology department works to achieve value for the organization and drive satisfaction from their stakeholders. These traditional measures are, in effect, missing something. That something is trust, and this gap is discussed extensively in the literature review as an argument is made to enhance the traditional measures of technology value with trust.

Figure 1

Trust as the Missing Element in Traditional Measure of Value



This gap sets the stage for the development and testing of a framework that can measure the strength of the exchange relationship itself and the key factors that enable and promote a trusting and collaborative relationship. This dissertation explores a model that identifies the factors that promote trustworthiness and fairness in dealings by a technology department with its business stakeholders. With improved trust, business stakeholders' levels of satisfaction will increase, and this increased satisfaction will increase goodwill and reciprocity in the acceptance of technology governance metrics, affording the technology department the exchange platform to drive improved alignment and performance, highlighting the element of trust that the traditional measures miss. Trustworthiness and organizational justice (fairness) are indicators of social exchange and satisfaction, and this is why trust is a valid proxy for looking at the value of the technology department to the organization. Trust is the lubricant in the social exchange relationship. This is interesting from an academic perspective, as the antecedents of trust are often explored in a category-based trust context, where trust is predicated on information regarding a trustee's membership in a social or organizational category (Kramer, 1999), with

the outcome of satisfaction in the performance of a service department being linked to the strength of the social exchange. Loblaw Technology as a category group and a service department to its business stakeholders, provides the context for the effects on trust and satisfaction to be studied. A lack of trust in and satisfaction with the results of Loblaw Technology could lead to a loss of confidence in the leadership of Loblaw Technology, or outsourcing of key functions the technology department provides to third-party organizations. This research is also interesting from a practitioner perspective, as understanding the key antecedents of trust in the Loblaw Technology context will enable programs to be developed with renewed focus on promoting the visibility and importance of the key antecedents of trust building with business stakeholders to drive improved satisfaction in outcomes.

Trust as an Enabler of Loblaw Culture

A number of years ago, the leadership of Loblaw Companies Limited determined that a culture based on collaboration and trust was key to the successful execution of its strategy, and they set out to change the nature of the way the people in the organization interacted with each other. This approach was supported by a 2015 study of S&P 500 companies, where those that exhibited trusting interactions displayed the best average annualized returns of the S&P 500 by a factor of three (Covey & Conant, 2016).

Loblaw currently leverages a three-pronged approach in its cultural and leadership performance framework: be authentic, make connections, and build trust. Trust is one of the three indicators of a high-performing leader and department, which is another reason this dissertation is using trust as the key construct in its focus on Loblaw Technology.

Using trust as a lens to examine the technology department's value directs attention to the value embedded in relations between Loblaw Technology and its customers, the business stakeholders Loblaw Technology supports. Those relations can be understood as an exchange relationship between

customer and supplier. The value of trust lies in the ways it improves and lubricates that social exchange to produce reciprocity and cooperation. The constructs and measurement scale are developed to predict how much trust there is likely to be in the relationship and, by extension, how much value (satisfaction) the company as a whole derives from the relationship. The measurement scale can then be used to answer the questions, "How trustworthy is the technology department as an exchange partner, and how fairly is the technology department acting in the exchange relationship?" Adding the missing element of trust in the incomplete existing measures of technology value would fill in the critical gaps by answering these important questions. The outcome of this research enables the Loblaw Technology department to not only demonstrate its value to the organization, but also further develop its embodiment of the desired organizational culture.

Social Exchange as the Outcome of Trust

Social exchange theory posits that individuals in groups decide to engage in long-term relationships with partners that provide value which outweighs the value offerings of their competitors (Paparoidamis, Katsikeas, & Chumpitaz, 2017). A customer that perceives its supplying counterpart as making productive investments to (and performing well in) important areas of their needs is likely to assess the relationship as effective and likely to engage in further productive exchanges through the relationship. The social exchange theory argument is that the rewarding actions of one party obligate the other party to reciprocate. Since there is no way to assure the other party of an appropriate return for an action, social exchange requires trusting others to discharge their obligation (Blau, 1985).

In a social exchange relationship, trustworthiness and fairness lead to trust, as trust serves as the lubricant in the exchange relationship (Mayer, Davis, & Schoorman, 1995). Trust enhances satisfaction (Geyskens, Steenkamp, & Kumar, 1999), with satisfaction being a key measure of value of the technology department by its business stakeholders. Trustworthiness eases social exchange, as the

trustor in the relationship has faith that the trustee has sufficient abilities, benevolence, and integrity for the parties to engage in a positive exchange relationship (Mayer et al., 1995). Organizational justice (fairness) offers a useful means through which to explain and understand employees' feelings of trust and mistrust in the organization (Saunders & Thornhill, 2004). Organizational justice integrates perceptions about the outcomes of decisions, the methods used to make them, and the treatment of those affected. This offers stakeholders a reason for their trust/mistrust in the organization making the decision (Saunders & Thornhill, 2004). Fairness is a measure of the quality of the social exchange, which leads to trust being the lubricant of social exchange.

The Dissertation Topic

In much of the existing scholarly research, the focus of accounts of trust is on trust between individuals and their organization (Dirks & Ferrin, 2002; Frazier, Johnson, Gavin, Gooty, & Snow, 2010; Kramer, 1999). My focus in this dissertation is on the social exchange and trust between individual business stakeholders within the Loblaw organization and the technology department. A business stakeholder is a full time employee of the Loblaw organization who works for a department that leverages the services Loblaw Technology provides, and who does not work in a store or warehouse. From an academic perspective, the value of this research is in its contribution to the limited research that looks at category-based trust between individual stakeholders and a technology department within an organization. This research builds on a solid foundation of research previously conducted on trust formation, where organizational justice and trustworthiness antecedents are combined in a research model. It is important to me that my dissertation research is also relevant from a practitioner perspective so that I can use the results to improve the performance of my technology department at Loblaw. From a practitioner perspective, I am interested in understanding the trust that individual stakeholders have in my department as a measure of value realized by my department for the organization. Improved trust levels should yield a more collaborative and higher-performing joint

outcome on projects and within operational activities. The improved joint outcomes should result in higher levels of satisfaction as improved trust strengthens the relationships and social exchange between Loblaw Technology and our stakeholders.

Trust is a valid proxy for value in an exchange relationship because it enables social exchange and reciprocity. Mayer et al. (1995, p. 712) define trust as, "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party." Trust is a relationship outcome that is earned, and it is the result of many factors; it is not an outcome that can be initiated in a single moment. Social exchange theory—and organizational justice, which refers to perceptions of fairness in decision-making and resource allocation environments—can enhance trust between groups (Colquitt & Rodell, 2011).

My dissertation topic is "The antecedents of trust between a Technology service provider and its stakeholders." This quantitative research study at Loblaw Companies Limited examines which antecedent trust factors are most important to enable an improved trust relationship between the technology department and its individual business stakeholders, as well as how trust leads to satisfactory outcomes as assessed by the business stakeholders of Loblaw Technology.

There is value in this research for Loblaw as an organization. The success of business outcomes across departments, with technology being the key enabler of the Loblaw business strategy, has tremendous strategic importance for the organization. Business stakeholders need to trust the members of Loblaw Technology to create an environment conducive to delivering these business outcomes, and be ultimately satisfied with the results. An additional driver for looking at the factors that enable trust is that Loblaw has been on a journey to develop a collaborative and supportive culture called "Blue Culture." Three tenets of enabling a blue culture are making connections, building trust, and being

authentic (Loblaw, 2020). Guidelines have been provided for Being Authentic: they include being yourself, talking to others about your strengths, and asking for help with your weaknesses. Making Connections is recommended in the form of coffee chats and face-to-face time with colleagues across the organization. There are, however, no good guidelines for Building Trust, it is implied that trust will follow from Being Authentic and Making Connections, but the explicit guidelines to improve trust are not provided, which is concerning for such an important aspect of our culture transformation.

For these reasons, this dissertation as well as the research reported herein has value from an academic perspective and to the Loblaw organization specifically. A model that links trust to the antecedents of trustworthiness and organizational justice (fairness) between the technology department and its stakeholders promises to offer the identification of areas of focus and potential actions to increase trust between business stakeholders and Loblaw Technology.

Dissertation Overview

This doctoral dissertation is structured in six sections. The Introduction has provided an overview of the purpose of the research, explained why it is beneficial from both an academic and a practitioner perspective, and introduced the dissertation topic and desired outcomes. The Literature Review provides an overview of key concepts that support the trust framework proposed in the research, summarizes previous academic work that has leveraged the framework of trust as the outcome of trustworthiness and organizational justice, and literature that has failed to adopt this approach illustrating the gap this research aims to fill, and builds the case for the proposed model and hypotheses to test. The Research Methods section discusses the data collection approach used for the research and details the development of the multi-item scale leveraged to collect the data for this quantitative research study. The Data Analysis section explores the relationships between the independent variables (antecedents of trust), the dependent variable (trust), and the outcome variable (satisfaction) through a structural equation model (SEM). The Discussion section explores what the SEM

relationships mean as they relate to the hypotheses being tested. The findings suggest that there are key antecedents that improve trust between Loblaw Technology and its business stakeholders, which are ability, integrity, and distributive justice. Trust has a positive relationship to the satisfaction of the business stakeholder in the outcomes Loblaw Technology. Issues with the research are discussed, as are additional opportunities to extend this research after the conclusion of the dissertation. The Conclusion section explains how this research adds to the body of knowledge (specifically the theory of trust research) and proposes next steps from an academic and practitioner perspective.

Chapter 2 - Literature Review

Introduction

This section provides an overview of the literature as it relates to the dissertation research topic. The literature will be reviewed in five major sections, and this chapter will build the case for the use of the theoretical constructs presented in the introduction as valid for the purposes of this study.

The first section of the literature review will demonstrate how traditional measurement instruments for business–technology relationships are insufficient for the complexities of today's digital transformations, as they do not take into account the relationship element between the technology department and its stakeholders as a critical element of value realization. This gap in the measurement of technology value leaves room for the development of a new approach for thinking about the value technology enables for the organization.

The second section will discuss the concept of category trust, which is trust in a group or department, and explore why this is an important concept within a formal organization with trust as an enabler of performance between individuals and groups. This section of the literature review will also establish that it is valid from a research perspective to measure trust between an individual and department.

The third section will review the central concepts of trust by distinguishing between the parties to an exchange relationship, which can be individuals or a group (e.g., a department), and then defining trust and reviewing key ideas about its importance in terms of interpersonal trust. Various trust models and constructs that have been used to measure trust and its associated antecedents are reviewed.

The fourth section will focus on social exchange and organizational justice theory and how these constructs can be used to determine the level of trust across groups. This discussion will evolve the

discussion from interpersonal trust to a discussion on category-based trust because I am looking at the trust that stakeholders have on an impersonal level in the technology department, and the role of Loblaw Technology and the rules they use to build trust with outsiders.

The fifth section will present the theoretical model to be used in the study, linking the antecedents of trustworthiness and organizational justice concepts to trust and introduce the hypotheses to be tested. The importance of satisfaction as a measure of value will be explained as an outcome variable in the model.

Traditional Measures of Value for Technology Organizations are Missing Something

There is an established perspective in the literature that technology has a significant impact on business performance and value, but the question is how this value is delivered and measured, as well as whether this value aligns with the perceptions of the business leaders (Jacks, Palvia, Schilhavy, & Wang, 2011). This section will discuss the measures that are most widely used for the value measurement and realization of technology value by business stakeholders: the balanced scorecard and operational service metrics. These metrics form the basis of a Technology Governance framework which aims to align the technology department's outcomes with the business strategy. There are acknowledged deficiencies with each of the current measurement tools: they cannot explain the link between the outcomes of the technology department and the satisfaction with those outcomes by the business stakeholders. This is a practical gap and explains why there is value for practitioners in the development of a new type of measure that evaluates the conditions for trust and reciprocity as enablers for collaboration, performance and satisfaction between technology departments in organizations and their business stakeholders. As explained by Athaide (2019) "A positive relationship with stakeholders has a direct effect on business success and growth, which boosts the reputation of an organization, and in turn generates trust". From a practitioner's perspective, I have worked for years to tune and improve balanced scorecard and operational metrics at Loblaw, but those improved metrics do

not necessarily produce better alignment or satisfaction outcomes as measured through our annual Customer Satisfaction Survey. Distrust from business stakeholders is a significant challenge to technology leadership in demonstrating value to the organization. Without trust, the business stakeholders simply do not believe the metrics and remain dissatisfied.

Technology Governance: Alignment of Outcomes with Business Value

Technology Governance is a key process for aligning technology department outcomes with business value and business stakeholder satisfaction. Technology Governance is the process of making decisions about technology expenditures (Peterson, 2004) to ensure the business gets what it needs from the technology department. This process attempts to ensure alignment and clarity between the technology department and the business executives on key strategic technology investments and project prioritization decisions. Technology Governance is required as business stakeholders do not trust technology leaders and their departments to be effective when making their own decisions and thus require oversight. That this negative situation exists is an indication that there is something undermining the credibility of the technology department. This lack of trust leads to negative stakeholder perceptions, dissatisfaction, and a perspective that although reported measures of technology value may be positive, things are not what they seem (Krotov, 2015).

As changes in organizations and technology environments are constantly evolving, the alignment of the technology function with business objectives must be constantly renewed and adjusted. Many CIOs face a double challenge when addressing the issue of alignment: they must first clarify top management's expectations and assumptions about technology, which may be contradictory, and then come to understand their implications for how the technology department should be managed (Krotov, 2015). This variability and constant flux between business stakeholders' expectations of technology and the evolution of the technology function makes the governance of technology an incomplete process since the rules and framework for governance are constantly evolving. The

governance process may be inconsistently applied, leading to dissatisfaction, mistrust and, ultimately, a battle of control instead of an alignment between business and technology on the creation of value for the organization.

The following subsections will dig into the two key measurements used in Technology Governance to track the performance of technology departments: the balanced scorecard and operational service levels.

Balanced Scorecard Metrics

Three key areas emerge where technology affects organizational performance: profitability, productivity, and other intangible benefits such as employee satisfaction (Jacks et al., 2011). However, there can be significant issues in technology and business alignment, where alignment can be defined as the level of harmony, integration, or synchronization between the technology department and their business counterparts; alignment is more than a simple capability, including aspects of organizational culture as well as strategic planning (Jacks et al., 2011). One approach to representing the business–technology value relationship is a balanced scorecard that puts technology outcomes in a business context (Masli, Richardson, Sanchez, & Smith, 2011).

One major area of focus for a balanced scorecard is project delivery metrics. There are many examples of project failures being a key issue in driving dissatisfaction with a technology department in an organization (Krotov, 2015). With over half of most companies' annual capital investments being in technology (Bhutani, Kumar, Garg, & Aggarwal, 2016), being able to deliver projects effectively is likely a key factor in the perception of value and trust in technology departments. The leader of the information technology department (the CIO) can build credibility with the business by focusing on projects that show a tangible benefit in a short period of time and promoting innovation measures as part of a balanced scorecard (Alexander, 2002). Project success is a combination of delivery success by the

technology department and adoption and business case realization by the business units. The balanced scorecard places an imbalanced focus on only half of the equation, technology delivery. The balanced scorecard can indicate the status of metrics, but it cannot pinpoint the gap in value realization due to strained working relationships within the project team, nor can it highlight what can be done to close the gap if one arises (Masli et al., 2011). A blurring of lines between technology and business through digital transformation will complicate the measurement of technology value if, as some research predicts, technology functions will be distributed into the business units, or technology services will simply become a menu of services for business users to choose from (Cecere, 2017).

Operational Service Level Metrics

The second metric commonly used to measure technology performance is operational service levels. In technology operations, you are only as good as your last outage. As technology becomes increasingly interwoven into the fabric of the business, the ability of the technology department's offerings to be fast, available, and reliable becomes increasingly important to internal business stakeholders. Guillemette and Paré (2012) conducted research on different profiles technology departments adopted to meet the needs of their business stakeholders and found that the systems provider profile was most important given the importance of stability in service levels; however, this profile was evolving towards the Technology Leader profile (where Loblaw Technology aspires to operate), where technology departments drive the business strategy. The system provider profile is focused on lowering the organization's operating costs and providing stability in operations. The minimum contribution required from the technology departments in that study was determined by three factors: (1) response time of applications and reliability of technological infrastructure; (2) delivery of projects within budget and on time; and (3) user satisfaction (Guillemette and Paré, 2012). This indicates the importance of running operations and providing stability in terms of systems and project delivery in achieving end user satisfaction and technology value achievement for business stakeholders,

but it does not address strategic alignment or collaboration and alignment across the business units and technology department to drive business performance. Outages can be of different magnitudes and impacts, and satisfaction with and trust in the technology department will contribute significantly to business stakeholders' negative reaction to an outage, amplifying negative sentiment of small outages. Service level metrics alone do not get at the emotions around outages, and thus they are missing a key element.

Evolving the Measures of a Technology Department's Value

The effectiveness and value of technology departments have typically been measured through a Technology Governance framework, using some combination of balanced scorecard metrics and operational service level metrics. This has been the case at Loblaw. However, these measures provide a historical view of which capabilities were delivered and when to the business, but not the amount of business value delivered, which is dependent on other key measures such as adoption, which require collaboration and cooperation between the technology department and their business stakeholders. My personal experience has also been that traditional measures fall victim to suspicion and a lack of trust. Even if all the measures indicate a positive trend, at times, the business stakeholders do not trust the metrics or the positive indicators about the performance of the technology department. This is why trust is so important as a predictor and enabler for the technology department's performance within the organization, as well as why this research is valuable from a practitioner perspective. Trust is the lubricant of social exchange and sets a foundation for collaboration, cooperation, and the achievement of value between groups. Trust also ensures that the foundation is in place for the traditional measures to have credibility with the business stakeholders, enabling satisfaction with the outcomes realized by the technology department.

The next section will elaborate on the concept of trust, accounts of trust in the academic literature, and how trust between a technology department and its business stakeholders facilitates

social exchange between them. An assumption is that once trust in the technology department exists, there will be a desire for reciprocity from the business stakeholders and these positive interactions will increase the overall collaborative output, satisfaction, and value of the technology department to the organization.

Interpersonal, Depersonalized, and Category-Based Trust

This section of the literature review will start by setting up the frame of social exchange as a lubricant of performance between groups. Trustworthiness and organizational justice concepts will be introduced as the basis of effective social exchange. Interpersonal trust concepts will be reviewed (trust between individuals), as these form the basis of a significant portion of the existing trust research. The discussion will be expanded to depersonalized trust (trust in groups and organizations) and will then land on category-based trust (trust between individuals and groups) as the core measurement unit of trust for this research. For this research, a group will be understood as a department within an organization. The focus of this research is on the trust that stakeholders have on an impersonal level in Loblaw Technology as formed by the perceived attributes of the technology department (trustworthiness), and business stakeholders' perceptions about the rules the technology department uses (justice) to make decisions. This section will provide the key theoretical constructs for the hypothesized model of the antecedents of trust for the technology department at Loblaw introduced later in the literature review.

Social Exchange: A Lubricant of Performance

Social exchange theory posits that groups decide to engage in long-term relationships with partners who provide value that outweighs the value offerings of their competitors (Paparoidamis et al., 2017). A customer that perceives its supplying counterpart as making productive investments to (and performing well in) important areas of their trading is likely to assess the relationship as increasingly

effective and to engage in more productive exchanges in the relationship (Paparoidamis et al., 2017; Uzzi, 1996).

The relationship between justice and trust has most often been described using social exchange theory (Frazier et al., 2010), which explains how the transactions in an exchange relationship evolve and change over time. The social exchange theory argument is that the rewarding actions of one party obligate the other party to reciprocate. Since there is no way to assure the other party of an appropriate return for an action, social exchange requires trust in others to discharge their obligation (Blau, 1985). Social exchange relationships are founded on an individual's trust that the other party in the exchange relationship will honor the obligation for returns sometime in the future, and as such, an effective social exchange results from the evolution of the relationship over time into one characterized by trust and mutual exchange (Blau, 1985). Blau (1985) asserted that social exchange relationships progress slowly until the parties are able to prove trustworthiness, with trustworthiness being an accelerator to an exchange relationship. In the context of this study, the relationship is between Loblaw Technology and its business stakeholders, and the increase of trust is assumed to result in higher levels of reciprocity, engagement, and satisfaction.

Interpersonal Trust

In an exchange relationship based on trust, there are two participants: the trustor and the trustee. The trustor and trustee could be individuals or groups. The most common and most frequently studied model is interpersonal trust, wherein both trustor and trustee are individuals (Kramer, 1999). Many elements of trust have been studied at the interpersonal level and are now being studied in terms of category-based trust between an individual and a group as part of this research.

Although trust has been defined in many different ways, a widely held definition of trust is as follows: trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another (Mayer et al., 1995).

Please see Appendix A for a review of the key forms of interpersonal trust from the literature which support the antecedents of trustworthiness—ability, integrity, and benevolence—as key enables of a trusting relationship (Mayer et al., 1995).

Trust and the Future of Work. Interpersonal trust and its components are very important within organizations, as employees need to work together and collaborate to deliver value for the organization. Current trends in the organization of the workplace suggest the importance of trust will only increase. The emergence of self-directed teams and a reliance on empowered workers greatly increase the important of the concept of trust, as traditional control mechanisms are reduced or removed and interaction increases (Mayer et al., 1995). As a service provider to the business at Loblaw, the technology department is a matrixed organization, where workers assemble with members of the department and their business counterparts to deliver projects and solve problems. The development of a model of trust leveraging trustworthiness in Loblaw Technology is therefore both timely and practical. The experiences in dealing with strictly remote work over the course of 2020 as all businesses deal with the impacts of the COVID-19 pandemic have only further highlighted the need for interpersonal trust. Employees, in many cases, have not had direct in-person contact with their managers or teams in almost a year.

Trust and the Length of Relationship. Trust as a relation is very fragile, takes a long time to build, and is destroyed very easily. Frequent and consistent encounters are required, along with memories of previous interactions, which form the foundation for future relations. Interactions between two parties spread over a length of time with consistency in expectations results in trust. Hence, time is

considered an important factor in the creation of a stable, trusting relationship (Rehman, Qingren, & Weiming, 2017). Trust levels are established through experiences, and once they are established, trust levels can go for some time without changing. Rehman et al. (2017) define five distinct levels of trust including zero-trust, if two persons have previously had no interaction of any kind. However, this level is likely to never exist, because trust, or one of its antecedents, is always present in some form due to previous information, interactions, or perceptions (Rehman et al., 2017).

The Definition of Trust used for this Research. The various forms of interpersonal trust described in Appendix A illustrate the multi-dimensionality of trust as a construct, and they describe the antecedent trust factors that have been leveraged in the theoretical model for this research, which will be further tied back to the underlying theoretical frameworks in the literature.

Having reviewed the literature and the organizational context in which the theory will be applied, the strongest framework of trust and its antecedent which best synthesizes all the factors comes from Mayer et al. (1995). There are two important concepts in that research: trust and trustworthiness. Both concepts have multiple definitions in the academic literature, and it is important to state from the outset which perspective is adopted for the purposes of this research. Many works have suggested that trust is very important to other phenomena, such as group process and negotiation, without delving into the nature of trust and how it develops (Mayer & Davis, 1999). The study of trust has been hampered by its status as a first-degree construct, as there has been a proliferation of approaches to understanding trust and numerous connotations of the terms involved (Mayer & Davis, 1999).

Trust has typically been used to measure the quality of social exchange between individuals or groups. The definition of trust that will be used for this research comes from Mayer et al. (1995, p. 712): "the willingness of a party to be vulnerable to the actions of another party based on the expectation

that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party." This definition aligns best with the context in which the research is being conducted. A service department within an organization is depended upon by its business stakeholders, yet it is not directly under their control. In the literature, trust is often defined as uni-dimensional; however, through this research, due to the complexity and layers of trust relationships, a multi-dimensional set of predictors of trust is a more appropriate theoretical representation.

Depersonalized Trust

The Literature Review has focused so far on interpersonal trust (between individuals), and the discussion will now be expanded to review the elements of impersonal (depersonalized) trust: category-, role-, and rule-based trust (Kramer, 1999). Depersonalized trust occurs between individuals and groups, which is the appropriate level of examination in this research context. In the exchange relationship between Loblaw Technology and its stakeholders, I am interested in the trust the stakeholders have at an impersonal level in the technology department, the role of the technology department within the organization, and the impact of the processes the technology uses on the trust of its business stakeholders.

Category-Based Trust. Category-based trust refers to trust predicated on information regarding a trustee's membership in a social or organizational category—information that, when salient, often unknowingly influences others' judgements about the trustee's trustworthiness (Kramer, 1999). Because of the cognitive consequences of categorization and in-group bias, individuals tend to attribute positive characteristics such as honesty, cooperativeness, and trustworthiness to other in-group members. Consequently, individuals may confer a sort of depersonalized trust on other in-group members that is predicated simply on awareness of their shared category membership (Kramer, 1999).

Most literature on trust dynamics focuses on the relationship between individuals. Trust between individuals and groups has different attributes. Studies have shown that intergroup relations

are significantly more competitive and less cooperative than interpersonal relations—a finding labeled the *interindividual–intergroup discontinuity effect* (Song, 2009).

Studies focusing on the impact of social dynamics in and around groups have provided compelling evidence that group behavior is quantitatively different from individual behavior, and that individuals are prone to behave differently when they are in intergroup situations (Song, 2009).

Another salient finding from Song (2009) is that when contrasting trust exhibited by individuals and consensus groups, trust is significantly lower between consensus groups. The conjecture is that there is a *distrust-shift* (people have a lower level of trust towards a group versus an individual) and a *risky-shift* (groups take higher risks). These results suggest that people often perceive others from another group as less trustworthy and that such a reduction in psychological trust could affect their behavior.

Song found groups to be significantly less reciprocating than individuals. This is consistent with trustors' expectations of less reciprocity from groups, suggesting that trust is significantly lower towards groups than towards individuals (Song, 2009). Reciprocity has been defined as an act of "voluntarily repaying a trusting move at a later point in time, although defaulting on such repayment is in the short-term self-interest of the reciprocator" (Song, 2009).

Research from Pirson and Malhotra (2011), who were studying individual to group interactions, indicates trust in the organization may be based in part on attributions that the stakeholder makes regarding the trustworthiness of relevant organizational actors, but the *origin* of trust is always grounded in an individual perspective, even if individuals belonging to a certain group share a similar orientation.

This research focuses on determining the magnitude of trust antecedents towards a group (Loblaw Technology) held by various business stakeholders. The technology department is a category-

based group about which many stakeholders may hold views; they may also generalize the experience of trust across all of its members, based on their experiences with individual parts of the technology department. Impersonal trust has not previously been studied in the context of a technology department and it business stakeholders and thus the present research constitutes an important contribution to the literature on trust in organizations. Past research focuses on trust in other individuals or trust in the organization as a whole (Colquitt, LePine, Piccolo, Zapata, & Rich, 2012; Colquitt & Rodell, 2011; Mayer et al., 1995). The focus of this research is the category-based trust between individual business stakeholders and the technology department within their organization.

Role-Based Trust. A unique feature of trust is that it can only be earned, not sold or bought, and that property makes it even more important in today's business environment because it is based on relationships, not finances. Understanding the current levels of trust and trying to increase it to gain maximum benefits with optimized efforts requires continuous vigilance regarding the level of trust within an organization (Rehman et al., 2017). If leaders understand what it takes to generate trust, "the antecedents to the decision to trust," they can focus their efforts on engineering these trust-inducing attributes in their organization (Rehman et al., 2017).

Technology is a key enabler in the execution of business strategy in today's complex and increasingly digital business environment. Realization of value through technology capabilities is dependent on the strength of the relationship between the business and its technology providers. Having a high-performing technology function that is aligned to the strategic business objectives and delivers value to its business stakeholders is becoming increasingly important to enable the successful execution of an organization's business strategy (Masli et al., 2011). Companies thrive when they are able to excel in this ability to deliver value to their stakeholders and customers through technology (Masli et al., 2011).

Despite the importance of technology, there is often an alarming distrust between the CIO and the CEO and top business management. This distrust can be explained by several factors: the failure of information technology to deliver value, the lack of a clear vision with respect to information technology, and, sometimes, fear due to business executives' poor understanding of information technology (Krotov, 2015).

Role definition and role acceptance are also important elements to ensure there is a clear understanding between the business and the technology department on the role the technology department should be playing in the organization. Organizational life is a continuous stream of interaction rather than discrete episodes, and leaders in an organization often do not agree about what others should be doing (Katz & Kahn, 1978). Role conflict and organizational tension increase with the size of the organization, and often, people are unclear of their own roles and mandates, which makes it very difficult for others to understand what they should expect from them (Katz & Kahn, 1978). Research supports that people prefer general over close supervision, autonomy in pacing their work, and choice in the method of doing their work (Katz & Kahn, 1978). These findings would indicate that ambiguity can be reduced by specifying and setting expectations about what should be accomplished through the work (the outcomes); however, there should be some level of independence in choosing how to get the work done. Creativity in a role would go a step further and leave the why or what open-ended to have the employees define these items for themselves. There is often a mismatch between the technology department and the business stakeholder around the type of supervision and decision rights on the what and why (Krotov, 2015). Trust is an important factor influencing employee attitudes and behaviors in the workplace, and given the lack of role clarity and alignment on supervision, trust needs to be developed and managed to support healthy and high-performing organizations (Cho & Poister, 2013).

The culture and structure of modern organizations are ultimately very complex—and at times dysfunctional and at odds with the organization's stated purpose. The evolution of organizational cultural studies has been an ongoing process of refinement and peeling back the layers of increasing complexity within organizational cultures across three main perspectives: integration, differentiation, and fragmentation (Martin, Frost, & Neill, 2004). An integration perspective focuses on the value of a strong culture due to its association with excellent performance. A strong culture is both positive, with attractive norms and values, and cohesive, meaning uniform. A differentiation view goes deeper and holds that an organization's culture will split into subcultures that hold conflicting opinions about what is important as well as what should happen and why. These subcultures could align with divides across horizontal vectors (divisions, functions, social groupings) or vertical vectors (management and non-management). A fragmentation view goes deeper still and holds that not only will subcultures exist, but they will be transient and issues-based, as well as in a constant state of flux. A meta-theoretical view would hold that all three perspectives can coexist simultaneously within an organization and its culture (Martin et al., 2004). Trust as the lubricant of social exchange is an important element of culture and should be present to ensure alignment on purpose between a technology department and its business stakeholders in a large complex organization.

Process-Based Trust. In most organizations, the technology department is a cost center and spends the organization's revenue to provide operational support, "keep the lights on," and generate additional value-enabling capabilities through projects (Krotov, 2015). The financial reporting and planning model used by organizations and their technology departments to determine annual and multi-year budgets (capital, operational expenses, and depreciation) vary greatly and are often the cause of much concern with senior management and boards (Chandra, Menon, & Mishra, 2007). The mis-alignment of planning and reporting processes can lead to questions from the senior management team around whether technology is spending the right amount of money on the right objectives and

projects to deliver the necessary tangible returns. Other questions from senior management focus on how much risk exists in the business in the form of technology debt or a limited capacity to scale volume with business growth. Each of these technology limitations could create outages of service and reputational damage if business leaders are not able to deliver on their commitments to their customers. These questions can lead to misalignment and distrust (Masli et al., 2011) if the outcomes of the decision or the processes used to make the decision about the technology department's priorities and spending are not viewed as fair by the business stakeholders. The other side is that with high levels of trust present, technology managers may not need to justify every decision they make. Even when unfavorable outcomes or conflicts arise, because organizational members believe the rules used to make those decisions are fair, they are more likely to trust and accept the decisions that led to them (Kramer, 1999).

The Department as a Unit of Trust Measurement

The previous sections have discussed how trust is formed across groups and across individuals and groups through depersonalized trust. Leveraging the elements of contingency theory (Lorsch, 1977) within an organization, this section will discuss trust in a formal department (Loblaw Technology) and explore why a formal department should be used as a unit of trust measurement in this research, as well as why it makes sense to have "Trust in Loblaw Technology" as the dependent variable in the research model.

There are several organization structure theories that are relevant for the discussion about trust, value, and satisfaction between groups within organizations which have a reliance on each other. This discussion will provide theoretical support for the trust model developed through this research.

Structural contingency theory states that there is no single organizational structure that is highly effective for all organizations, and the optimal design of an organization is thus situational (Lorsch,

1977). In determining the best structure for and measure of an organization, both internal and external factors should be considered. The organization then needs to fit its structure to the contingency factors of the internal organization and then to the external environment. There are several key internal contingency factors that should be considered in a contingencies analysis, such as: the organization's strategy and size, the amount of task uncertainty, and reliance on technology (Donaldson, 1996). Organizational design and measurement must permit differences between subunits within organizations, and differences are necessary, as they encourage the behavior that is required for the members of each unit to deal effectively with the specific nature of their part of the environment (Lorsch, 1977). It is important to acknowledge that the technology function within an organization is different from the other functional operating units, in both structure and purpose. With organizations adopting different organizational and operating models across departments to achieve fit to their contingency factors, conflict emerges when they interact, as each department sees the problems only from their perspective (Lorsch, 1977). This highlights that while a view of an organization as a collection of unique subunits with different identities is helpful for understanding how to enable a strategy, it is difficult to adopt an organizational strategy and transformational change, and such a strategy is unlikely to succeed in all areas of the company (Stensaker & Falkenberg, 2007). Enabling a framework of trust between groups within an organization enables groups to work through changes in strategy and fit to continue to drive high performance outcomes. The technology department at Loblaw is a logical subunit within the broader organization, and thus it will exhibit its own contingency factors and its own identity. It is thus reasonable to assume that external stakeholders would view the department as a discrete entity, and it is clear why the technology department can be used as a formal unit of trust measurement in this research.

The following section will further discuss why individual business stakeholders would build trust with a formal department.

Risk and Interdependence

Across disciplines, there is agreement on the conditions that must exist for trust to arise: risk and interdependence (Zhang, Yan, & Zhang, 2018). Risk is the perceived probability of a loss as interpreted by a decision-maker. Interdependence means that the interests of one party cannot be achieved without reliance upon the other (Zhang et al., 2018). One of the difficulties that has hindered previous research on trust has been a lack of a clear differentiation among factors that contribute to trust and outcomes of trust (Mayer et al., 1995). There is a general view in the literature that risk, or having something invested, is a requisite factor for trust, and the need for trust only arises in a risky situation (Mayer et al., 1995). However, the article continues to explain that it is unclear whether risk is an antecedent to trust, is trust, or is an outcome of trust. The authors clarify in their model that the element of risk, or dependence by the trustor on the trustee, is a risk-taking relationship (RTR) (Mayer et al., 1995). One does not need to risk anything in order to trust; however, one must take a risk in order to engage in trusting actions, which is interdependence. Trust will lead to risk-taking in a relationship, and the form of the risk-taking depends on the situation (Mayer et al., 1995). Interpersonal trust is a pervasive phenomenon in organizational life. Trust enables people to take risks, and it is based on the expectation that one will find what is expected rather than what is feared (McAllister, 1995).

To resolve conflict between departments due to misaligned objectives or the presence of risk, management needs to be focused on integration, where integration means implementing measures that enhance the quality of the relationship between the subunits of the organizations that is required, if the organization's overall goals are to be achieved. There are many factors that affect the difficulty of achieving integration, including degree of differentiation, number of units requiring integration, pattern of task-interdependence (pooled, sequential, reciprocal), frequency of integration required, importance of integration to the organization's strategy, and complexity and uncertainty of information (Lorsch, 1977). Where there is low integration complexity, integration can usually be resolved with periodic

meetings and communication across units. In high-complexity situations, there are two techniques that management can apply to improve integration across business units. The first is to implement design elements to foster integration, such as product and program management, integrative roles, or cross-unit teams or committees. The second is cultural and involves a constructive pattern of behavior used to resolve conflict, which can be further enhanced through frequent face-to-face interactions (Lorsch, 1977).

In almost all operating situations at Loblaw, there is very high integration complexity between the technology department and its business stakeholders as well as cultural differences between the technology department and other departments within the organization. As each department has its own business outcomes to deliver and culture, unless there are constructs put in place to resolve misaligned objectives, conflict will result (Lorsch, 1977). Trust could play a significant role in conflict resolution between Loblaw Technology and its business stakeholders.

Trust Between a Group and Interdependent Stakeholders

The main reason that scholars and practitioners are interested in trust in an organizational context is their belief that it has a significant impact on a variety of outcomes relevant to organizations (Dirks & Ferrin, 2002). The study by Dirks and Ferrin (2002) developed a theoretical framework that describes how the relationships between trust and its antecedents and consequences will vary depending on how trust is defined, and it also described the different processes that mediate the relationships between antecedents, trust, and consequences. Working together often involves interdependence, and people must therefore depend on others in various ways to accomplish their organizational goals (Mayer et al., 1995). Since economic action is embedded within networks of social relationships, researchers have argued that efficiency within complex systems of coordinated action is only possible when interdependent actors work together effectively, and trust between such actors is seen as a determining factor (McAllister, 1995). The importance of trust in intergroup performance is

supported by (Pirson & Malhotra, 2011), which suggests that trust is important in business relationships because it promotes cooperative behavior within organizations.

Kramer (1999) discusses three major benefits of trust within organizational settings: reducing transaction costs within organizations, increasing spontaneous sociability among organizational members, and facilitating appropriate forms of deference to organizational authorities. In business-to-business markets, the establishment and development of long-term, trust-based relationships between suppliers and customers has been associated with significant benefits for both parties (Paparoidamis et al., 2017).

There is a set of constructs in the literature capturing how a group builds trust with outsiders (stakeholders); these constructs are based not only in category-based trust principles, but also in trustworthiness antecedents and organizational justice theories. These are important because an outsider (stakeholder) will assess the trustworthiness of a group (e.g., a department) based on their perceptions of the trustworthiness of the members of the group and based on their dealings with the processes and fairness of the decision outcomes. Despite the simultaneous popularity of the organizational justice and trust literatures, integration of the two domains is deficient (Frazier et al., 2010). As Frazier et al. (2010) explain, the association between the organizational and trustworthiness constructs has not been fully elaborated, despite the numerous empirical studies that have examined justice and trust. The purpose of this research is to integrate the constructs of justice and trustworthiness as antecedents of trust and to understand the associations in the context of Loblaw Technology and its stakeholders, further building the body of knowledge in this domain.

Organizational Justice

As an antecedent variable in the model I develop, fairness (organizational justice) and its key constructs, can signal that a service partner acts in a manner that builds and maintains trust across

interactions with its stakeholders. Although the association between organizational justice and trust has received widespread empirical support, very little is known about how justice perceptions influence trust. Frazier et al. (2010) provide three unique contributions to the justice and trust literatures. The first is an examination of the functional relationship between organizational justice and perceptions of trustworthiness. The second is an examination of antecedents of trustworthiness perceptions in Mayer, Davis, and Schoorman's (1995) model of interpersonal trust: i.e., that the notion of interpersonal trust is built on the foundation of social exchanges to inform one person's perceptions of another's trustworthiness. The third is an examination of the exchange relationships individuals have with different authority referents in an organization. The Frazier et al. (2010) study addresses the impact of different forms of justice experienced by an organizational member on the member's perceptions of an authority figure's trustworthiness, which consequently shapes the member's willingness to be vulnerable to that authority figure (i.e., trust). Research in organizational justice suggests that justice perceptions can be formed about many targets within an organization. According to the multifocal perspective, differential treatment by groups within an organization leads to the formation of distinct justice perceptions about each group (Frazier et al., 2010).

The link to organizational justice in this framework is that if the trustee perceives the outcomes, processes, and interactions of the trustor as fair, the likelihood of trust and reciprocity in the relationship increases. Another organizational justice theory model (Colquitt & Rodell, 2011) examines four distinct elements of justice: distributive justice, procedural justice, interpersonal justice, and informational justice. These four justice elements will be used as independent variables in the model used in the present research to evaluate the fairness in interactions between Loblaw Technology and its business stakeholders. All four elements refer to the perceptions of fairness in decision-making and resource allocation environments. People do not merely react to events by asking "was that decision good?" or "was that outcome satisfying?" Instead, they also ask, "Was that result fair?" Fairness

perceptions explain unique variance in key attitudes and behaviors, including organizational commitment, trust in management, citizenship behavior, task performance, and satisfaction (Colquitt, 2012).

Distributive justice refers to the fairness of decision outcomes, and individuals judge it by determining whether the perceived ratio of outcomes to inputs matches those of a comparison set, or whether resource allocations match appropriate norms (Colquitt & Rodell, 2011). Since technology is so embedded in the business, decisions made by the technology department affect all stakeholders throughout the organization. Some are difficult decisions, which can affect system availability, the cost required to run business capabilities, system performance, and tools provided to stakeholders that enable them to do their jobs. Although not all decisions are popular, a key element of trust is understanding whether the stakeholders feel the decisions are fair and were made in an equitable manner.

Procedural justice refers to the perceived fairness of decision-making procedures. Procedures are evaluated by their level of consistency, bias suppression, accuracy and correctability, and the degree to which they allow voice and input (Colquitt & Rodell, 2011). For the purposes of this research, the terms "procedure" and "process" will be used interchangeably; "process" is the more familiar term at Loblaw. Loblaw Technology has many processes that are used to operate and make decisions. There are annual processes such as the capital planning and project prioritization processes, alongside more frequent processes that determine which features go into a particular release of a technology product, when a change to a system goes into the production environment, or which level of security restrictions and monitoring is implemented for users as they browse the Internet. Stakeholders will not be involved in every decision; however, a key element of trust formation is understanding whether the business stakeholders feel the decision-making processes are applied consistently and allow for input and discussion.

Interactional justice refers to the fairness of interpersonal treatment during decision-making procedures and is further subdivided into interpersonal justice, which reflects the degree of respect and propriety authority figures use when implementing procedures, and informational justice, which reflects the degree of justification and truthfulness offered during the implementation of procedures (Colquitt & Rodell, 2011). There have been debates about whether interactional justice is really just another form of procedural justice (i.e., the process through which we communicate a decision). Differentiating interpersonal and informational justice from procedural justice has allowed scholars to make the distinction between the process, and what people do as they communicate, implement and make use of the process (Colquitt, 2012).

Since Loblaw Technology is a service provider to its business stakeholders (other departments and operating groups across the organization), the supplier–customer relationship exists, as does the importance of developing a trusting long-term relationship to enable long-term satisfaction and value achievement. Distributive justice "fair outcomes" and procedural justice "fair dealings" will explain the link between fairness and trust in terms of what Loblaw Technology does and how Loblaw Technology does things. The further elements of organizational justice of interpersonal justice ("fair treatment") and informational justice ("fair" and truthful messages) relate to how stakeholders are treated by the members of Loblaw Technology. If business stakeholders perceive the dealings with and treatment by Loblaw Technology as fair, they are more likely to trust the outcomes of those decisions (Colquitt & Rodell, 2011). The decision event actually has three facets: a decision (distributive justice), a procedure (procedural justice), and an interpersonal interaction during which the procedure is implemented (interactional justice) (Colquitt, 2012). All of these elements combine to form the basis of the determination by the stakeholders of whether the processes and decision events facilitated by Loblaw Technology are "fair" and thus whether they can trust Loblaw Technology.

The four elements of organizational justice are modeled as part of the set of independent variables in the theoretical model as antecedents of the dependent variable "Trust in Loblaw Technology" and lead us to the first set hypotheses to be tested in the model: that procedural, distributive, interpersonal, and information justice antecedents are positively related to trust. If Loblaw Technology operates processes and makes decisions that are fair, then it will adhere to organizational justice principles, and this perceived justice by the stakeholders of Loblaw Technology is positively related to trust.

Trustworthiness

The antecedents of trustworthiness are qualities that signal to the trustor that the trustee can be trusted (Mayer et al., 1995). Mayer et al. (1995) posit that trustworthiness is comprised of three distinct factors: ability, benevolence, and integrity. These three elements of trustworthiness are key antecedents of trust in this research as we examine trust placed in Loblaw Technology by its business stakeholders.

Abilities are the sets of skills, competencies, and characteristics that allow a party to have influence within some domain (Mayer et al., 1995). For a trustor within an organization, this subsumes both the formal and informal influences that are perceived to have an effect on the organization, as well as their perceived competence and skills (Mayer et al., 1995). The business stakeholders at Loblaw expect that Loblaw Technology is a technology leader and its members possess the skills to enable the successful delivery of the business strategy. According to prior research (Guillemette & Paré, 2012), a department that is a technology leader possesses the capabilities to "facilitate the transformation of the organization by implementing emerging technologies with high strategic potential." The present research is focused not on assessing whether the business stakeholders perceive that the members of the Loblaw Technology department actually possess the competencies and skills they require to be

technology leaders, but rather on determining the importance of the perceived abilities of the members of the Loblaw Technology department for stakeholders' decision to trust.

The second factor underlying trustworthiness is benevolence, which is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive (Mayer et al., 1995). If a trustor believes that a trustee cares about the trustor's interests, the trustor will be seen as having benevolence for the trustee (Mayer et al., 1995). In the case of a technology department, a high level of engagement with the business stakeholders would demonstrate benevolence (Guillemette & Paré, 2012).

Integrity is defined as the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable. This assumes not only that a trustee espouses values that the trustor sees as positive, but also that the trustee acts in a way that is consistent with the espoused values (Mayer et al., 1995). In the case of a technology department, this would require that the expectations of the technology department and its business stakeholders are aligned with respect to the response time of applications and reliability of technological infrastructure, and that projects are delivered within budget and on time (Guillemette & Paré, 2012).

Mayer et al. (1995) propose that, over time, the trustor will evaluate the outcomes of previous vulnerabilities when they risked an outcome through an interdependent trust relationship. If the trustor's vulnerability leads to outcomes that the trustor believes are favorable, the trustor will positively reassess some combination of the three factors of the trustee's trustworthiness. Conversely, if the trustor allows vulnerability to trustee and perceives that they have been "let down" by the trustee, the trustor will reassess some combination of trustworthiness factors as being lower than previously believed (Mayer et al., 1995).

For the trust model in Mayer et al. (1995) to be effective for a group, the party must be specific, identifiable, and perceived to act with volition. It has already been established through contingency theory that the technology department at Loblaw is a specific and identifiable group within the organization.

Satisfaction

The discussion has focused on developing trust as a key measure of social exchange between the technology department and its business stakeholders. A key outcome of trust is satisfaction, which for a technology department is a key measure of value delivered to its business stakeholders. Trust enhances satisfaction and long-term orientation (Geyskens et al., 1999). Broadly trusting exchanges may limit duplication of efforts, reduce transaction costs, discourage opportunistic behaviors, increase communication as well as commitment and satisfaction, and encourage partners to engage in joint actions, with positive implications (Paparoidamis et al., 2017).

Satisfaction is an evaluative outcome, based on past exchanges with an organization or group (Kharouf & Lund, 2019). Satisfaction is viewed as a stakeholder's evaluation after consumption of products or services, and it occurs if the perceived performance of a product or service meets or exceeds the stakeholder's prior expectations. Thus, overall satisfaction with a department's outcomes is determined by comparisons between stakeholders' expectations and their perceptions of the products or services performance (Kharouf & Lund, 2019). Satisfaction with an organization is often an indication of the organization's focus on equitable outcomes and the welfare of the customer during past exchanges (Kharouf & Lund, 2019). This leads to the final hypothesis tested through this research, which is that satisfaction and trust are positively related in the relationship between Loblaw Technology and its business stakeholders.

Model and Hypotheses

This section will synthesize the case made in the literature review that trust is the key lubricant in social exchange into a testable model. The section will argue that there are key antecedents from trustworthiness and justice theories that influence the level of trust between an individual (stakeholder) and group (Loblaw Technology) as well as the level of satisfaction with the outcomes of the group.

In the model, the independent variables used to measure trust are the four organizational justice constructs. These four elements are: distributive justice, the fair outcomes of Loblaw Technology's decisions; procedural justice, the fair dealings resulting from Loblaw Technology's processes; interpersonal justice, the fair treatment of stakeholders; and informational justice, the fair and truthful communication of outcomes by Loblaw Technology to its business stakeholders. If business stakeholders perceive dealings and treatment by Loblaw Technology to be fair, they are more likely to trust the outcomes. As an example, in the annual capital planning process that prioritizes funding for business projects, not all business stakeholders get their projects approved, but most are supportive of the outcome as long as they perceive the process to be fair and deem their treatment from the technology department to be fair and respectful.

The first set of hypotheses to investigate through the research is centered on the four organizational justice factors as they relate to trust in Loblaw Technology.

Hypothesis 1 (H1): Perceived procedural justice by business stakeholders in the fairness of processes managed by Loblaw Technology is positively related to their trust in Loblaw Technology.

Hypothesis 2 (H2): Perceived distributive justice by business stakeholders in the outcomes of decisions made by Loblaw Technology is positively related to their trust in Loblaw Technology.

Hypothesis 3 (H3): Perceived interpersonal justice in Loblaw Technology's interactions with business stakeholders is positively related to business stakeholders' trust in Loblaw Technology.

Hypothesis 4 (H4): Perceived informational justice in Loblaw Technology's communication to its business stakeholders is positively related to business stakeholder trust in Loblaw Technology.

In the model, an additional set of independent variables is used to measure trust: the attributes of trustworthiness, i.e., ability, benevolence, and integrity. These are important attributes to have in a service-providing organization and its members, because the business wants to work with a department that has people who are capable technologists and who act in a manner that is aligned with Loblaw's core values. If the business stakeholders believe that the technology organization is trustworthy, they will have higher levels of trust.

The second set of hypotheses to investigate through the research is centered on the three trustworthiness factors as they relate to trust in Loblaw Technology.

Hypothesis 5 (H5): The ability of the members of Loblaw Technology as perceived by its business stakeholders is positively related to stakeholders' trust in Loblaw Technology.

Hypothesis 6 (H6): The benevolence of the members of Loblaw Technology as perceived by its business stakeholders is positively related to stakeholders' trust in Loblaw Technology.

Hypothesis 7 (H7): The integrity of the members of Loblaw Technology as perceived by its business stakeholders is positively related to stakeholders' trust in Loblaw Technology.

Numerous studies have used trustworthiness and organizational justice to measure trust, which substantiates the use of both sets of independent variables (Colquitt & Rodell, 2011; Frazier et al., 2010; Mayer & Davis, 1999).

The role of the technology function in an organization has constituted a central and growing subject of research in the information systems field. A study of 24 large Canadian companies revealed that there are five distinct "ideal" technology department profiles in organizations, and each of these profiles tends to focus on specific sources of value. Information technology functions that are close to the ideal of any given profile seem to be outperforming those with hybrid profiles (Guillemette & Paré, 2012). Loblaw Technology is focused on being a technological leader, which involves facilitating the transformation of the organization at the strategic level by implementing technologies with high strategic potential (Guillemette & Paré, 2012).

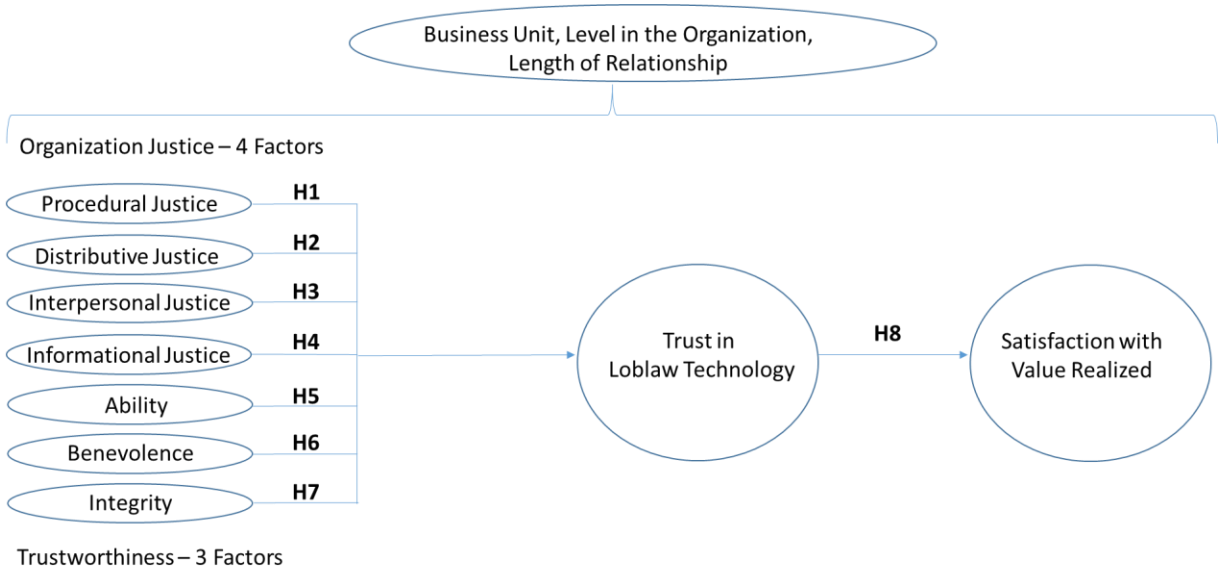
The link between the dependent variable (trust) and the outcome variable (satisfaction) is supported by the work of Geyskens et al. (1999) which linked satisfaction as an outcome of trust.

Hypothesis 8 (H8): Trust and satisfaction are positively related in the relationship between Loblaw Technology and its business stakeholders.

The seven antecedents of trust and the linkage between trust and satisfaction lead to the theoretical model (Figure 2.6) to be tested through this research.

Figure 2

Theoretical Model



Independent Variable Definitions

The first independent variables are constructs of organizational justice, which refers to perceptions of fairness in decision-making and resource allocation.

Distributive Justice (multi-item construct). This construct describes the fairness of decision outcomes. Individuals judge it by determining whether the perceived ratio of outcomes to inputs matches those of comparison others, or whether resource allocations match appropriate norms (Colquitt & Rodell, 2011).

Procedural Justice (multi-item construct). This construct refers to the perceived fairness of decision-making procedures. Procedures are evaluated by their level of consistency, bias suppression, accuracy and correctability, and the degree to which they allow voice and input (Colquitt & Rodell, 2011). Because procedural justice refers to the exchange relationship between an organization and its members, it is expected that perceived fairness of the procedures designed and implemented by an

authority figure will influence subordinates' ability perceptions made about the authority figure (Frazier et al., 2010).

Interpersonal Justice (multi-item construct). This construct reflects the degree of respect and propriety authority figures use when implementing procedures (Colquitt & Rodell, 2011).

Informational Justice (multi-item construct). This construct reflects the degree of justification and truthfulness offered during procedures (Colquitt & Rodell, 2011).

The second set of independent variables in the model comprises the three antecedents of trustworthiness, ability, benevolence, and integrity (Mayer et al., 1995). These are independent variables because they explain trustworthiness, which are linked to trust through the prior research discussed.

Ability (multi-item construct). Abilities are that group of skills, competencies, and characteristics that allow a party to have influence within some domain (Mayer et al., 1995).

Benevolence (multi-item construct). Benevolence is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive. If a trustor believes that a trustee cares about the trustor's interests, the trustor will be seen as having benevolence for the trustee (Mayer et al., 1995).

Integrity (multi-item construct). Integrity is defined as the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable. This construct describes not only that a trustee espouses values that the trustor sees as positive, but also that the trustee acts in a way that is consistent with the espoused values (Mayer et al., 1995).

Dependent Variable

Trust (multi-item construct). Trust is the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party (Mayer et al., 1995). Trust is a dependent variable explained by the previous dependent variables, and it serves to explain satisfaction as an independent variable. In this sense, trust bridges the relationship between the seven dependent variables and satisfaction, and the degree to which this is true will be determined through the model and data analysis.

Outcome Variable

Satisfaction (multi-item construct). Satisfaction is an evaluative outcome based on past exchanges with the organization. Overall satisfaction with a department's outcomes is determined by comparisons between stakeholders' expectations and their perceptions of the departments' performance (Kharouf & Lund, 2019). Trust enhances satisfaction (Geyskens et al., 1999). Satisfaction can also be a proxy for collaboration and performance between individuals and groups, which is a key outcome desired between Loblaw Technology and its business stakeholders. Satisfaction with the outcomes of Loblaw Technology is an important measure to identify if the business identifies value in their interactions with Loblaw Technology, and will continue to invest in and support the leadership and strategy of the Loblaw Technology team. Low satisfaction will result in additional scrutiny and oversight of the Loblaw Technology function, and limit the ability of the leadership of Loblaw Technology to achieve its desired profile as a technology leader.

Categorical Variables (Used for Group Comparisons)

Level within Organization and Business Unit. As a service provider to the business at Loblaw, the technology department is a matrixed organization, where workers assemble with members of the department and their business counterparts to deliver projects and solve problems (Mayer et al., 1995).

Information about the level of the business stakeholder in the organization and the respondent's business unit will be collected to enable the researcher to run analyses across different groups within the collected data. This will be done to understand if trust and satisfaction vary by business unit and level within the organization. Understanding differences in level and business units will ensure as programs are constructed to improve trust, that business units and levels in the organization that need urgent attention due to low scores and prioritized first.

Length of Relationship. Mayer et al. (1995) propose that, over time, the trustor will reassess some combination of the three factors of the trustee's trustworthiness based on positive or negative outcomes of previous interactions with the trustee. Time is an important factor in the creation of a stable, trusting relationship (Rehman et al., 2017), and many positive interactions are required over time in order to build trust.

Literature Review Summary

The literature review for this dissertation has laid out the framework for the research methodology section that details the approach to the research to be undertaken. Traditional measurements of technology value realization are outdated and do not reflect the complex relationship and embeddedness between technology and business outcomes. The model proposed for this research focuses on trust between the technology department and its business stakeholders, as trust is the lubricant of social exchange between them, and the model also focuses on satisfaction in the value derived from that relationship. There are antecedents of trust, trustworthiness and organizational justice, which are important in the formation of trust between individual stakeholders and a group, as trust sets the conditions for reciprocity and collaboration and could be positively related to higher levels of performance. For Loblaw, the trust that individuals have in the technology department as a whole is most important, and because category-based trust is characterized by amplification and trust shifts

between individuals and groups' membership, the individual's trust in the group and satisfaction with the group's outcomes will be examined through this research.

The Research Methods section which follows will outline the questionnaire used to collect data through an online survey, and the data analysis approach used to test the hypotheses proposed in the literature review. The ideal result of this research will be a model that details key factors that facilitate the strengthening of trust between Loblaw Technology and its business stakeholders, so that the most important antecedents are understood and can be promoted as behaviors to drive increased value and performance across the organization.

Chapter 3 - Methodology

Introduction

The purpose of this research is two-fold. The first goal is to determine the state of affairs between Loblaw Technology and its business partners as it relates to the antecedents of trust through the development of a questionnaire. The questionnaire leverages the antecedents of trust model from the work of Mayer et al. (1995) and the organizational justice, trustworthiness, and trust model from the work of Colquitt and Rodell (2011). The second goal is to determine the factors from these models that are most strongly correlated with trust so that programs can be developed for Loblaw Technology to improve the areas that have the most impact to their overall business performance as it relates to trust with its business stakeholders. The proposed research will use a questionnaire with multi-item scales from previous studies (outlined later in this chapter) adapted for the context of measuring business stakeholders' trust in the technology department at Loblaw. Using existing multi-item scales helps to ensure the validity and quality of this instrument for measuring the antecedents of trust model.

This chapter will focus on laying out the research approach including the multi-item scales to be used, the data collection methodology, and the statistical techniques to be used to analyze the collected data.

Research Philosophy

The philosophy used for this research is a positivist approach. This means the researcher takes an objective view when conducting the research, and thus I will be as detached as possible from those in the study by leveraging a quantitative survey. This approach would imply an ontology of objectivism (Wilson, 2014). Although the researcher is a key party within the relationship under investigation between Loblaw Technology and its business stakeholders, steps have been taken to ensure the researcher's position or bias do not negatively impact the reliability of the results. These steps include conducting an anonymous survey, researching category-based trust in Loblaw Technology at a group and not an individual member level and ensuring that reliable existing multi-item scales are used for the questionnaire.

Research Approach

The research follows a deductive approach, which starts with a hypothesis and theoretical model and then works to test the model against collected data through quantitative analysis (Hair, Joseph; Black, William; Babin, Barry; Anderson, 2010). The model introduced in the Literature Review proposes that there are seven antecedents, which contribute to category-based trust between the technology department at Loblaw and its business stakeholders, and that trust bridges the impact of the antecedents of trust and the satisfaction with Loblaw Technology by those business stakeholders. A questionnaire is used to collect the quantitative data to test the hypotheses, and the relationships are modeled using a Structural Equation Model of trust (Wilson, 2014).

Research Strategy

The research strategy is to use data analysis to evaluate the hypothesis that there is a relationship between trust and its antecedent factors highlighted in the review of the literature: trustworthiness, which comprises ability, benevolence, and integrity; length of relationship; and organizational justice (distributive justice, procedural justice, interpersonal justice, and informational

justice). The research strategy hypothesizes that there are relationships between these factors as they relate to the trust between Loblaw Technology and its business stakeholders, which will be measured by the multi-item questionnaire.

Research Design

A deductive research approach is used. The research utilizes an idiographic cross-sectional case study approach by focusing on a holistic analysis of one company, Loblaw, and one situation, trust in Loblaw Technology by its business stakeholders, with the goal being to develop a rich understanding of this context (Wilson, 2014).

All required permissions were obtained from the leadership of Loblaw Companies Limited to conduct the research and ensure the privacy and anonymity requirements were in place.

The data collection approach for this research project involved human subjects and the researcher followed the AU Research Ethics approval process. This research was approved by the AU Research Ethics Board before any data were collected. Please see Appendix B for the Certificate of Ethics Approval.

Questionnaire Development

The multi-item scales included in the questionnaire used in this research, are adapted from a set of multi-item scales used in prior research by Colquitt and Rodell (2011). In their 2011 research linking justice and trust, Colquitt and Rodell (2011) leverage the Mayer et al. (1995) distinction between trustworthiness and trust and the multi-item scale developed by Mayer and Davis (1999) to test the linkage between justice, trustworthiness, and trust and demonstrated the reliability and validity of this measurement instrument to test these linkages.

The satisfaction questions were adapted from the Customer Satisfaction in Technology Survey used annually by Loblaw Technology with its business stakeholders.

The Colquitt and Rodell (2011) study links the theoretical framework of social exchange theory from Blau (1985) to trust, "since there is no way to assure an appropriate return for a favor, social exchange requires trusting others to discharge their obligations."

In their 2007 research, Colquitt, Scott, and LePine (2007) use the definition of trust and trustworthiness from Mayer et al. (1995) and the antecedents of trustworthiness of ability, benevolence, and integrity from the Mayer and Davis (1999) scale, but also include the consequences of trust: risk taking, task performance, citizenship behavior, and counterproductive behavior. This quantitative data analysis demonstrated that the Mayer and Davis (1999) scale was effective in validating the hypotheses of this meta-analysis of trust, trustworthiness, and trust propensity. This research uses the assertion from Mayer et al. (1995) that their integrative model of trust "is applicable to a relationship with another identifiable party who is perceived to act and react with volition towards the trustor."

Questionnaire

The full questionnaire used to collect the data for this research is included in Appendix D. The questionnaire comprises several multi-item scales measuring the antecedents of trust, as well as constructs of trust and satisfaction. The multi-item scales used to measure the four antecedents of organizational justice (procedural, distributive, interpersonal, and informational justice) were adapted from Colquitt and Rodell (2011).

The multi-item scales measuring the three antecedents of trustworthiness (ability, benevolence, and integrity) were adapted from Mayer and Davis (1999). The multi-item scales measuring trust were adapted from Mayer and Davis (1999), and the satisfaction multi-item scales from the Customer Satisfaction in Technology Survey used annually by Loblaw Technology with its business stakeholders. The Customer Satisfaction in Technology satisfaction questions were used because these were an

established instrument that had been used for several years to measure the business stakeholders' satisfaction in the outcomes of Loblaw Technology. The use of these questions also would allow trust and the antecedents of trust: trustworthiness and fairness, to be linked through the data to an established satisfaction scale.

Changes in the wording of the multi-item scales in the questionnaire were made to ensure the questions were relevant in the context of Loblaw, the types of processes Loblaw Technology uses to manage its operations, and the nature of the relationship between the Loblaw Technology department and its business stakeholders.

Data Collection

Reflection on my Role in This Study

As the researcher, and the leader of the technology department at Loblaw under study, I needed to be clear with respondents that they were encouraged to provide honest responses with no consequences. This was done by clearly communicating with respondents that the collected data is to be used for academic research purposes, that participation is voluntary and that all responses were completed anonymously. It was also explained to the respondents that any practitioner value from the research would be applied to ensure Loblaw Technology took the learning to improve overall processes and communication, to help improve trust and satisfaction with outcomes delivered.

Pilot Data Collection

The quantitative survey was administered and data collected through the Survey Monkey online survey tool (https://www.surveymonkey.com/). This easy-to-use tool enabled the effective and rapid collection of the instrument data; it is a tool that is familiar to my colleagues at Loblaw, as it is used extensively to collect feedback and administer small surveys across the organization.

The instrument was pre-tested with a judgement sample (Wilson, 2014) of 100–150 respondents who represented a wide cross-section of business units serviced by Loblaw Technology and management levels within the organization. All respondents at this stage were required to have regular interactions with Loblaw Technology and its services to ensure that they could respond effectively to the survey instrument based on recent and relevant interactions with members of Loblaw Technology and its decision-making processes. It was assumed that there would be a participation rate of 30% or greater (which is typical for employee surveys at Loblaw) and that this would yield a reasonable size pre-test sample.

The judgement sample participants were selected by working through the Loblaw email corporate directory starting with employee first names beginning with A, working through the As, then the first names starting with B, and so on.

A list of 150 colleagues was selected, including the first 150 names that met the selection criteria. They all worked in a store support function (not stores or warehouses), were not part of Loblaw Technology, and were full-time colleagues (not contractors or third-party vendor resources).

The questionnaire was staged in SurveyMonkey and reviewed by my three committee members who conducted some dry runs through the questionnaire. Feedback on flow and wording of instructions was incorporated to ensure clarity and ease of navigation.

The questionnaire was issued to the pilot data sample group on Tuesday, August 4, 2020 at 9 a.m. and was closed on Friday, August 14, 2020 at 5 p.m.

Of the 150 respondents who received the survey, 29 were out of office according to an automated email response received from them. Of the remaining 121 eligible respondents, 15 attempted the survey and 14 completed it (14/150 ~ 10% response rate). The respondents were a good

mix of business units and levels in the organization, but the actual response rate was disappointingly low.

There were a number of learnings from the pilot data collection process, which were analyzed and incorporated into the full data collection process. The first was that the full data sample frame would need to be larger than the 1,000 that was originally planned, since the response rate was lower than expected (either respondents were out of office for an extended period of time or they had other priorities during the COVID-19 pandemic). With a requirement for a minimum of N≥200 data points required for Structural Equation Modeling to produce a valid analysis and model, the sample frame size will need to be around 2,000 based on the 10% response rate experienced in the sample pretest survey. As I reflected further on the response rate, it occurred to me that low response rates in survey research that is not carried out under official company business is nothing unusual. My committee recommended I make use of the "student card" and explicitly frame the work associated with implementing the survey as part of my doctoral studies. People tend to have more sympathy for students and a greater desire to help them, compared to a company executive. Given that almost everyone who started the questionnaire in the online survey completed it, the goal is to get potential respondents to start the questionnaire.

The second learning was that the wording of the email asking colleagues to complete the survey needed some adjustments. I received several inquiries from concerned potential participants asking whether the email and enclosed survey were legitimate: the security team at Loblaw does many education and test campaigns around email phishing and with awareness of increased phishing campaigns by cyber criminals, colleagues were wary of clicking on survey links. The language in the email to be sent for the final data collection was adjusted to highlight that the SurveyMonkey link was secure and not an attempt at phishing.

After further review, I determined that my initial pilot survey email was too formal and too similar to the academic template provided through the ethics portal. In addition, the tone of my email asking for responses was adjusted to a more conversational style, and the potential participants were asked more directly to complete the survey. I removed the disclaimers, since these are present in the actual survey text upon clicking on the link to SurveyMonkey, and being more conversational with fewer disclaimers made the email more appealing in terms of encouraging the potential participants to spend the 10–15 minutes required to complete the survey. Please see Appendix C for the email used in the Pilot Data Collection and the Full Data Collection.

The third lesson from the pilot survey was that the timing for issuing the survey was not ideal: I sent it the Tuesday after a long weekend, first thing in the morning, so it could have been buried in with all the other emails colleagues were catching up on. The response rate was skewed to the first few days, with 90% of the responses coming in the first two days, which means colleagues were either going to see it and do it, or skip it and not come back to it. For the full data collection, I decided to send the email during a less busy time and stagger groups of emails to respondents in order to encourage more visibility and a higher response rate. Based on feedback from my committee, I also planned to send follow-up emails to try to improve the visibility of the email and the response rate; follow-up emails were planned to be sent halfway through the data collection period.

The final lesson from the pilot sample survey involved learning the tools and approach for the data analysis. The theoretical model was staged in the LISREL software package, which was chosen because it was highly recommended by Kline (2016). The software provided a number of warning errors about running with a small data sample of only 14 rows, but the effort to stage the data and model in LISREL proved invaluable in terms of understanding how to code in LISREL, prepare the data set, and draw the path diagrams in the software. There were also a number of setup errors that required

debugging, and completing this work during the pilot phase saved significant time and frustration when the time came to complete the full data analysis.

Collecting and working with pilot data certainly highlights the importance of pilot studies, and the lessons learned from the pilot survey proved very useful for the planning and successful execution of the full data collection.

Main Data Collection

The main data collection targeted a larger set of the same population as the pilot survey: the business stakeholders of Loblaw Technology. The questions in the survey were not changed between the pilot survey and the main survey deployment.

To increase the sample size and for the sake of efficiency, an online survey was distributed to a much larger cross-sectional population within the organization. From a sampling perspective, the population would be all ~200,000 employees of Loblaw, but the sampling frame is narrowed to all full-time salaried employees who work in store support (which excludes store-level part-time employees to avoid union and labor relations issues), which would result in a maximum of 5,000 respondents being eligible for the survey. Random sampling through the company email directory (since the full population is known) was used to generate the sample for the online survey across the various business units as the clusters (Wilson, 2014) to ensure that no bias was introduced into the sample set. Based on the researcher's position in the organization, and the organization's familiarity with online surveys, the expectation was that there would be a participation rate as least equal to the response rate of the pilot survey (~10%). The online survey was sent to 2,267 random respondents working in store support, with the researcher expecting a total number of responses in the 200–400 range. This sample size of $200 \leq N \leq 400$ is in line with best practices for sample sizes to ensure there is a good probability that the sample is representative of the population (Wilson, 2014).

The full data collection survey was issued to the 2,267 prospective respondents on Sunday, September 27, 2020 at 10am, and the survey was left open until Friday, October 9, 2020 at 5pm EST. Leveraging the learnings from the pilot survey, the full data collection survey was issued during a less busy time for the organization and prospective respondents so they would be more focused on reading their emails and would have time to respond to the survey. The target population, based in Ontario, at this point had been working from home since March 13, 2020 due to the COVID-19 pandemic, so issuing the survey in late September meant that it had been a number of weeks since the end of summer vacation and school-aged children and parents would have settled into a regular routine.

Of the 2,267 respondents to whom the survey was sent, 291 had their email accounts set up to issue out of office emails, leaving a full eligible sample size of 1,976. From the 1,976, there were 392 respondents who started the survey and 309 respondents who completed the survey (completion rate of 309/1,976 ~ 16%). The completion rate was higher than in the pilot survey—likely because I incorporated the learnings, made the email wording less formal, and asked the respondents to support my academic research. The use of the Athabasca logo in my email also helped with the "student card," and a number of respondents sent me a note indicating appreciation that I was pursuing higher education (my doctoral degree).

As an interesting note for future researchers conducting surveys in large organizations, over 200 colleagues reported the email as phishing to the security operations center, and a number of others called me on my mobile phone to verify the email was legitimate. Most respondents completed the survey in the first few days it was open. I was satisfied with the completion rate and the absolute number of surveys completed, and I did not send out a reminder, as I would have had to send it out to all 2,267 eligible respondents again. N=309 is a valid data set size for Structural Equation Modeling, with the ideal data set being between $200 \leq N \leq 400$ responses (Wilson, 2014).

Chapter 4 - Data Analysis

The analysis of the survey data was conducted through a SEM analysis with all the data collected in the full data collection process. A confirmatory factor analysis is then used to determine whether items load where expected, thereby testing both discriminant validity and convergent validity. The results of the SEM are then described, indicating the strongest relationships between latent constructs.

An exploration of the data using a MANOVA test of the independent variables of business unit, level in the organization, and the length of relationship via the stakeholder's time at Loblaw also was conducted. This test was used to determine if there were meaningful differences in interval level dependent variable factor means to understand if the antecedents of trust were scored differently across the sub-groups of business stakeholders.

The data analysis section concludes with an evaluation of the research hypotheses against the results of the data analysis.

Structural Equation Model Testing

Structural Equation Modeling (SEM) is a multivariate statistical analysis technique used to simultaneously analyze a series of dependence relationships. This technique is the combination of factor analysis and multiple regression analysis, and it is used to analyze the correlational relationships between observed items and latent constructs, as well as the structural relationships between the latent constructs in a single analysis (Hair, Black, Babin, & Anderson, 2010). Since this study is focused on the relationships between the observed items and the latent constructs, SEM was chosen over other multivariate statistical techniques because of its ability to model these relationships in a single analysis and represent the relationships in a path diagram (Kline, 2016).

Structural Equation Modeling (SEM) was introduced in the 1970s and has become a widely used statistical technique (Hair, Joseph; Black, William; Babin, Barry; Anderson, 2010). A SEM can be defined as a system of equations that establishes the structure of relationships among observed and unobserved (latent) quantitative variables (McQuitty & Wolf, 2013).

In terms of the approach to completing a SEM analysis, after a model of the dependent relationships between the constructs (factors) is created, the independent common factors are regressed on the dependent common factors to obtain estimates of the structural paths (or path coefficients) that reflect the magnitude of the relationship between the factors. The objective is to get highly correlated multi-item scales, but to ensure there is not a lot of cross loading between observed items, as this limits discriminant validity. (McQuitty & Wolf, 2013).

The optimal number of scale items measuring each construct is four or five (McQuitty & Wolf, 2013). Although using many scale items should increase reliability, SEMs that have many constructs and items have a tendency to fit less well than SEMs with a few constructs and scale items due to the increased statistical power of the larger model. Therefore, using measurement scales with four or five items per construct may be optimal in terms of the tradeoffs between reliability and model fit (McQuitty & Bishop, 2006).

Another design consideration for the number of scale items per construct is under identification at the construct level (too little information). With three items per construct, the construct is just identified (has zero degrees of freedom). With fewer than three items per construct, the construct is under identified (has negative degrees of freedom). With four or more items, the construct is over identified (has positive degrees of freedom), which is a desirable property for estimation because more than one solution can be estimated and the best solution can be selected by the SEM software from among these solutions (McQuitty & Wolf, 2013). All constructs measured using the questionnaire and

analyzed with the Structural Equation Model had at least three items per construct, even when items were removed through the adjusted confirmatory factor analysis.

A final design consideration for the SEM model is statistical power, which is defined as the probability of correctly rejecting the null hypothesis when it is false. Power can be affected by factors such as sample size and the number of dependent variables (McQuitty & Bishop, 2006). When large models with many degrees of freedom are combined with large sample sizes, it is likely that the power is high. High power can lead to the over-rejection of models because goodness of fit statistics can be overly sensitive when power is high, so care should be taken to maximize the goodness of fit of the model presented, but not to over fit the model and reject the underlying theory (McQuitty & Bishop, 2006).

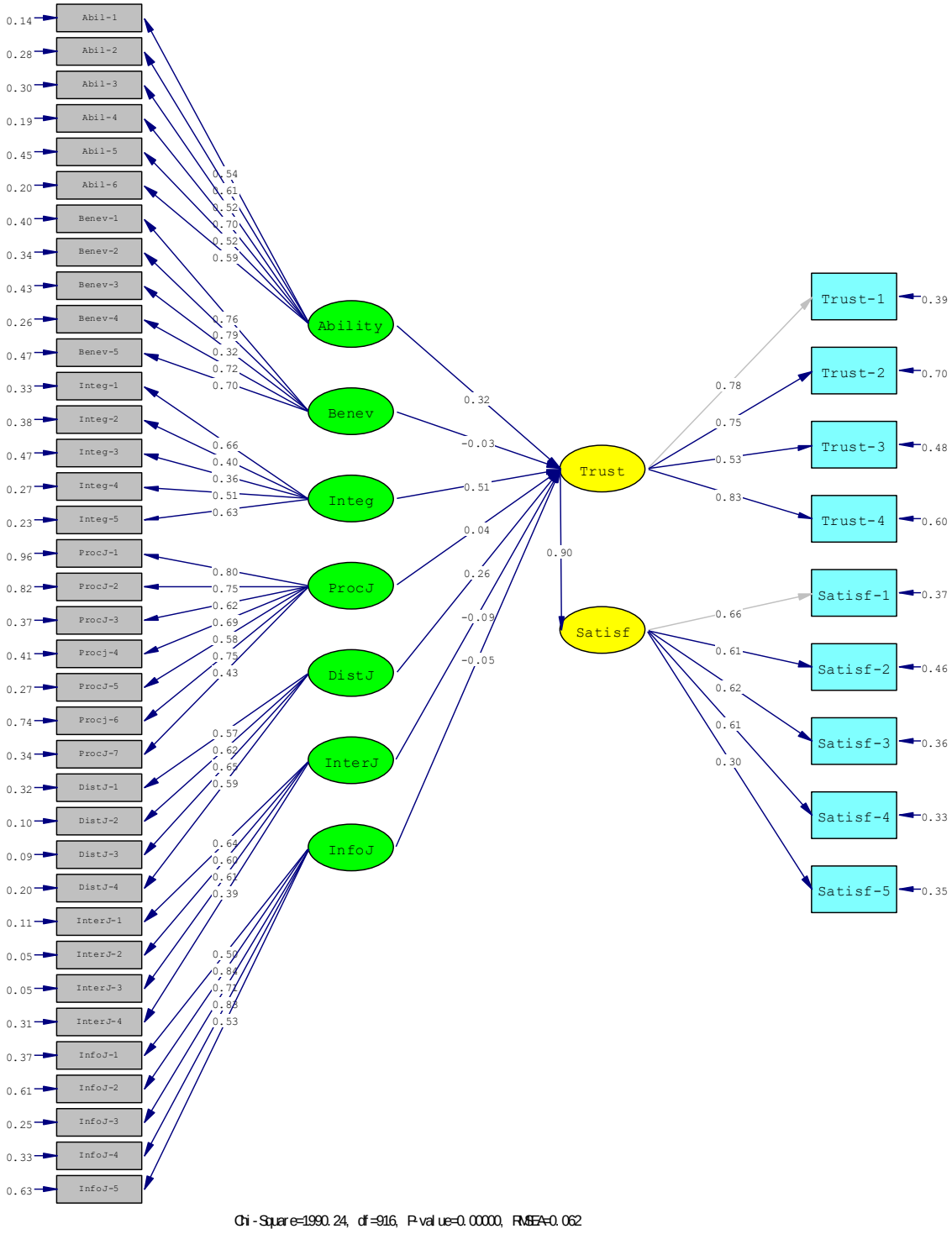
Initial SEM Analysis

The detailed data analysis was initiated by taking the full data set (N=309) and loading the full unedited theoretical Structural Equation Model into the LISREL application to perform a Structural Equation Model analysis to understand the strength of the relationships between the items and the latent constructs.

The LISREL syntax used for the model is recorded in Appendix E. Figure 4.1.1 shows the Path diagram for the SEM using the full data set and all scale items included in the model.

Figure 3

Path Diagram of the Full Model - Observed and Latent Constructs and Path Weights



The LISREL program produced a solution that converged and is proper, there are four important pieces of information to examine in the model to improve the fit of the model (McQuitty & Wolf, 2013). The first is that the item loadings between observed items and should be at least 0.70 in magnitude, because a squared loading of 0.70 produces an R^2 of 0.49, which suggests that the factor explains roughly half of the observed item's variance. The second is the strength of the estimated parameters between latent constructs. The structural path coefficients are important because they provide evidence as to whether the relationship between two constructs is practically and statistically significant. The third piece of information to examine are the goodness of fit (GOF) statistics, which provide an evaluation of the fit between the model and the data. There are a number of important GOF statistics: the X^2 / (*df*) ratio < 2.0, CFI and NNFI > 0.95, and RMSEA < 0.08. Interpreting fit on the basis of two or more fit indices reduces Type I and Type II errors associated with over rejecting or over accepting models on the basis of fit. The final piece of information to examine are the modification indices, which provide evidence of significant covariance not explained by the model. The modification indices are estimates of how much the model's X^2 figure would decrease if an error covariance or a path were added to the model's specification and the model re-estimated. It should be noted that if all possible paths are estimated, then the model's X^2 should be zero with zero degrees of freedom, i.e., a saturated model that fits the data perfectly because all sources of covariance are estimated.

The full SEM model resulted in the following goodness of fit statistics.

Table 1

Goodness of fit Statistics for Full SEM Model

Goodness of fit Statistic	**Value**
X^2 *(df)*	1990 (916)
X^2 / (*df)* ratio	2.17:1
RMSEA	0.06
NNFI	0.87
CFI	0.88

The goodness of fit statistics demonstrate that this SEM model does not exhibit good fit, as the ratio of X^2 to degree of freedom is greater than 2:1, a conservative ratio of fit. The root mean square error of approximation (RMSEA) is below 0.08, which is acceptable, but the non-normed fit index (NNFI) and comparative fit index (CFI) are both less than 0.95, (Hair, Joseph; Black, William; Babin, Barry; Anderson, 2010) indicating that the model is not a good fit.

The LISREL output file provides a number of recommendations in the Modification Indices section for improving the model by adding additional paths and error covariances between the constructs. The covariances that would produce the highest reduction in chi-squared in the model are within constructs and are between 'ProcJ-1' and 'ProcJ-2'; between 'DistJ-1' and 'DistJ-3'; and between 'Satisf-3' and 'Satisf-4'.

Factor Analysis

A confirmatory factor analysis (CFA) was conducted on the full dataset to evaluate the discriminant and convergent validity of the variables against the latent constructs in the SEM. A CFA and SEM are related methods that have different purposes, the CFA used in this analysis is used in a confirmatory fashion to support the SEM analysis. The purpose of the CFA is to confirm that items load

where they should with strong loadings, which supports convergent validity and reliability, and that items measure only their own construct, which supports discriminant validity. A confirmatory factor analysis is the appropriate quantitative method to use in this situation because this technique allows the researcher to observe a group of variables that are correlated to each other and identify the underlying dimensions that explain these correlations (Hair, Black, Babin, & Anderson, 2010).

Table 2 provides the confirmatory factor analysis structure matrix with factor loadings on the full data set and Table 3 the corresponding KMO and Bartlett scores.

Table 2

Structure Matrix With Factor Loading From Confirmatory Factor Analysis

Structure Matrix

	Factor								
	1	2	3	4	5	6	7	8	9
ProcJ-1	0.106	-0.215	0.886	-0.210	0.358	0.220	0.372	0.119	0.017
ProcJ-2	0.133	-0.179	0.897	-0.249	0.360	0.194	0.371	0.199	-0.065
ProcJ-3	0.261	-0.309	0.459	-0.408	0.699	0.279	0.345	0.262	-0.187
ProcJ-4	0.319	-0.300	0.380	-0.479	0.890	0.353	0.290	0.274	-0.273
ProcJ-5	0.341	-0.284	0.400	-0.489	0.719	0.394	0.391	0.292	-0.269
ProcJ-6	0.180	-0.189	0.703	-0.348	0.442	0.259	0.349	0.221	-0.094
ProcJ-7	0.230	-0.391	0.365	-0.383	0.554	0.313	0.338	0.245	-0.076
DistJ-1	0.346	-0.302	0.435	-0.642	0.517	0.385	0.443	0.359	-0.315
DistJ-2	0.515	-0.300	0.266	-0.873	0.470	0.486	0.363	0.437	-0.443
DistJ-3	0.489	-0.312	0.263	-0.913	0.471	0.487	0.372	0.471	-0.407
DistJ-4	0.424	-0.281	0.365	-0.758	0.516	0.453	0.334	0.411	-0.346
InterJ-1	0.301	-0.880	0.208	-0.329	0.299	0.196	0.299	0.288	-0.097
InterJ-2	0.292	-0.941	0.214	-0.304	0.328	0.218	0.216	0.321	-0.100
InterJ-3	0.320	-0.935	0.208	-0.296	0.319	0.226	0.230	0.305	-0.140
InterJ-4	0.250	-0.591	0.138	-0.121	0.225	0.162	0.052	0.134	-0.027
InfoJ-1	0.417	-0.442	0.289	-0.437	0.464	0.342	0.440	0.450	-0.402
InfoJ-2	0.296	-0.269	0.566	-0.310	0.384	0.300	0.721	0.333	-0.226
InfoJ-3	0.404	-0.340	0.446	-0.452	0.514	0.341	0.717	0.406	-0.323
InfoJ-4	0.414	-0.279	0.455	-0.451	0.444	0.378	0.823	0.373	-0.320
InfoJ-5	0.359	-0.279	0.264	-0.378	0.312	0.365	0.483	0.310	-0.122
Abil-1	0.818	-0.396	0.136	-0.431	0.335	0.381	0.252	0.480	-0.438
Abil-2	0.742	-0.288	0.080	-0.374	0.305	0.496	0.275	0.445	-0.434
Abil-3	0.693	-0.227	0.163	-0.369	0.219	0.333	0.304	0.356	-0.388
Abil-4	0.839	-0.329	0.176	-0.432	0.299	0.392	0.249	0.484	-0.501
Abil-5	0.593	-0.163	0.095	-0.302	0.246	0.391	0.281	0.453	-0.289
Abil-6	0.798	-0.295	0.174	-0.372	0.347	0.441	0.316	0.507	-0.346
Benev-1	0.559	-0.230	0.189	-0.447	0.272	0.453	0.265	0.710	-0.390
Benev-2	0.506	-0.310	0.240	-0.402	0.327	0.529	0.359	0.780	-0.339
Benev-3	0.350	-0.372	0.191	-0.352	0.318	0.210	0.078	0.388	-0.081
Benev-4	0.489	-0.303	0.215	-0.475	0.344	0.446	0.334	0.799	-0.426
Benev-5	0.481	-0.288	0.196	-0.384	0.275	0.392	0.305	0.694	-0.329
Integ-1	0.575	-0.259	0.167	-0.498	0.319	0.496	0.372	0.645	-0.455
Integ-2	0.362	-0.255	0.252	-0.253	0.415	0.392	0.332	0.495	-0.215
Integ-3	0.311	-0.206	0.124	-0.229	0.379	0.252	0.274	0.380	-0.237
Integ-4	0.529	-0.304	0.148	-0.369	0.367	0.454	0.383	0.610	-0.330
Integ-5	0.606	-0.345	0.188	-0.461	0.405	0.497	0.428	0.620	-0.462
Trust-1	0.607	-0.253	0.167	-0.504	0.351	0.424	0.289	0.503	-0.733
Trust-2	0.426	-0.100	0.073	-0.364	0.281	0.424	0.280	0.366	-0.735
Trust-3	0.448	-0.212	0.272	-0.395	0.348	0.515	0.347	0.400	-0.387
Trust-4	0.555	-0.220	0.115	-0.417	0.285	0.424	0.258	0.393	-0.762
Satisf-1	0.631	-0.238	0.166	-0.504	0.381	0.569	0.261	0.381	-0.521
Satisf-2	0.487	-0.260	0.146	-0.415	0.339	0.533	0.314	0.476	-0.407
Satisf-3	0.431	-0.202	0.175	-0.416	0.298	0.777	0.267	0.435	-0.361
Satisf-4	0.413	-0.262	0.276	-0.408	0.374	0.849	0.280	0.404	-0.328
Satisf-5	0.305	-0.167	0.291	-0.248	0.417	0.417	0.323	0.427	-0.136

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization.

Table 3

KMO and Bartlett's Test – Full Data Set

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.937
Bartlett's Test of Sphericity	Approx. Chi-Square	9030.354
	Df	990
	Sig.	.000

Interpreting the structure matrix with loadings from the confirmatory factor analysis results shows that there are nine unique factors across the nine latent variables, but there is cross-loading exhibited amongst variables that will need to be addressed. If variables across constructs load on the same factor, this suggests a lack of discriminant validity as the two scales are measuring more or less the same thing.

Summary of Factor Analysis Results:

Organizational Justice Independent Latent Constructs

- Procedural Justice variables 1, 2, and 6 load on a unique factor.
- Procedural Justice 3, 4, 5, and 7 load on a unique factor and there is cross-loading with Informational Justice 1.
- All the Distributive Justice variables load on a unique factor.
- All the Interpersonal Justice variables load on a unique factor.
- Informational Justice 2, 3, 4, and 5 all load on the same factor.

Trustworthiness Independent Latent Constructs

- All the Ability variables load on a unique factor.
- All Benevolence variables and Integrity variables load on the same factor.

Dependent and Outcome Latent Constructs

- Trust 1, 2, and 4 load on a unique factor, but there is cross-loading between Trust 3 and Satisfaction.
- Satisfaction 2, 3, and 4 load on a unique factor, and Satisfaction 1 and 5 cross-load on other factors.

Overall, the results of the factor analysis are reasonable for convergent validity as most loadings are greater than 0.7, and discriminant validity for a data set with a high number of scale items, as some cross loading can be expected. The exception are the benevolence and integrity variables loading on the same factor which indicates lack of discriminant validity between these two latent constructs which is supported by a side-by-side comparison of the scale items later in the section.

In measurement theory, the goal is to keep all items, however to determine which variables could be removed to reduce factor cross-loading and produce a cleaner factor analysis the Communalities table in the CFA output was examined. Four variables with extraction communality values <0.4 were identified and removed from the confirmatory factor analysis: InterJ-4, Integ-2, Trust-3 and Satisf-5. The confirmatory factor analysis was re-rerun and the results of the structure matrix after items with low communalities are removed is presented in Table 4 and Table 5 presents the associated KMO and Bartlett values.

Table 4

Structure Matrix With Factor Loadings Without items with low Communalities

Structure Matrix									
	Factor								
	1	2	3	4	5	6	7	8	9
ProcJ-1	0.105	-0.228	0.886	-0.246	0.370	0.199	0.373	0.119	0.023
ProcJ-2	0.134	-0.200	0.897	-0.286	0.371	0.169	0.365	0.198	-0.059
ProcJ-3	0.262	-0.326	0.443	-0.447	0.711	0.258	0.333	0.274	-0.177
ProcJ-4	0.325	-0.316	0.360	-0.527	0.891	0.329	0.269	0.281	-0.269
ProcJ-5	0.348	-0.308	0.381	-0.526	0.739	0.399	0.376	0.306	-0.253
ProcJ-6	0.182	-0.209	0.696	-0.381	0.455	0.242	0.342	0.226	-0.084
ProcJ-7	0.236	-0.409	0.351	-0.415	0.570	0.297	0.322	0.254	-0.056
DistJ-1	0.355	-0.343	0.418	-0.664	0.543	0.373	0.420	0.379	-0.296
DistJ-2	0.526	-0.342	0.244	-0.879	0.512	0.503	0.340	0.480	-0.410
DistJ-3	0.501	-0.362	0.240	-0.926	0.509	0.494	0.338	0.505	-0.372
DistJ-4	0.433	-0.318	0.346	-0.779	0.545	0.449	0.310	0.440	-0.324
InterJ-1	0.308	-0.889	0.194	-0.341	0.329	0.201	0.284	0.312	-0.065
InterJ-2	0.298	-0.943	0.200	-0.321	0.356	0.210	0.197	0.345	-0.069
InterJ-3	0.327	-0.936	0.193	-0.313	0.346	0.232	0.214	0.328	-0.111
InfoJ-1	0.421	-0.469	0.268	-0.474	0.478	0.334	0.426	0.467	-0.388
InfoJ-2	0.301	-0.310	0.554	-0.348	0.404	0.290	0.726	0.344	-0.214
InfoJ-3	0.414	-0.387	0.428	-0.496	0.531	0.323	0.702	0.414	-0.311
InfoJ-4	0.425	-0.331	0.437	-0.489	0.470	0.370	0.814	0.391	-0.299
InfoJ-5	0.359	-0.303	0.247	-0.410	0.323	0.341	0.474	0.322	-0.108
Abil-1	0.823	-0.401	0.111	-0.465	0.352	0.377	0.241	0.518	-0.415
Abil-2	0.744	-0.294	0.055	-0.415	0.314	0.482	0.264	0.477	-0.418
Abil-3	0.694	-0.236	0.142	-0.393	0.245	0.338	0.304	0.403	-0.363
Abil-5	0.594	-0.178	0.075	-0.337	0.247	0.389	0.273	0.464	-0.286
Abil-4	0.840	-0.334	0.151	-0.466	0.320	0.393	0.243	0.529	-0.478
Abil-6	0.797	-0.303	0.149	-0.418	0.350	0.428	0.306	0.527	-0.336
Benev-1	0.567	-0.263	0.168	-0.476	0.293	0.445	0.244	0.738	-0.362
Benev-2	0.514	-0.349	0.218	-0.444	0.338	0.521	0.335	0.788	-0.321
Benev-3	0.351	-0.377	0.178	-0.372	0.331	0.190	0.063	0.408	-0.057
Benev-4	0.499	-0.349	0.193	-0.508	0.358	0.443	0.307	0.806	-0.408
Benev-5	0.489	-0.323	0.176	-0.415	0.289	0.385	0.286	0.708	-0.303
Integ-1	0.584	-0.295	0.143	-0.530	0.338	0.506	0.355	0.667	-0.431
Integ-3	0.313	-0.225	0.109	-0.264	0.374	0.239	0.261	0.375	-0.235
Integ-4	0.536	-0.335	0.126	-0.406	0.376	0.452	0.365	0.621	-0.316
Integ-5	0.612	-0.377	0.162	-0.503	0.417	0.495	0.409	0.635	-0.444
Trust-1	0.618	-0.282	0.143	-0.530	0.382	0.435	0.275	0.549	-0.713
Trust-2	0.436	-0.130	0.053	-0.393	0.292	0.422	0.263	0.384	-0.746
Trust-4	0.565	-0.243	0.093	-0.443	0.312	0.436	0.246	0.435	-0.746
Satisf-1	0.636	-0.251	0.143	-0.537	0.401	0.555	0.249	0.422	-0.504
Satisf-2	0.493	-0.284	0.124	-0.450	0.347	0.546	0.298	0.489	-0.396
Satisf-3	0.435	-0.218	0.153	-0.454	0.303	0.816	0.254	0.443	-0.353
Satisf-4	0.419	-0.275	0.254	-0.455	0.383	0.817	0.264	0.423	-0.319

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization.

Table 5

KMO and Bartlett's Test – Low Communalities Removed

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.939
Bartlett's Test of Sphericity	Approx. Chi-Square	8383.349
	df	820
	Sig.	.000

Even with additional variables removed and fewer factors, there was still cross-loading across constructs, meaning that it will be difficult to achieve perfect discriminant validity in this analysis.

There are two significant issues revealed through the confirmatory factor analysis for discussion. The first is if Procedural Justice should be split into two latent constructs, and the second is to determine if Benevolence and Integrity should be combined into one latent construct.

Examining the questions that comprise the Procedural Justice construct, questions 1, 2 and 6 are centered on the respondent's participation in the process.

- ProcJ-1. Are you able to express your views during these processes (capital planning, project prioritization, innovation priorities)?
- ProcJ-2. Can you influence the decisions arrived at by these processes (capital planning, project prioritization, innovation priorities)?
- ProcJ-6. Are you able to appeal the decisions arrived at by these processes (capital planning, project prioritization, innovation priorities)?

The following four Procedural Justice questions are centered on the process itself and could be interpreted as outcomes.

- ProcJ-3. Are these processes applied consistently (capital planning, project prioritization, innovation priorities)?

- ProcJ-4. Are these processes free of bias (capital planning, project prioritization, innovation priorities)?
- ProcJ-5. Are these processes based on accurate information (capital planning, project prioritization, innovation priorities)?
- ProcJ-7. Do these processes uphold ethical and moral standards (capital planning, project prioritization, innovation priorities)?

The wordings of the Procedural Justice questions were adapted from existing research, and are focused on the application of processes by Loblaw Technology. One challenge is that all 7 questions are double barreled due to the different processes listed. Respondents may be challenged in responding because the response could apply to some but not all the processes listed. The processes were provided as examples, however if the research was repeated, it would be more effective to simply test against one process, or test the processes separately. It would violate the base theory to separate Procedural Justice into two latent constructs, and thus they will be maintained as one construct, and the two factor loadings can be explained by one factor representing outcomes of the process and the other representing participation in the process.

The second issue highlighted by the confirmatory factor analysis is to determine if the Benevolence and Integrity latent constructs should be kept separate in the model, although the four remaining Integrity variables cross-load on the same factor as Benevolence.

Comparing the questions for Benevolence and Integrity side-by-side show that there could be a lack of clarity on which latent construct each question is measuring and thus result in the cross-loading across these constructs in the confirmatory factor analysis.

- Benev-1. Loblaw Technology is very concerned about providing me the tools I need to perform my job.

- Benev-2. My needs are very important to the people in Loblaw Technology.
- Benev-3. The people in Loblaw Technology would not knowingly do anything to put me or my job at risk.
- Benev-4. The people in Loblaw Technology really look out for what is important to me.
- Benev-5. The people in Loblaw Technology will go out of their way to help me.
- Integ-1. People in Loblaw Technologies meet their commitments to me and my line of business.
- Integ-3. Loblaw Technology's actions and behaviors are consistent.
- Integ-4. I agree with Loblaw Technology's values.
- Integ-5. Sound principles seem to guide Loblaw Technology's behavior.

In the trustworthiness literature, benevolence and integrity are unique constructs in the ABI model, and the questions used in this research were adapted from validated questionnaires that measured the three unique antecedents of trustworthiness. For the purposes of modeling in this research, benevolence and integrity will be kept as unique constructs and not combined.

Enhanced SEM Model

This section of the data analysis discusses the approaches used to improve the goodness of fit statistics of the SEM model presented in section 4.1.1 by applying two remedies to the model and utilizing the results of the confirmatory factor analysis.

The first remedy in improving the fit of the model involves respecifying the original model by adding paths between factors and latent constructs and error covariances to the model. This is accomplished using the modification indices from the output of the SEM in 4.1.1. When leveraging the modification indices, additional paths should only be added to the model when they reflect the underlying theory (McQuitty & Bishop, 2006).

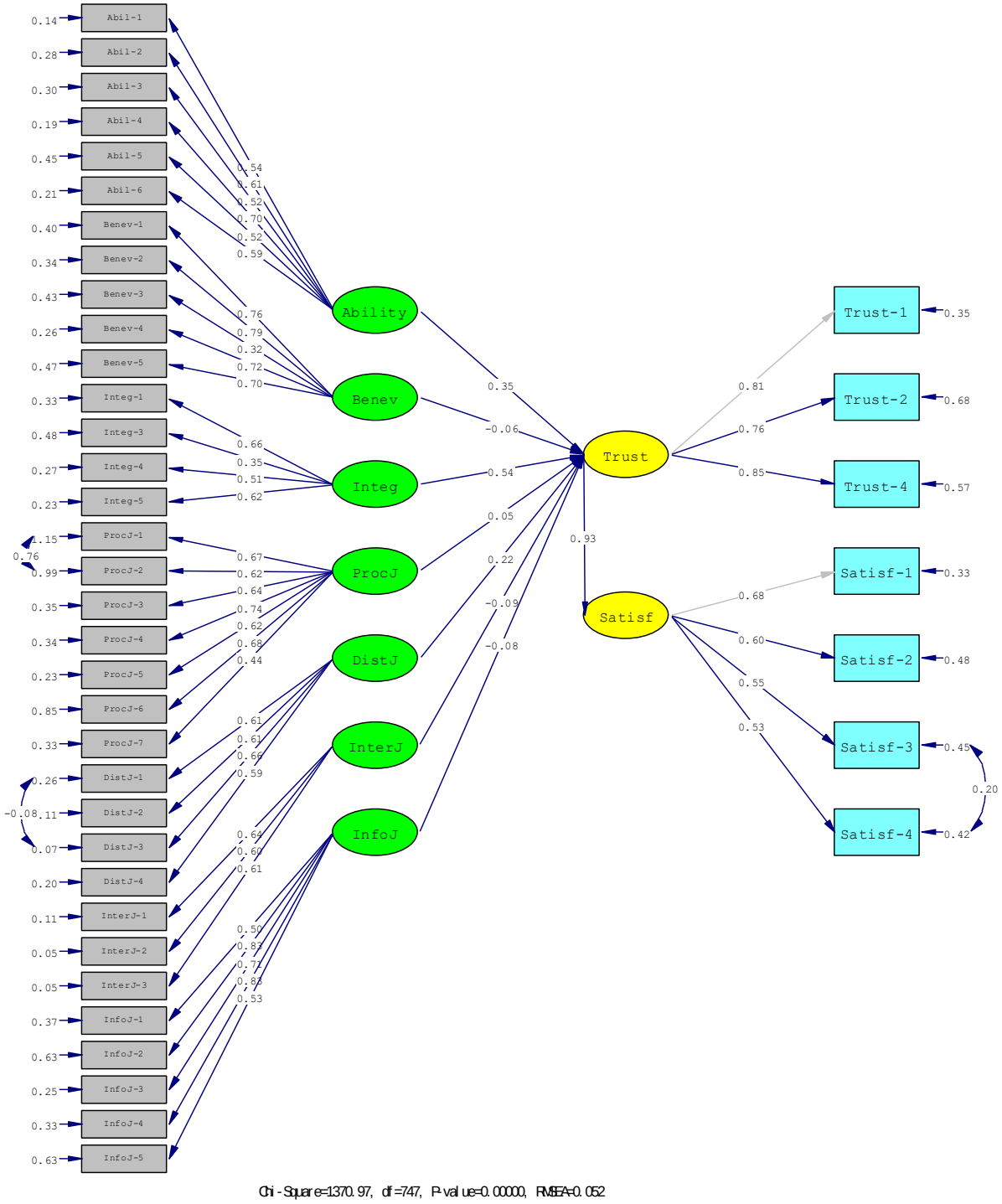
No paths were added to the model, none of the modification indices were large enough to warrant changing the underlying theory of the model. Error covariances were added to the model based on the modification indices from the SEM model output. Error covariances were added between variable pairs: Procj-1 and ProcJ-2, DistJ-1 and DistJ-3 and Satisf-3 and Satisf-4. Each of these item-pairs are within-factors, and appear very similar, which explains why they have correlation beyond that explained by the common factor.

A second remedy for the SEM in 4.1.1 that has high statistical power and between-factor correlations is to ensure that the model has a reduced number of items and/or degrees of freedom. If a researcher has many observed items and a model that is large in terms of its degrees of freedom, then reducing the number of items and degrees of freedom can be achieved by removing items but that measurement theory must still be considered (McQuitty & Bishop, 2006). The four items removed were the four identified in the confirmatory factor analysis that had low communalities and were Integ-2, InterJ-4, Trust-3 and Satisf-5. Removing these four items improved the goodness of fit statistics, and preserved measurement theory.

In summary, to improve the GOF of the SEM model in 4.1.1, three error covariances were added to the model, and four items were removed from the model because of low communalities in the CFA. With all the changes made, the SEM model was re-run with adjusted syntax. The output yielded a model in Figure 4.1.3 that adhered to the theory of trustworthiness and organizational justice, as well as SEM best practices, while producing significantly reduced power and goodness of fit statistics. The LISREL syntax for this model can be found in Appendix F.

Figure 4

Path Diagram of the Enhanced SEM Model



The goodness of fit statistics for the updated model are improved in this version of the SEM model. The fit now is acceptable based on the chi-square ratio and RMSEA, but not quite based on NNFI and CFI. However, the statistical power approaches 1.0, so goodness of fit statistics can be interpreted slightly more loosely, based on Table 9.4 on p. 642 (Hair, Joseph; Black, William; Babin, Barry; Anderson, 2019). The recommendations for good fit are adjusted depending on the sample size and the number of items. In this case (Hair, Joseph; Black, William; Babin, Barry; Anderson, 2019) recommends that NNFI and CFI be >0.92, which this version of the model has achieved.

Table 6

Goodness of fit Statistics for Enhanced SEM Model

Goodness of fit Statistic	**Value**
X^2 (*df*)	1370 (747)
X^2 / (*df*) ratio	1.8:1
RMSEA	0.05
NNFI	0.92
CFI	0.92

The correlations between the independent variables in the enhanced SEM model are shown in Table 4.1.3, where a number of constructs have covariance values > (0.7) highlighting the coupling of the constructs in the model. The high covariance between constructs, in particular with integrity, are what made it difficult to obtain good fit statistics, and also raise the question of discriminant validity mentioned earlier and discussed again later in the analysis section.

Table 7

Covariance Matrix of Latent Variables

	Trust	Satisf	Ability	Benev	Integ	ProcJ	DistJ	InterJ	InfoJ
Trust	1.000								
Satisf	0.935	1.000							
Ability	0.823	0.769	1.000						
Benev	0.764	0.714	0.725	1.000					
Integ	0.863	0.807	0.813	0.893	1.000				
ProcJ	0.542	0.507	0.454	0.493	0.560	1.000			
DistJ	0.722	0.675	0.594	0.663	0.709	0.691	1.000		
InterJ	0.335	0.313	0.393	0.420	0.441	0.412	0.384	1.000	
InfoJ	0.629	0.587	0.582	0.623	0.723	0.742	0.680	0.458	1.000

Structural Equations

The output of the model produces two structural equations that relate the latent antecedent constructs of trustworthiness and organizational justice to trust, and then satisfaction to trust.

1. Trust = 0.352 x Ability - 0.0627 x Benevolence + 0.542 x Integrity + 0.0483 x Procedural Justice + 0.223 x Distributive Justice - 0.0864 x Interpersonal Justice - 0.0768 x Informational Justice, R^2 = 0.819

2. Satisfaction = 0.935 x Trust, R^2 = 0.873

The R^2 coefficient of determination for both equations is greater than 0.8, which indicates that the independent variables explain over 80% of the variance in the dependent variable. This is a strong result. From a practical significance perspective, this indicates that the level of trust in Loblaw Technology by its business stakeholders can be explained by the combination of trustworthiness and organizational justice antecedents and supports the perspective that trust in Loblaw Technology is strongly related to the satisfaction its stakeholders have in its outcomes.

Reliability of the Constructs – AVE and CR

The final important calculations for the SEM are the Average Variance Extracted (AVE) and Composite Reliability (CR). Composite Reliability is a measure of reliability (convergent validity). Average Variance Extracted is used to assess discriminant validity of constructs by evaluating whether construct correlation is greater than between construct correlation. CR and AVE provide an estimate of the internal consistency and reliability of the scale (Kline, 2016).

The factor loading used in the AVE and CR analysis are from the SEM output, as they include an error calculation, and match the factors reported in the SEM path diagram, Table 8 shows the calculation of the AVE and CR values.

Table 8

Average Variance Extracted (AVE) and Composite Reliability (CR)

Observed Item	Construct	Factor Loadings (FL)	Squared Loadings (FL Squared)	Sum of Squared Loadings	AVE (SSQL/ number of items)	Sqrt (AVE)	Delta = 1 - Estimate Squared	Sum of Factor Loadings (I)	Sum of Factor Loadings Squared (I*I) = (J)	Sum of Delta (K)	CR Denominator (J+K) = (L)	CR (J/L)
Trust-1	Trust	0.807	0.651				0.349					
Trust-2	Trust	0.758	0.575				0.425					
Trust-4	Trust	0.848	0.719	1.945	0.648	0.805	0.281	2.413	5.823	1.055	6.878	0.8
Satisf-1	Satisfaction	0.684	0.468				0.532					
Satisf-2	Satisfaction	0.600	0.360				0.640					
Satisf-3	Satisfaction	0.550	0.303				0.698					
Satisf-4	Satisfaction	0.534	0.285	1.416	0.354	0.595	0.715	2.368	5.607	2.584	8.192	0.7
Abil-1	Ability	0.540	0.292				0.708					
Abil-2	Ability	0.611	0.373				0.627					
Abil-3	Ability	0.522	0.272				0.728					
Abil-4	Ability	0.704	0.496				0.504					
Abil-5	Ability	0.517	0.267				0.733					
Abil-6	Ability	0.589	0.347	2.047	0.341	0.584	0.653	3.483	12.131	3.953	16.084	0.8
Benev-1	Benevolence	0.763	0.582				0.418					
Benev-2	Benevolence	0.788	0.621				0.379					
Benev-3	Benevolence	0.316	0.100				0.900					
Benev-4	Benevolence	0.723	0.523				0.477					
Benev-5	Benevolence	0.703	0.494	2.320	0.464	0.681	0.506	3.293	10.844	2.680	13.524	0.8
Integ-1	Integrity	0.658	0.433				0.567					
Integ-3	Integrity	0.351	0.123				0.877					
Integ-4	Integrity	0.509	0.259				0.741					
Integ-5	Integrity	0.624	0.389	1.205	0.301	0.549	0.611	2.142	4.588	2.795	7.384	0.6
ProcJ-1	Procedural Justice	0.667	0.445				0.555					
ProcJ-2	Procedural Justice	0.619	0.383				0.617					
ProcJ-3	Procedural Justice	0.637	0.406				0.594					
ProcJ-4	Procedural Justice	0.736	0.542				0.458					
ProcJ-5	Procedural Justice	0.616	0.379				0.621					
ProcJ-6	Procedural Justice	0.678	0.460				0.540					
ProcJ-7	Procedural Justice	0.445	0.198	2.813	0.402	0.634	0.802	4.398	19.342	4.187	23.530	0.8
DistJ-1	Distributive Justice	0.612	0.375				0.625					
DistJ-2	Distributive Justice	0.610	0.372				0.628					
DistJ-3	Distributive Justice	0.665	0.442				0.558					
DistJ-4	Distributive Justice	0.586	0.343	1.532	0.383	0.619	0.657	2.473	6.116	2.468	8.583	0.7
InterJ-1	Interpersonal Justice	0.639	0.408				0.592					
InterJ-2	Interpersonal Justice	0.600	0.360				0.640					
InterJ-3	Interpersonal Justice	0.610	0.372	1.140	0.380	0.617	0.628	1.849	3.419	1.860	5.278	0.7
InfoJ-1	Informational Justice	0.501	0.251				0.749					
InfoJ-2	Informational Justice	0.830	0.689				0.311					
InfoJ-3	Informational Justice	0.714	0.510				0.490					
InfoJ-4	Informational Justice	0.834	0.696				0.304					
InfoJ-5	Informational Justice	0.527	0.278	2.423	0.485	0.696	0.722	3.406	11.601	2.577	14.178	0.8

The SEM measurement model has acceptable composite reliability (construct validity) when CR is 0.7 or greater for all constructs. This model meets this condition except for the integrity construct,

which has weak construct reliability at 0.6. Reliability is a within factor measure and could be improved by removing items within the integrity construct if reliability were the only goal. In the additional research section, described in the discussion chapter, the questions in each scale item would be adjusted to ensure higher construct reliability for all constructs in the questionnaire.

The discriminant validity of the model is assessed by comparing the square root of the AVE for each of the latent variables to the correlations with other latent variables. For discriminant validity to be established at the construct level, the square root of the AVE should be higher than the highest correlation with any other latent variable.

Table 9

Square Root (AVE) Compared to Latent Variable Construct Correlations

	Sqrt (AVE)	Trust	Satisf	Ability	Benev	Integ	ProcJ	DistJ	InterJ	InfoJ
Trust	0.805		0.935	0.823	0.764	0.863	0.542	0.722	0.335	0.629
Satisf	0.595	0.935		0.769	0.714	0.807	0.507	0.675	0.313	0.587
Ability	0.584	0.823	0.769		0.725	0.813	0.454	0.594	0.393	0.582
Benev	0.681	0.764	0.714	0.725		0.893	0.493	0.663	0.420	0.623
Integ	0.549	0.863	0.807	0.813	0.893		0.560	0.709	0.441	0.412
ProcJ	0.634	0.542	0.507	0.454	0.493	0.560		0.691	0.412	0.742
DistJ	0.619	0.722	0.675	0.594	0.663	0.709	0.691		0.384	0.680
InterJ	0.617	0.335	0.313	0.393	0.420	0.441	0.412	0.384		0.458
InfoJ	0.696	0.629	0.587	0.582	0.623	0.723	0.742	0.680	0.458	

Table 9 highlights that there are issues with discriminant validity at the construct level within the SEM model, as a number of correlation values between certain latent constructs are higher than the root of AVE, which suggests that scales appear to be measuring the same thing. This situation with weak discriminant validity in the model is explainable through an examination of trustworthiness and organizational justice theories.

The trustworthiness constructs of ability, benevolence and integrity have correlations with trust, satisfaction and each other higher than each constructs than the root of AVE. The high correlation to trust and satisfaction are explainable as ability and integrity are the strongest path coefficients in the

SEM model and are key antecedents of trust. The high correlation between ability, benevolence and integrity are because they are all related to each other within the trustworthiness construct, as evidenced by the factor analysis. There is weak discriminant validity within these three constructs, but there is discriminant validity between the trustworthiness constructs and organization justice constructs of procedural justice, interpersonal justice and informational justice as the root of AVE for ability, benevolence and integrity is larger than correlations between them.

Distributive justice has correlations with trust and satisfaction higher than the root of AVE as distributive justice is a high path weight in the SEM model and is a key antecedent of trust. Distributed justice also has correlations with benevolence, integrity, procedural justice and informational justice higher than the root of AVE as the concept fairness of outcomes can be interpreted across multiple scale construct questions. There is discriminant validity within the remaining organizational justice constructs.

Even though high correlations between factors can be explained by the theory, it does not mean that the lack of strong discriminant validity is not important to the results of this study. Issues with discriminant validity weaken the results of this study; this is the reality of this dataset. The effect is that additional emphasis will be placed on the practitioner experience of the researcher when interpreting the results and findings of the study.

Data Exploration With MANOVA

The exploration of the data using a MANOVA (Multivariate Analysis Of Variance) analysis is used to determine if the interval-level dependent variables vary across the categorical independent variables of business unit, level in the organization, and time at Loblaw (Hair, Joseph; Black, William; Babin, Barry; Anderson, 2010). Table 4.2.1 shows the MANOVA multivariate test results. The business unit, level in the organization, and time at Loblaw and their interactions were evaluated across the Independent Variables (IVs).

Table 10

MANOVA Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.
BusUnit	Pillai's Trace	0.407	1.344	72.000	1808.000	0.030
	Wilks' Lambda	0.649	1.373	72.000	1339.704	0.023
Level	Pillai's Trace	0.234	2.074	27.000	663.000	0.001
	Wilks' Lambda	0.782	2.081	27.000	640.235	0.001
TimeLoblaw	Pillai's Trace	0.093	0.787	27.000	663.000	0.772
	Wilks' Lambda	0.909	0.785	27.000	640.235	0.774
BusUnit * Level	Pillai's Trace	0.836	1.057	198.000	2043.000	0.289
	Wilks' Lambda	0.408	1.058	198.000	1851.418	0.287
BusUnit * TimeLoblaw	Pillai's Trace	0.824	1.143	180.000	2043.000	0.102
	Wilks' Lambda	0.407	1.168	180.000	1824.948	0.071
Level * TimeLoblaw	Pillai's Trace	0.452	1.504	72.000	1808.000	0.005
	Wilks' Lambda	0.618	1.534	72.000	1339.704	0.003
BusUnit * Level * TimeLoblaw	Pillai's Trace	0.669	1.139	144.000	2043.000	0.131
	Wilks' Lambda	0.490	1.147	144.000	1746.521	0.120

Table 11

SPSS Code for MANOVA Analysis

```
Definitions of Variables (factor scores)
FAC1 is Procedural Justice
FAC2 is Distributive Justice
FAC3 is Interpersonal Justice
FAC4 is Informational Justice
FAC5 is Ability
FAC6 is Benevolence
FAC7 is Integrity
FAC8 is Trust
FAC9 is Satisfaction


GLM FAC1_1 FAC1_2 FAC1_3 FAC1_4 FAC1_5 FAC1_6 FAC1_7 FAC1_8 FAC1_9 BY BusUnit
Level TimeLoblaw
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(BusUnit)
  /EMMEANS=TABLES(Level)
  /EMMEANS=TABLES(TimeLoblaw)
  /CRITERIA=ALPHA(.05)
  /DESIGN= BusUnit Level TimeLoblaw BusUnit*Level BusUnit*TimeLoblaw
Level*TimeLoblaw
    BusUnit*Level*TimeLoblaw.
```

The MANOVA analysis indicates that of the independent variables, business unit and level in the organization are the most significant. Both category variables have significance values less than 0.05, which means there was a significant difference between the categories across the independent variables, although high power could affect this result.

The MANOVA analysis demonstrates that the segmentation of the stakeholders by the independent variables groupings is statistically significant for both level in the organization and business unit. The MANOVA analysis was important to determine whether different stakeholder groups across Loblaw perceived the trustworthiness and organizational justice factors for Loblaw Technology differently and this finding will be included in the future research section to be further explored outside of this research.

A further MANOVA analysis was conducted to examine the mean factor scores across the independent variables for each category level variable. The factor scores were created by forcing a one factor solution for each scale (set of items), and then choosing principal components for the estimation method as this approach explains the items' variances. The results are provided in Table 4.2.2 with the independent variables resequenced for readability. The values in table 4.2.2 do not reflect scale anchors from the survey but are standardized output.

Table 12

MANOVA Construct Mean Factor Scores by Category

Business Unit	# Respondents	Ability	Benevolence	Integrity	Procedural Justice	Distributive Justice	Interpersonal Justice	Informational Justice	Trust	Satisfaction
Discount Division	21	0.11	0.218	0.19	-0.309	-0.258	0.191	-0.277	-0.034	0.155
Market Division	34	0.354	0.224	0.218	-0.188	0.147	-0.032	0.165	0.251	0.313
Joe Fresh	7	0.47	0.122	0.146	-0.18	-0.237	-0.147	0.296	0.049	0.497
President's Choice Financial	22	-0.182	0.253	0.038	-0.034	0.211	-0.167	0.205	0.166	-0.25
Shoppers Drug Mart	28	-0.058	-0.367	-0.391	0.183	-0.136	-0.37	0.158	-0.277	-0.261
Supply Chain	28	0.093	0.202	0.254	0.163	0.208	-0.109	0.126	0.069	0.295
Finance	33	0.039	0.156	0.342	-0.181	0.194	0.068	-0.02	0.16	0.356
Human Resources	21	0.172	0.147	0.052	-0.12	0.163	-0.121	0.194	0.457	0.143
Other Store Support Business Units	115	-0.162	-0.076	0.084	0.226	-0.067	0.145	0.081	-0.15	0.078
Level In the Organization		**Ability**	**Benevolence**	**Integrity**	**Procedural Justice**	**Distributive Justice**	**Interpersonal Justice**	**Informational Justice**	**Trust**	**Satisfaction**
Individual Contributor	72	0.33	0.179	0.249	-0.261	0.162	-0.155	0.143	0.414	0.461
Manager or Senior Manager	104	-0.119	0.046	0.037	-0.045	-0.044	-0.15	-0.044	-0.027	-0.151
Director or Senior Director	96	-0.059	-0.148	-0.116	0.093	-0.151	0.11	0.089	-0.25	-0.117
Executive - VP+	37	-0.055	0.198	0.129	0.449	0.127	0.108	0.313	-0.19	0.217
Time at Loblaw		**Ability**	**Benevolence**	**Integrity**	**Procedural Justice**	**Distributive Justice**	**Interpersonal Justice**	**Informational Justice**	**Trust**	**Satisfaction**
Less than 1 year	15	-0.184	-0.195	-0.131	0.134	0.029	-0.147	0.203	0.112	0.128
1 years to 3 years	56	0.007	0.06	0.148	0.028	-0.121	-0.325	-0.004	0.193	0.071
3 years to 7 years	67	0.056	0.133	0.213	-0.055	0.129	0.021	0.139	-0.046	0.139
More than 7 years	171	0.152	0.097	0.02	-0.046	0.02	0.05	0.1	0.031	0.126

There is a wide variance in the mean factor scores across the members of the business units surveyed, with the Shoppers Drug Mart business unit having low mean factor scores across all construct variables, including trust and satisfaction. An example of the Shoppers Drug Mart business unit's propensity to score lower on trust and satisfaction as it relates to Loblaw Technology is provided in section 5.5 of the discussion section.

The analysis of the Level in the Organization show the lowest scores across the middle of the organization, at the manager and director level, with higher mean factor scores at the opposite ends of the range, individual contributor and executives.

The Time at Loblaw category variable mean factor analysis did not show any meaningful variance across the time ranges consistent with the full construct MANOVA analysis.

Hypothesis Outcome Review

A review of the weights from the structural equation model with high goodness of fit, leveraging the full data set, reveals the relationships between the antecedents of trust and their impact on the trust in the model. The connection strength (path coefficient) represents the response of the dependent variable to a unit change in an independent variable when other variables in the model are held constant (Kline, 2016). A positive coefficient means that a unit increase in the activity measure of one structure leads to a direct increase in the activity measure of structures it projects to, proportional to the size of the coefficient. A negative coefficient means that an increase in the activity measure in one structure leads to a direct, proportional decrease in the activity measure of structures it projects to (Kline, 2016). The independent variables of ability (0.352), integrity (0.542), procedural justice (0.0483), and distributive justice (0.223) are all positively related to the dependent variable trust. The independent variables of benevolence (-0.0627), interpersonal justice (-0.0864), and informational justice (-0.0768) are all negatively related to the dependent variable trust. The dependent variable of trust (0.935) is positively related to the outcome variable satisfaction.

Figure 5

SEM Coefficients

Trust = **0.352** x Ability - **0.0627** x Benev + **0.542**x Integ + **0.0483** x ProcJ + **0.223** x DistJ - **0.0864** x InterJ - **0.0768 x** InfoJ

Standerr	(0.0907)	(0.148)	(0.221)	(0.0779)	(0.0712)	(0.0457)	(0.0947)
Z-values	3.876	-0.423	2.453	0.620	3.127	-1.890	-0.811
P-values	0.000	0.672	0.014	0.535	0.002	0.059	0.417

Satisf = **0.935** x Trust

Standerr	(0.0697)
Z-values	13.408
P-values	0.000

Multicollinearity can affect the accuracy of these path coefficient estimates. A comparison between the coefficients and the first order correlations between constructs is made in Table 13. The pattern of the correlations is similar to the path coefficients, with constructs having lower values in both. There is no collinearity with the path coefficient between trust and satisfaction because there are no other constructs explaining satisfaction. With the other equation, since the correlations are different than the path coefficients, then multicollinearity is an issue between the constructs. The greater the correlation between variables (constructs) in a regression (SEM), the greater the possible effects of collinearity. Each of the constructs that have the most meaningful Trust-Path coefficients – ability, integrity and distributive justice, also have a correlation with trust that is >0.7, which suggests collinearity. Benevolence also has a strong correlation with trust, but low Trust-Path value, as Benevolence is strongly correlated to integrity within the trustworthiness construct.

Table 13

SEM Coefficients Compared to First Order Correlations

	Satisf	Ability	Benev	Integ	ProcJ	DistJ	InterJ	InfoJ
Trust-Correlations	0.935	0.823	0.764	0.863	0.542	0.722	0.335	0.629
Trust-Path Coefficients	0.935	0.352	-0.063	0.542	0.048	0.223	-0.086	-0.077

Relating these findings back to the theory and hypotheses defined in the literature section provides a view of how the enhanced SEM model ties back to what was expected in the research hypotheses. Ability, benevolence, integrity and procedural justice antecedents have reasonably high correlation with trust and are thus reasonable antecedents of trust, the values of the path coefficients provide the indication of the direction of the relationship between the construct and trust. This is the value from a practitioner perspective, to understand which antecedents have the most positive impact on trust in Loblaw Technology.

Hypotheses H1 (procedural justice) and H2 (distributive justice) are the hypotheses relating to organizational justice theory that are supported by the data, with distributive justice having a strong (>0.7) first-order correlation with trust. Hypotheses H3 (interpersonal; justice), and H4 (informational justice) are not supported by the data, with these constructs having a negative relationship with trust in Loblaw Technology and first order correlations with trust that are less than 0.7.

The trustworthiness antecedents and associated hypotheses relating to H5 (Ability) and H7 (Integrity) have been validated by the data as they are positively related to trust in Loblaw Technology. H6 (Benevolence) is not supported by the data and the SEM model, with this antecedent having a negative relationship with trust in Loblaw Technology, although high correlation with the other trustworthiness constructs: ability and integrity could be causing an impact to the sign of the coefficient of benevolence in the SEM. The antecedents of ability, integrity and benevolence all have strong (>0.7) first-order correlation with trust.

Hypothesis H8 is validated by the data: there is a high positive correlation between trust and satisfaction in the model. In the model, trust fully mediates the relationship between the independent constructs and satisfaction as there are no direct paths between the independent constructs and the outcome variable of satisfaction.

Summary of Data Analysis

The analysis of data and Structural Equation Modeling completed has highlighted key antecedents of trust and the positive effect between trust and satisfaction in Loblaw Technology by its business stakeholders. The results of the data analysis will be discussed in detail in the following sections, including the implications of the findings for the theoretical body of knowledge and the practical application of results to improving trust between Loblaw Technology and its business stakeholders.

Chapter 5 - Discussion

Overview

This section will tie the findings from the data analysis back to the theory from the literature review and discuss the implications for the hypotheses tested. The findings of the most important antecedents in the formation of trust between Loblaw Technology and its business stakeholders will be discussed. This section will conclude with a discussion of issues with the research and opportunities for this research to be expanded in the future.

This research is grounded in the theory of social exchange as it relates to Loblaw Technology and its relationship with its business stakeholders. In a social exchange relationship, trustworthiness and fairness lead to trust, as trust serves as the lubricant in the exchange relationship. Trust is a measure of the value of the technology department as assessed by its stakeholders, as trust enhances satisfaction (Geyskens et al., 1999).

The Most Important Antecedents of Trust

The most important antecedents of trust as they related to the relationship between Loblaw Technology and its business stakeholders are the ones with the highest path coefficients in the Structural Equation Model. As noted in section 4.3, multicollinearity could be biasing the path coefficient estimates, however the first order correlation comparison to the path coefficients support the most important antecedents in the model. In addition, the R^2 coefficient of determination from both structural equations in section 4.1.4 are both showing good fit of the proposed model to the observed data and the results are practically significant as R^2 for both equations is >0.8.

The most important antecedents are ability (competency of the group), integrity (whether the group adheres to a set of principles that the trustor finds acceptable), and distributive justice (fairness of decision outcomes). These are the highest positive weight path coefficients in the structural equation

model, and are supported by an examination of the first order correlations between the independent constructs and trust, as these three constructs also had high correlation with trust >0.7 and thus confirm the significance of the coefficients.

Benevolence (the extent to which a trustee is believed to want to do good to the trustor) also has a high correlation with trust, and with the other trustworthiness constructs of ability and integrity, but a lower path coefficient. It is likely difficult for the survey respondents to separate the concepts of benevolence and integrity as they assess their perspectives towards Loblaw Technology and this has caused the issues in the analysis. There are two reasons that benevolence is being downplayed in the results of the analysis. The first is analytical, as there is a higher path loading in the model between integrity and trust, than between benevolence and trust. The second is that from a practitioner's perspective, integrity is the more prevalent concept in a business context, and thus easier for an external stakeholder to judge a group's integrity, than its benevolence.

The independent variables of benevolence (the extent to which a trustee is believed to want to do good to the trustor), procedural justice (the perceived fairness of decision-making procedures), interpersonal justice (the degree of respect and propriety authority figures use when implementing procedures), and informational justice (the degree of justification and truthfulness offered during procedures) have much lower path coefficients in the model output. They are not as significant in the formation of trust between Loblaw Technology and its business stakeholders as the antecedents of ability, integrity and distributive justice.

As discussed in the data analysis chapter, issues with discriminant validity, in particular between the three trustworthiness constructs, weaken the overall analytical results of this study. From the analysis, and the researcher's practitioner interpretation, the attributes of ability and integrity of the members of Loblaw Technology, combined with results achieved by Loblaw Technology for its

stakeholders, are the most important factors in building trust with its business stakeholders. This is likely the case because of the high-performance culture that exists at Loblaw, and because although we have long pushed for a blue culture of collaboration and soft skills, the hard skills—your aptitude, principles, and results—still matter the most in the eyes of the stakeholders. The "what," or outcome, is far more important than the "how" of the processes resulting in that outcome. Notionally, this is consistent with the feedback the Loblaw Technology leadership receives from key stakeholders through verbal feedback—that we are only as good as our last issue—and it is also consistent with their questioning the skill and integrity/commitment of the team when issues occur in the operating environment or on projects.

Distributive justice is the fairness of decision outcomes, and individuals judge it by determining whether the perceived ratio of outcomes to inputs matches those of a comparison group, or whether resource allocations match appropriate norms (Colquitt & Rodell, 2011). Since technology is so embedded in the business, decisions made by the technology department affect all stakeholders throughout the organization. These decisions can be difficult and involve tradeoffs between system reliability, cost and timelines. Although not all decisions are popular, a key element of trust by stakeholders in Loblaw Technology is that the stakeholders feel the decisions are "fair." Although procedural justice was shown to be linked to distributive justice through the factor analysis and represented as loading on distributive justice in the structural equation model, it had a much smaller path coefficient. The outcome of the process appears to be much more important at Loblaw in building trust than the administration of the process.

A number of antecedents of trust had negative path coefficients and thus are revealed to negatively impact the dependent variable trust. Procedural justice (the amount of input provided into the process), interpersonal justice (the degree of respect shown the trustee), and informational justice (the degree of justification and truthfulness in the process) all have a negative relationship to trust.

These antecedent variables can all be interpreted as process-enabling antecedents, not process outcomes. In the model, they reduce trust placed in Loblaw Technology by its stakeholders, in turn reducing satisfaction. This could be because stakeholders do not value these antecedents as much as the "hard" outcome-based antecedents (skills, principles, and outcomes) that can be quantified and measured, rather than being emotional or subjective measures.

Trust and Satisfaction

The results of the Structural Equation Model yielded a strong statistical relationship between the dependent variable of trust and the outcome variable of satisfaction with a path coefficient and correlation of 0.935. When Loblaw Technology builds trust through the antecedents of trustworthiness and organizational justice in relationships with its stakeholders, there will be a higher likelihood of satisfaction with their outcomes and results by those same business stakeholders. Trust is the lubricant of social exchange between a service provider and its stakeholders, and a measurement of value realized. Satisfaction is a stakeholder's evaluation after consumption of services, and occurs if the perceived performance of a product or service meets or exceeds the stakeholder's prior expectations. Overall satisfaction with Loblaw Technology outcomes is determined by comparisons between stakeholders' expectations and their perceptions of the products or services performance (Kharouf & Lund, 2019). These perceptions will be highly influenced by the level of trust they have in the Loblaw Technology department, and to reach higher levels of satisfaction in Loblaw Technology, stakeholders must reach an even higher level of trust.

An improvement in the level of trust between Loblaw Technology and its business stakeholders will result in increased levels of satisfaction with the outcomes and value provided.

How it all Fits Together

The analysis conducted in this research has shown that trust placed in Loblaw Technology by its business stakeholders is enabled primarily by the perceived ability and integrity of its members, and the perceived fairness of the outcomes of its decisions (distributive justice). Trust then mediates the social exchange between Loblaw Technology and its stakeholders as it relates to the satisfaction of outcomes delivered.

Mayer et al. (1995, p. 712) define trust as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party." In the Loblaw context, ability, integrity, and fairness of outcomes build parties' willingness to be vulnerable to the decisions and actions of Loblaw Technology by its business stakeholders. The level of trust achieved results in the degree of satisfaction in the results of Loblaw Technology.

Trust acts as the lubricant of social exchange and a mediator through which satisfaction is perceived by the business stakeholders, which is why satisfaction in Loblaw Technology is not always correlated to its outcomes delivered, because satisfaction (the difference between expectations and outcomes) is being mediated through the categorical trust relationship. Outcomes are not believed when there is low trust and are likely to be valued more favorably when trust is higher. This result gives insight into problems technology departments have long faced, when their outcomes and service levels are good, but satisfaction is low. In those situations, the technology department was likely in a lower-trust situation with its business stakeholders, and thus high satisfaction was not possible.

Practical Applications: Measurement of Value

In the introduction and literature review, a case was made that current measures of technology value are flawed because they are missing something. From this research and analysis, an argument can be made that in the case of Loblaw Technology and its business stakeholders, that missing something is

trust. Trust acts as the lubricant of social exchange and a gateway to satisfaction. The lower the trust in Loblaw Technology, the lower is the satisfaction in the value delivered by Loblaw Technology. This explains a fundamental challenge I have always had as a senior technology leader—the challenge of why there can be such a disconnect between outcomes and satisfaction, which is highlighted in our high service levels, strong governance, and high metrics on balanced scorecards, but very low satisfaction scores. If the stakeholders do not trust the department, they will not be satisfied with the outcomes or the value delivered.

This is why trust is so important as a predictor and enabler for the technology department's performance within the organization, and why this research is valuable from a practitioner perspective. Trust sets a foundation for collaboration and cooperation as well as the achievement of value between groups. Trust also ensures that the foundation is in place for the traditional measures to have credibility with the business stakeholders, thus providing an added benefit.

One very practical and meaningful example of this effect is the relationship between Loblaw Technology and the Shoppers Drug Mart business unit. For multiple years, the Loblaw Technology group has worked very hard to provide the Shoppers Drug Mart with the tools and systems they need to run their business. Every year, the satisfaction scores on the annual CSAT (customer satisfaction survey) provided by the Shoppers Drug Mart business stakeholders are the lowest of any business unit the technology department surveys across the Loblaw organization. Every year, the technology department expends an enormous amount of time, energy, and resources working on improving the issues that the Shoppers Drug Mart business unit says they have with the technology they have been provided to service their patients and customers. These practitioner results are consistent with the results of this quantitative study and the MANOVA analysis conducted in section 4.2, with the Shoppers Drug Mart business unit having the lower mean factor scores.

The results of this trust research and the revealed link to satisfaction explain this confounding situation. The Loblaw Technology department has been focused on solving only part of the problem, the outcomes. What has been missing is how those outcomes are perceived through trust. The technology department has not spent time highlighting the abilities and integrity of the team, and in reality, the structure of the support and interaction processes is likely making it worse. Most business stakeholders interact with Loblaw Technology through the service desk (call center). The call center representatives are our lowest-paid and most outsourced members, and they have the least expertise and least accountability of any of the human resources in Loblaw Technology. They do not have expertise or the type of ability that core technology human resources would have. That the stakeholders interact with these resources regularly likely calls into question the ability and integrity of the entire department, and this process would not lead to improved levels of trust based on the antecedents discussed in this research.

When issues happen at stores and pharmacies as a result of changes to existing systems or the introduction of new systems or processes, stakeholders may call into question the integrity of the decision-makers and the fairness of the decision-making processes that led to negative outcomes—especially if leadership integrity and decision-making processes are obfuscated from the business stakeholder when they call into the service desk to report the issues. Loblaw Technology has not been able to move the dial on the overall satisfaction of the Shoppers Drug Mart business unit, even though significant time, money, and resources have been spent fixing all the problems and improving service levels and capabilities.

Moving forward, the leadership of Loblaw Technology can take the practical knowledge from this trust research and apply it to the business problem of improving business stakeholders' satisfaction with Loblaw Technology. Based on this research, the leadership of Loblaw Technology would be better off focusing on spending some time communicating with stakeholders, building up the visibility of its

colleagues' ability and integrity, and enhancing visibility of the fairness of decision outcomes, not on the execution of any process itself.

One of the stated purposes and desired outcomes of this research was to come up with programs that the Loblaw Technology leadership team could apply that would focus on the most important antecedents of building increased levels of trust with their business stakeholders. Upon reflection, numerous practical steps can be taken to build communication programs to ensure the most important antecedents as determined through this research will focused on.

Ability is that group of skills, competencies, and characteristics that allow a party to have influence within some domain (Mayer et al., 1995). Since an increase in ability will drive an increase in trust, and by extension satisfaction, it will be very important to promote the ability of the team in Loblaw Technology to their business stakeholders indicating that they are capable and have expertise. We can write stories in the weekly, monthly, and quarterly technology newsletters, highlighting the skill and ingenuity of the Loblaw Technology team members. We could also make it required for each member of Loblaw Technology to put their academic and professional credentials in their email signature. Team members of Loblaw Technology can also be encouraged to tell stories about their abilities to solve problems and to apply technologies when meeting with business stakeholders, so their stakeholders will see them as worthwhile contributors and partners in their success. This increased communication and visibility of the technology team's capability should increase the perception of the team's ability by their business stakeholders and correspondingly increase the trust level between Loblaw Technology and its business stakeholders.

Integrity is defined as the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable (Mayer et al., 1995). This assumes not only that a trustee espouses values that the trustor sees as positive, but also that the trustee acts in a way that is consistent with the

espoused values (Mayer et al., 1995). It will be important for members of the Loblaw Technology leadership team to ensure their values are well communicated and that their objectives and reward systems are aligned with those of their stakeholders. It will also be important that there are internal management control frameworks within the Loblaw Technology organization to ensure that the behaviors and outcomes demonstrated by its members are consistent with its stated principles and values. Stability and performance of systems is always important to business stakeholders. The leadership of Loblaw Technology also has this as a key performance indicator in their monthly reporting to stakeholders. It would be important that the Loblaw Technology team not take excessive risks, rush changes through testing, or deploy code that is not fully regression tested, in order to make sure that their actions are consistent with their stated principle of stability and performance of systems. Another program that could be implemented to improve stakeholders' perception of the integrity of the Loblaw Technology team would be focusing on meeting their commitments and announcing to their stakeholders each time a milestone and commitment has been achieved. In the absence of this ongoing focus and communication highlighting the importance of integrity to the members of Loblaw Technology and the alignment between principles and values between Loblaw Technology and its stakeholders, its stakeholders may be left assuming the worst—that the Technology group is not aligned to their values and that the Technology group is does not have a level of integrity that would drive a high level of categorical trust between them.

The final important antecedent of trust is distributive justice, the fairness of decision outcomes. Stakeholders judge fairness of outcomes by determining whether the perceived ratio of outcomes to inputs matches those of an object of comparison, or whether resource allocations match appropriate norms (Colquitt & Rodell, 2011). To implement a program to highlight the fairness of decision outcomes, the leadership of Loblaw Technology will need to spent additional time ensuring business stakeholders understand the decision outcome standards and how these standards were consistently applied across

all stakeholder groups. This will enhance the distributive justice context in the relationships to help ensure business stakeholders believe the decision outcomes were fair and consistent. This goes beyond simply not making arbitrary statements or decisions without context, and it instead implies that all decisions need to be grounded in facts. A set of comparative numbers should be presented to show that the decision outcome was in line with comparable results from a set of similar projects. For instance, in the annual budget planning process, capital is allocated to projects supporting multiple business units; it would be important to demonstrate that the allocation of capital to each business unit was done using the same evaluation methods, IRR (internal rate of return) or NPV (net present value), and that the amount of capital was allocated in a fair manner.

Similarly, it will be important on any decision regarding priorities of work, allocation of resources, sequencing of projects, or production fixes to show how the decision outcomes were aligned to a common method of comparison and that this had been agreed upon ahead of time by the stakeholders and decision-makers as the basis of decision-making. This level of communication should be done in meetings and in writing, and it should show how the outcomes of decisions match the overall company goals and objectives as the key element of decision-making. Ideally, the most negative comment a business stakeholder would be able to make would be, "I might not like the decision, but it was fair because it is in the best interest of the company, even if it is not in my personal best interest." An example of this would be in allocation of capital for projects, where a project from another department with a higher financial benefit and return on investment, is approved instead of a particular business stakeholders project. As long as all projects are held to the same decision standard, then the stakeholders should agree that the outcomes are fair as they relate to the company goal of achieving the highest possible return through the most effective allocation of capital spend.

All three important antecedents—ability, integrity and distributive justice—can be highlighted through focused and increased communication about these topics with business stakeholders. Each

contains an important message to stakeholders that the members of Loblaw Technology are aligned to their business unit goals and are there to do the right things for them.

It is important to increase trust because it acts a lubricant of social exchange, and social exchange improves collaboration between individuals and groups as well as overall organizational performance. Loblaw Technology has an important role to play in the success of the overall Loblaw organization, and the trust that stakeholders have in Loblaw Technology will improve the overall performance of the combined teams as well as stakeholders' sense of satisfaction in the services and outcomes that Loblaw Technology provides them.

Limitations With the Research

The research that was conducted for this dissertation was done on one organization (Loblaw), with one service department (Loblaw Technology) and a defined set of business stakeholders (store support) at a single point in time. While the analysis yielded results on the most important antecedents of trust in this particular context and revealed the strong link between trust and satisfaction in this categorical trust relationship, the results may not be generalizable across other service providing groups at Loblaw, or across other organizations' dynamics between their technology departments and stakeholders.

There were differences in means across the categorical independent variable of business unit and the significant factors in the survey as demonstrated with the MANOVA analysis in section 4.2. Each business unit is very different in their needs and it would have been ideal to further compare the results of each business unit with larger sample sizes available for each. The results generalize all business units together into one macro analysis of business stakeholders at Loblaw.

The questions in the survey have been adapted from prior research into trust, trustworthiness, and organizational justice. Although the model has demonstrated construct reliability, some survey

questions were removed from the analysis based on their low factor loadings or cross factor loadings in the factor analysis. Ideally, the wording of each of the questions that was removed would be refined in a subsequent round to increase clarity and to ensure they contributed to the core model. The rewording of the questions would also ensure improved construct and discriminant validity for all constructs in the questionnaire.

The questionnaire and SEM model has issues with discriminant and construct validity, as discussed in the data analysis section. For additional research to be conducted, more pre-test sampling of the questionnaire is required to ensure each question is measuring only the antecedent independent variable it is designed to measure. Even with certain questions being removed, there was still significant cross-loading between factors in the confirmatory factor analysis which impacted discriminant validity, and the analysis of AVE demonstrated issues with construct validity, as some of the factors in this analysis were too correlated. These problems were very prevalent in the trustworthiness antecedents, and the questions would need to be updated to reflect a clear delineation between ability, benevolence and integrity. Headings or separation of each set of questions into sections with a clear explanation of each construct could help to ensure the separate constructs being evaluated were clear to the respondent.

Beyond the wording of the individual questions in the questionnaire, the high level of correlation between constructs could be a result of social desirability bias, given the researcher's status in the organization as the leader of the group the business stakeholders were being surveyed about. The respondents may have been more focused on giving socially acceptable answers rather than truthful answers, even though it had been made clear that the survey was voluntary and anonymous. If further research were to be conducted at Loblaw, it would be advisable to have the survey be administered by an independent third party to remove concerns of social desirability and reduce the correlation between antecedent constructs.

The satisfaction scales were adapted from the annual Technology Satisfaction Survey which many respondents to this research survey would have also participated in. The familiar scale items as well as the respondent's interpretation and blending of the trust and satisfaction items, could have influenced the responses and potentially led to a very high correlation between trust and satisfaction.

Bias may also have been present in the researcher's interpretation of the results, given their role as the leader of the Loblaw Technology department. Having direct knowledge of how the department is perceived by business stakeholders, and having dealings with business stakeholders on a daily basis, could have led to assumptions about the results or a stronger inference about the key antecedents than was really present in the data. Although the researcher worked hard at letting the data speak for itself, it is impossible to not know that stakeholders value ability and that Loblaw is a high performance culture where results are valued above everything else.

This research was conducted during the Covid-19 pandemic when all Loblaw store support colleagues were working from home. The unique situation that respondents found themselves in where their work for the six months prior to responding to the survey was completely virtual and dependent on the technology tools and services provided by the Loblaw Technology department could have led to a distorted view of the Loblaw Technology department depending on how their experience working from home had been. Overall the collaboration and communications technology platforms provided to store support colleagues at home worked very well, but there could have been other feelings of trustworthiness and fairness about the whole experience mixed into their responses during a time in which normal organizational operations was disturbed. It would be useful to repeat the study six months to a year after the Covid-19 pandemic has concluded and colleagues have returned to the office at a more normal frequency. Although at this point in the reopening plan from the Covid-19 pandemic, that date remains unknown.

The final limitation with the research from a practitioner perspective is that with a quantitative study, there is not the ability to dig deeper into each antecedent with the respondents to understand why they may have chosen a certain factor to be more important than others, and thus the interpretation of the results is somewhat subjective. The analysis of the data has indicated ability, integrity, and distributive justice as being key antecedents of trust in Loblaw Technology, but it is not possible without further analysis to know why, or which actions would most improve trust and thus satisfaction in Loblaw Technology.

Thoughts for the Future: Beyond this Research

Additional research could also be conducted to add to the theoretical body of knowledge of category-based trust formation, and to improve the practical usefulness of the research outcomes for leaders of service organizations.

To improve the usefulness of the results for the leaders of Loblaw Technology, the research could be repeated with more respondents in each of the categorical variable segments defined in the current research—business unit, level in the organization, and length of relationship with Loblaw Technology—to understand what matters most to the different stakeholder categories. This would assist in creating curated programs in terms of communication and relationship management that would address the most relevant antecedents of trust for that categorical group of business stakeholders and highlight the common antecedents that should be focused to increase trust across all stakeholders.

It would be interesting to repeat the survey and model across other service providing organizations at Loblaw—for instance, supply chain, human resources, and finance—to determine whether similar patterns and strengths of antecedents of trust were common across service providing groups. This could lead to a view of organizational trends of the antecedents of trust that are most

important across all departments, forming the culture of the organization, and it could help to validate whether the blue culture of Loblaw is actually adhered to in practice.

It would also be interesting to conduct research across other large organizations. This expanded research would examine how business stakeholders in other organizations value the antecedents of trust for their technology departments and how trust relates to satisfaction in these organizations. This additional research would determine if there is indeed a generalizable theory related to categorical trust in a technology department, the most important antecedents of trust, and the effect of trust between the antecedent and satisfaction.

It would also be useful to repeat the research every six months during which the programs developed to improve trust would be conducted. This repetition would provide direct causal evidence that the focused programs put in place by the Loblaw Technology department on the antecedents of trust, yielded stronger trust scores and higher satisfaction with business stakeholders. It could also be evaluated that as certain antecedents are focused on, would the strength of the path weights in the SEM model change as the trust relationship between the business stakeholders and Loblaw Technology changed.

Third-party data could also be included into future research at Loblaw. The third-party data could include business unit employee engagement and culture scores, to understand if they have any bearing on the strength of the antecedents of trust between business stakeholders and a service provider. Is there something in the stakeholder's group that needs to be understood to better understand how they form trust? It could be possible that a business unit with a lower engagement and cultural score, that has trouble building trust and a strong culture within its own four walls, could also have difficulty building trust with external groups. This would require having large enough sample sets for each business unit.

From a trust research perspective, and contributing to the body of knowledge, the research on the antecedents of trust and connection to satisfaction would need to be repeated across multiple companies. If a service-providing department is used as the unit of evaluation, then the research could be repeated not only across multiple service departments at Loblaw Companies, but also across other organizations. Further research and additional data analysis would deepen the understanding of categorical trust formation by stakeholders with these service departments and help to identify how the level of trust affects the satisfaction of those stakeholders with the value they receive.

Chapter 6 - Conclusion

This dissertation lays out, tests, and validates the theoretical framework for the relationships explored between the antecedents of trustworthiness, organizational justice, and category-based trust in the context of the relationship between Loblaw Technology and its business stakeholders. The desired goal of this research was achieved in that it applied a quantitative study through an online survey instrument to evaluate the theoretical model and determine that there are key antecedents in the context of Loblaw Technology and its business stakeholders that enable the strengthening of trust through components of trustworthiness and organizational justice. The antecedents of ability, integrity, and distributive justice were found to have the most impact on the categorical trust relationship between Loblaw Technology and its business stakeholders. Satisfaction in the outcomes of Loblaw Technology is fully mediated by the trust between Loblaw Technology and its business stakeholders. In a social exchange relationship, trustworthiness and fairness lead to trust, and trust is a measure of value of the Technology department by its stakeholders because it serves as the lubricant in the exchange relationship.

Understanding these relationships will enable the development of programs that focus on the most important factors enabling a trusting relationship in order to foster reciprocity and drive collaboration and intergroup performance through satisfaction. For technology leaders, it is paramount in this age of accelerating technological dependence and digital transformation enabling strategic competitive advantage that they not only have the right measures in place to report on their value delivered to the organization, but also that there is an optimal relationship between themselves and their business stakeholders. A positive, satisfied relationship is enabled by trust. The outcome of this research shows how Loblaw Technology can not only improve its value to the organization, but also

further develop the embodiment of the organizational culture by building trust and making connections (social exchange), key elements of blue culture.

With the events of 2020, the constant change the COVID-19 pandemic has brought to the workplace, and with most business stakeholders working from home, trust and the key antecedents in its formation have only become more important to understand since the personal interaction and physical proximity in the office has been replaced by video conferencing and physical isolation.

This research has explored a gap in the current body of knowledge on trust. There are studies that explore the link between trustworthiness, justice, and trust, as well as studies that explore the measurement of technology value to stakeholders, but there are few studies that explore the linkages between trustworthiness, justice, and category-based trust in an individual to group context. This dissertation has also pointed to how this research could be further expanded to improve the generalizability of the results by repeating the study across additional service departments at Loblaw and additional technology departments and their business stakeholders in other organizations. The usefulness from a practitioner perspective by the leadership of Loblaw Technology could also be improved by repeating the study at a more granular level across the business units to gain insight into differences in trust-forming behavior in different departments within the Loblaw organization.

In closing, I would like to acknowledge that the completion of this research has been a journey, one that has provided both academic and professional insight, and an experience that I will be able to draw on for the remainder of my career. I feel that I have delivered a result that is of value to the academic community as well as a practical guide for improving the trust between the Loblaw Technology department and its business stakeholders.

End Notes

I wanted to start by acknowledging that this five-year journey started with the discussion Kathryn Brohman had with me in the Starbucks in Bellville one wintery Sunday in 2016 about the merits and challenges of doctoral research. That conversation sparked a desire in me to seek out a doctoral program, as there is a beauty in research, and more importantly, there is a purpose in giving back through the creation of knowledge. Kathryn, you have been a source of inspiration and support for both my teaching and doctoral research and I appreciate that you served as a member of my committee.

I am also indebted to Shaun McQuitty, who has provided such important guidance in the process of my proposal defense, data collection, and quantitative analysis of my data. Shaun always had another paper to send me to help me learn and understand how quantitative research involving Structural Equation Modeling should be conducted.

I also thank Kai Lamertz for his leadership of the DBA program and for his insights into how to write persuasively from an academic perspective, as well as the introduction to the theory supporting trust, trustworthiness, and justice. You showed me how to build up my arguments and themes through my literature review, while always ensuring I made it interesting with my own practitioner insights.

My committee has been there for me throughout the last two years, and I appreciate and respect them so much for helping me through the process of completing this research. I take forward with me an understanding of the process of academic research and a desire to continue to build on my ideas and perform future research, and to continue to share my ideas at conferences and through journal articles.

I would also like to thank the University of Athabasca, Faculty of Graduate Studies for their commitment to distance learning excellence, and for providing me with the opportunity to complete my

doctoral program while working and raising a family. Lifelong learning is very important to me, and the DBA program made it possible to fulfill my dreams of a doctoral education without putting the rest of my life on hold.

The antecedents of trust and the link between trust and satisfaction between a technology department and its business stakeholders continues to be a very interesting area of research and one that I will continue to investigate across both academic and practitioner dimensions after this dissertation.

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Appendix A

There are additional forms of interpersonal trust from the literature which are reviewed, and although they are not included as independent variables, they support the antecedents of trustworthiness: ability, integrity, and benevolence as key enables of a trusting relationship (Mayer et al., 1995).

Perceived Trust

Perceived trust is a combination of "reputation" and "sentiment" as well as "external verification" as described in understanding of how guests' perceived trust influences bookings on Airbnb (Zhang et al., 2018). In the study of trust of Airbnb hosts, Zhang et al. (2018) determine that the more other guests trust the host, the more trustworthy the host probably is. That study assumed that when trusting behavior occurs, trust has been built.

Cognitive Trust

Cognitive trust refers to that trust which is based on an instrumental evaluation by the person or group giving trust or the salient characteristics of the other party such as their integrity, competence, reliability, and dependability (Zhu, Newman, Miao, & Hooke, 2013). When there is a new stakeholder to technology then there is neither the time or level of engagement with the technology team required to build a relationship, and the trust level of the new business stakeholder will be near-zero and governed by antecedents of cognitive trust including the trustee's technical competence and reputation (Rehman et al., 2017). According to Dirks and Ferrin (2002), cognitive trust is typically reflected in a belief or expectation that the trustee is reliable, has integrity, is predictable, and will tell the truth and act in a fair or just manner. This dimension does not reflect that the trustor has a unique or special relationship with the referent, and the trustee would be expected to act in this fashion regardless of the identity of the trustor.

Affective Trust

The structure of organizations and the trust-building constructs provide the basis for affective trust, which refers to the trust based on emotional ties between two parties in a relationship. Trust develops over time as the two parties engage in a process of social exchange through the display of mutual care and concern for each other. Affective trust is a good proxy for the process of social exchange, given that it measures the extent to which both parties in a relationship engage in the reciprocated exchange of care and concern (Zhu et al., 2013). Affective trust reflects a belief or perception that one has a special or unique relationship with the trustee (Dirks & Ferrin, 2002). This idea is reflected in the perception that the trustee will act in a manner that intends to do good with regard to the trustor and will demonstrate concern about the trustor's welfare.

If people need to trust you to respect you and your competence, then establishing trust is an even more important requirement for delivering value. Harvard social psychologist Cuddy (2015) argues that people size you up in seconds, and what they are evaluating is: Can I trust this person? Can I respect this person? Psychologists refer to these dimensions as warmth and competence, respectively, and ideally, you want to be perceived as having both. Interestingly, Cuddy (2015) indicates that most people, especially in a professional context, believe that competence is the more important factor. After all, they want to prove that they are smart and talented enough to handle your business. However, in fact, trustworthiness is the most important factor in how people evaluate you. "From an evolutionary perspective," Cuddy (2015) says, "it is more crucial to our survival to know whether a person deserves our trust." If someone you are trying to influence does not trust you, you are not going to get very far; in fact, you might even elicit suspicion because you may come across as manipulative. A warm, trustworthy person who is also strong elicits admiration, but only after one has established trust does one's strength become a gift rather than a threat (Cuddy, 2015).

One of Sztompka's (1999) most important theoretical contributions is his description of how society translates historical levels of trust into current levels of trust. Structural context, including the stability, transparency, and accountability of institutions, is a critical mediating process. Distrust can easily grow after seemingly positives outcomes, and increases in trust only become a reality once there is incontrovertible proof that the transition is irreversible.

Appendix B – Certificate of 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.: **23991**

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

Supervisor:
Dr. Shaun McQuitty (Supervisor)

Project Title:
Trustworthiness and Fairness: The Social Exchange Enablers of Trust Between a Service Provider and its Stakeholders

Effective Date: June 30, 2020 **Expiry Date**: June 29, 2021

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: July 02, 2020**

Weiming Liu, Chair
Faculty of Business, Departmental Ethics Review Committee

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Appendix C – Pilot and Full Survey Emails

Pilot Data Collection Email

Subject: Trust in Loblaw Technology - Requesting your participation in Doctoral Dissertation research

Date: 8/04/2020

Dear Colleague,

I am conducting research for my Doctoral Dissertation, at the University of Athabasca, and would appreciate your help by completing a short online anonymous survey (15 minutes).

I have focused my research on how trust is formed, the key factors that facilitate a trusting relationship, and then how those factors contribute to the level of trust between individual business stakeholders and the Loblaw Technology department.

Your participation in the research is voluntary and anonymous, and your inclusion in this email has been created through random sampling (please do not forward the survey link).

Please follow the attached link to SurveyMonkey, where you will complete an online questionnaire asking you about the abilities and attitudes of people in Loblaw Technology and the processes that the Loblaw Technology department uses to make and communicate decisions.

The link to the survey is: https://www.surveymonkey.com/r/M8QJQ5R
The survey will be open from Tuesday, August 5, 2020 to Friday, August 14, 2020.

The goal of this research is to understand which factors most affects trust between Loblaw Technology and its business stakeholders, so that improvement programs can be designed and implemented to build trust, foster improved collaboration with our business stakeholders and improve business outcomes.

Thank you for your time and participation in this research.

David Markwell – SVP Loblaw Technology | Mobile 1.416.571.9708 | Pronouns: he/him/him

Loblaw Technology | Loblaw Companies Limited

Full Data Collection Email

Subject: Requesting your participation in a student research project focusing on the formation of Trust

Date: 09/27/2020

Dear Colleague,

I am writing to request your participation in a short anonymous online survey (less than 15 minutes).

I am asking as a student, I am collecting data for my quantitative Doctoral research project at Athabasca University.

I would really appreciate your help, the response rate during my pilot survey was 10% (really low) and I need at least 200 responses to this survey for a valid data analysis.

Your participation in the research is voluntary and anonymous, and your inclusion in this email has been created through random sampling (please do not forward the survey link). This is not phishing!

I have focused my research on how trust is formed, the key factors that facilitate a trusting relationship, and then how those factors contribute to the level of trust between individual business stakeholders (you) and the Loblaw Technology department (group).

You will be asked a series of questions about the trustworthiness of the Loblaw Technology department and the fairness of processes that the Loblaw Technology department uses to make and communicate decisions.

The link to the survey is: https://www.surveymonkey.com/r/M8QJQ5R

Thank you for your time, and your participation in this research.

David Markwell – Doctor of Business Administration Candidate | Athabasca University | Mobile 1.416.571.9708 | Pronouns: he/him/his

Appendix D – Full Questionnaire

Participant Information

PI-1 Please choose the business unit where you work.

PI-2 Please choose your level in the organization.

PI-3 How long have you worked at Loblaw?

PI-4 How long have you been in your current role?

Instructions for Part 1 of Survey

Think about the services provided by Loblaw Technology and the people in Loblaw Technology who provide them.

When answering the survey questions, please consider that Loblaw Technology is focused on facilitating the transformation of the organization at the strategic level by implementing technologies with high strategic potential that enable the business to realize it desired outcomes.

This part of the questionnaire uses a five point Likert Scale. For each statement, indicate the number that best describes how much you agree or disagree with each statement. (1 – Strongly disagree, 2-disagree, 3 –neither disagree nor agree, 4 – agree, 5 – strongly agree).

Note – People in Loblaw Technology can be internal FTEs, contractors or vendors.

Ability

Abil-1 The people in Loblaw Technology are very capable of performing their job.

Abil-2 Loblaw Technology is known to be successful at the things it tries to do.

Abil-3 Loblaw Technology has much knowledge about the work that needs to be done.

Abil-4 I feel very confident about the skills of the people in Loblaw Technology.

Abil-5 Loblaw Technology has specialized capabilities that can increase my business unit's performance.

Abil-6 The people in Loblaw Technology are well qualified.

Benevolence

Benev-1 Loblaw Technology is very concerned about providing me the tools I need to perform my job.

Benev-2 My needs are very important to the people in Loblaw Technology.

Benev-3 The people in Loblaw Technology would not knowingly do anything to put me or my job at risk.

Benev-4 The people in Loblaw Technology really look out for what is important to me.

Benev-5 The people in Loblaw Technology will go out of their way to help me.

Integrity

Integ-1 People in Loblaw Technologies meet their commitments to me and my line of business.

Integ-2 Loblaw Technology tries hard to be impartial in dealings with stakeholders.

Integ-3 Loblaw Technology's actions and behaviors are consistent.

Integ-4 I agree with Loblaw Technology's values.

Integ-5 Sound principles seem to guide Loblaw Technology's behavior.

Trust

Trust-1 I feel comfortable allowing Loblaw Technology to have influence over outcomes that are important to me.

Trust-2 I would be willing to let Loblaw Technology have complete control over decisions that affect how technology supports my business.

Trust-3 There is a sufficient level of oversight of Loblaw Technology by the organization.

Trust-4 I would be comfortable giving Loblaw Technology a task or problem, which was critical to me, even if I could not monitor their actions.

Satisfaction

Satisf-1 How satisfied are you that Loblaw Technology is implementing emerging technologies with high strategic potential?

Satisf-2 How satisfied are you with the on-time delivery of projects by Loblaw Technology?

Satisf-3 How satisfied are you with the reliability of the applications provided by Loblaw Technology?

Satisf-4 How satisfied are you with the quality of the applications provided to you by Loblaw Technology, to do your job?

Satisf-5 How satisfied are you with how Loblaw Technology spends its budget?

Instructions for Part 2 of Survey

Think about the processes Loblaw Technology uses to make decisions about capital planning, projects, innovation priorities and service levels and root cause analysis of incidents, they provide to your business unit.

This section of the questionnaire uses a five point Likert Scale. For each statement, indicate the number that best describes how much you agree. (1 – to a very small extent, 2- to small extent, 3 –to a moderate extent, 4 – to a large extent, 5 – to a very large extent).

Procedural Justice

ProcJ-1 Are you able to express your views during these processes (capital planning, project prioritization, innovation priorities)?

ProcJ-2 Can you influence the decisions arrived at by these processes (capital planning, project prioritization, innovation priorities)?

ProcJ-3 Are these processes applied consistently (capital planning, project prioritization, innovation priorities)?

ProcJ-4 Are these processes free of bias (capital planning, project prioritization, innovation priorities)?

ProcJ-5 Are these processes based on accurate information (capital planning, project prioritization, innovation priorities)?

ProcJ-6 Are you able to appeal the decisions arrived at by these processes (capital planning, project prioritization, innovation priorities)?

ProcJ-7 Do these processes uphold ethical and moral standards (capital planning, project prioritization, innovation priorities)?

Distributive Justice

DistJ-1 Do the outcomes of Loblaw Technology's processes reflect your business units' priorities?

DistJ-2 Are the outcomes of Loblaw Technology's processes appropriate to support the operations of your business unit?

DistJ-3 Are the outcomes of Loblaw Technology's processes appropriate to support the strategies of your business unit?

DistJ-4 Do the outcomes of Loblaw Technology's processes reflect what your business unit has articulated as its priorities?

Interpersonal Justice

InterJ-1 When they communicate with you, do the people in Loblaw Technology treat you in a polite manner?

InterJ-2 When they communicate with you, do the people in Loblaw Technology treat you with dignity?

InterJ-3 When they communicate with you, do the people in Loblaw Technology treat you with respect?

InterJ-4 When they communicate with you, do the people in Loblaw Technology refrain from improper comments?

Informational Justice

InfoJ-1 Is Loblaw Technology transparent when communicating with you?

InfoJ-2 Has Loblaw Technology explained its decision-making processes thoroughly (capital planning, project prioritization, innovation priorities)?

InfoJ-3 Were the explanations to your questions regarding Loblaw Technology's processes, reasonable?

InfoJ-4 Has Loblaw Technology communicated details of these processes in a timely manner (capital planning, project prioritization, innovation priorities)?

InfoJ-5 Has Loblaw Technology tailored its major incident communications to meet your individual business unit needs?

Appendix E – Lisrel Syntax for Model Using all Variables and Data

Lisrel syntax for Full Unedited Model

```
Raw Data from file 'C:\Users\dmarkwe\Desktop\New folder\Full Dataset.LSF'
Sample Size = 309
Latent Variables  Trust Satisf Ability Benev Integ ProcJ DistJ InterJ InfoJ
Relationships
'Trust-1' = Trust
'Trust-2' = Trust
'Trust-3' = Trust
'Trust-4' = Trust
'Satisf-1' = Satisf
'Satisf-2' = Satisf
'Satisf-3' = Satisf
'Satisf-4' = Satisf
'Satisf-5' = Satisf
'Abil-1' = Ability
'Abil-2' = Ability
'Abil-3' = Ability
'Abil-4' = Ability
'Abil-5' = Ability
'Abil-6' = Ability
'Benev-1' = Benev
'Benev-2' = Benev
'Benev-3' = Benev
'Benev-4' = Benev
'Benev-5' = Benev
'Integ-1' = Integ
'Integ-2' = Integ
'Integ-3' = Integ
'Integ-4' = Integ
'Integ-5' = Integ
'ProcJ-1' = ProcJ
'ProcJ-2' = ProcJ
'ProcJ-3' = ProcJ
'ProcJ-4' = ProcJ
'ProcJ-5' = ProcJ
'ProcJ-6' = ProcJ
'ProcJ-7' = ProcJ
'DistJ-1' = DistJ
'DistJ-2' = DistJ
'DistJ-3' = DistJ
'DistJ-4' = DistJ
'InterJ-1' = InterJ
'InterJ-2' = InterJ
'InterJ-3' = InterJ
'InterJ-4' = InterJ
'InfoJ-1' = InfoJ
'InfoJ-2' = InfoJ
'InfoJ-3' = InfoJ
'InfoJ-4' = InfoJ
'InfoJ-5' = InfoJ
Satisf = Trust
Trust = Ability Benev Integ ProcJ DistJ InterJ InfoJ
Path Diagram
End of Problem
```

Appendix F – Lisrel Syntax for Improved Model

Updated LISREL model syntax

```
Raw Data from file 'C:\Users\dmarkwe\Desktop\New folder\Full Dataset.LSF'
Sample Size = 309
Latent Variables  Trust Satisf Ability Benev Integ ProcJ DistJ InterJ InfoJ
Relationships
'Trust-1' = Trust
'Trust-2' = Trust
!'Trust-3' = Trust
'Trust-4' = Trust
'Satisf-1' = Satisf
'Satisf-2' = Satisf
'Satisf-3' = Satisf
'Satisf-4' = Satisf
!'Satisf-5' = Satisf
'Abil-1' = Ability
'Abil-2' = Ability
'Abil-3' = Ability
'Abil-4' = Ability
'Abil-5' = Ability
'Abil-6' = Ability
'Benev-1' = Benev
'Benev-2' = Benev
'Benev-3' = Benev
'Benev-4' = Benev
'Benev-5' = Benev
'Integ-1' = Integ
!'Integ-2' = Integ
'Integ-3' = Integ
'Integ-4' = Integ
'Integ-5' = Integ
'ProcJ-1' = ProcJ
'ProcJ-2' = ProcJ
'ProcJ-3' = ProcJ
'ProcJ-4' = ProcJ
'ProcJ-5' = ProcJ
'ProcJ-6' = ProcJ
'ProcJ-7' = ProcJ
'DistJ-1' = DistJ
'DistJ-2' = DistJ
'DistJ-3' = DistJ
'DistJ-4' = DistJ
'InterJ-1' = InterJ
'InterJ-2' = InterJ
'InterJ-3' = InterJ
!'InterJ-4' = InterJ
'InfoJ-1' = InfoJ
'InfoJ-2' = InfoJ
'InfoJ-3' = InfoJ
'InfoJ-4' = InfoJ
'InfoJ-5' = InfoJ
Satisf = Trust
Trust = Ability Benev Integ ProcJ DistJ InterJ InfoJ
set the error Covariance of 'ProcJ-1' and 'ProcJ-2' free
set the error Covariance of 'Satisf-4' and 'Satisf-3' free
set the error Covariance of 'DistJ-3' and 'DistJ-1' free
!Lisrel Output EF
Path Diagram
End of Problem
```