MORE IMPORTANT THAN THEIR MONEY OFFERING:

The Application of Action Research, ANP and TOPSIS to Real Estate Investing

Doctoral Thesis

University of Liverpool

By

Katherine Gunderson

Fort Lauderdale, Florida

January 2019

Abstract

This thesis examines the supplier selection process of non-institutional financial capital suppliers by small-scale real estate investing organizations and focuses specifically on the key criterion that real estate investing companies should seek when selecting and evaluating potential suppliers to promote an ideal partnership. These partnerships can provide the real estate investing organizations with vital capital access that allows business growth, larger transaction sizes, and greater volume but can be detrimental if the partners are ill-matched. Without a reputation or industry experience, many novice real estate investors are unaware of what qualities are most important to pursue when forming these critical relationships and simply accept any partner willing to provide capital. By using Action Research and quantitative methodologies of Analytical Network Process (ANP) and TOPSIS, this thesis documents the development of a start-up, solo-entrepreneurial investing organization and the actionable creation of an organizational supplier onboarding tool. The study surveys nineteen real estate industry expert participants and ultimately highlights six criterions as most important when selecting and evaluating potential financial capital suppliers: trustworthiness, motivation, quality of past experience, collateral and capacity, risk tolerance and risk appetite, and responsiveness. Using these findings, the entrepreneurial organization successfully develops and launches a free, online personalized questionnaire service for the benefit of both the future potential financial suppliers and the investing organization that strengthens partner communication, clarifies organizational culture and business development, and promotes overall service supply chain growth.

Keywords: Action Research, Real Estate Investing, Supplier Selection, ANP, TOPSIS, Organizational Culture, Organizational Development, Solo-Entrepreneur

Acknowledgements

This thesis is the result of a Doctorate of Business Administration program with the University of Liverpool, United Kingdom. The author would like to acknowledge the support of her friends and family, but most importantly her husband, Daniel Gunderson, for his patience, unwavering caring and reassuring demeanour while on this journey together. The author would also like to convey her appreciation for the industry experts of Urban Land Institute who were vital in providing their feedback during the various rounds of research surveys. And last but not least, grateful acknowledgement for Jim Hanly, Research Supervisor, that helped guide this thesis through to its completion and provided clear and focused advice.

Table of Contents

Table of Figures

Table of Tables

CHAPTER 1: INTRODUCTION

Competitive business conflict in the modern age is not waged between individual companies, but is waged between organizational supply chains; these external stakeholders are inextricably linked to the organization's goals, actions and future successes (Nair, Jayaram and Das, 2015). This new reality accentuates the fact that the superior performance of suppliers within that supply chain is dependent upon the selection, evaluation and on-going development of suppliers that can support the organization's objectives. This difficult task is exacerbated for service specific supply chains as they are exceedingly difficult to visualize, measure and diversify when compared with traditional product-based supply chains (not to mention the dearth of research on the service supply chain management) (Cho et al., 2012). Organizations can overcome these challenges by establishing appropriate supplier selection policies and internalizing a focused organizational supply chain management strategy. There is ample literature available on supplier selection and multi-criteria decision-making to aid with the creation of these policies and strategies for organizations of all sizes and in all industries (Ho, Xu and Dey, 2010). This research is particularly interested in the smallest of organizations, the solo-entrepreneurship start-up, and in the real estate investing industry, where service supply chain management has yet to be explored in detail.

Traditionally, supply chain management and supplier selection research has focused on manufacturing sector contexts (Boon-itt and Pongpanarat, 2011), leaving service-based organizations with little guidance on service-specific complexities like intangibility, inseparability and heterogeneity (Cho et al., 2012). The real estate research that has been carried out thus far has almost exclusively concentrated on larger, institutional organizations entities like REITs or national-scale organizations which have vast differences in financing, deal structuring, and strategy from smaller-scale operations. As such, this thesis aims to provide insight into problems faced by the specific segment of small-scale investors that form their own businesses within the real estate investing industry. These solo or micro entrepreneurship endeavours, struggling with the same transitionary growth issues all inexperienced businesses face, as well as dealing with real estate industry specific issues, are the contextual business category of this research with the researcher's own start-up organization playing a demonstrative role in this study.

Conceptually, this research amalgamates pertinent practitioner experience with the rigor of scholarly research and theoretical content to address initial curiosity around which individualistic personal and financial criterion best supports the likelihood for real estate investing partnerships to form into beneficial long-term supplier partnerships. To help support a small, growing real estate investing organization just beginning to form these critical partnerships, the research captures knowledgeable opinions from industry experts to elevate practitioner knowledge into scholarly literature through knowledge creation and reflective action research using three major stages of exploration focusing on service supply chain supplier selection criteria, analysis of those criteria for importance, and the implementation of a tactile form of action in the creation of a supplier onboarding tool. The creation of this tool and its organizational implications are major points of reflection for the researcher. Ultimately, the research identifies an opportune organizational metric for further organizational action and provides clarity on a variety of entrepreneurial challenges as it explores what it means to do action research as a solo-entrepreneur.

Statement of Problem

Finding good deals and placing capital (Grosso, 2016) are of principal importance for real estate investing organizations. And yet, for many small, entrepreneurial organizations, sourcing initial financing without tapping into personal funds and/or ‘friends and family’ (F&F) money (Lee and Persson, 2016) is the primary challenge. Even though F&F sources may increase a capital constrained entrepreneur’s access to liquidity, it comes at the price of reduced risk taking which can stifle investment and stunt organizational growth (Lee and Persson, 2016). There also comes a point when F&F resources are no longer adequate as the primary source of organizational capital making external resources necessary. Therefore, a pivotal moment for organizational progression and development is when a real estate investing organization looks to take the transitionary step away from F&F financing into external capital financing for larger, risker or higher-volume transactions, and yet it is scarcely researched and relatively ignored by both scholarly and practitioner-focused literatures. Instead, it is simply accepted that real estate investing organizations rely on either mortgage loans from traditional institutions, seller financing or equity partners for all their financing needs (Eldred, 2012). Organizations that can form these partnerships with reliable frequency create a valuable competitive advantage through superior supply chain management. However, many entrepreneurial organizations lack the necessary reputation, network, experience and skillset for negotiating and forming these vital financing relationships that all come as part of organizational development and a strong organizational culture.

So, where do entrepreneurial organizations focus to start addressing these limitations while simultaneously beginning to build a business? How do real estate investing organizations begin to form these pivotal relationships? How should an entrepreneurial organization, like the researcher's own personal real estate investing organization, Apsley & Grand, go about building these important supplier connections to avoid costly miscommunications and increase the likelihood of beneficial transactions for both parties? When developing this critical component of the service supply chain, what are the key things to be looking for, accentuating or discussing with potential suppliers? How does the growth of this supply chain impact the organization? What tools can be used to help with creating and reinforcing a supply chain competitive advantage? This supply chain provides Apsley & Grand a competitive advantage that is not solely derived by firm-level resources, but also from idiosyncratic capabilities embedded in dyadic and network relationships (McGrath and O'Toole, 2016) making it extra valuable for an entrepreneurial enterprise.

Another consideration in the forefront of the researcher's curiosity is the impact the supply chain will have on the ultimate kind of business being built and the way incorporating a large degree of dependence upon external resources will modify the entrepreneurial journey and the entrepreneur's identity. Selden and Fletcher (2015) explain that the entrepreneurial journey "is an emergent sequence of events in which an event is both path dependent on prior processes and contingent on contemporaneous processes" that allows an idea to form into a business plan, then eventually into an implemented business model; the events of this journey are a key part of the explanation of the business outcome itself. For a researcher, the idea of this journey intertwines with the journey of knowledge creation and sense-making to converge with the previous practitioner shell into a 'super' identity with its own behavioral expectations (Newbery, 2018). It is all unknown, undefined and challenging; and yet, it is rewarding and possible. And all that remains for the researcher solo-entrepreneur to clarify is the best way to go about tackling the most challenging aspect of the business model while keeping a close, reflexive eye on the influences of such activities along the way.

Development of Study Purpose

Entrepreneurial firms are action-based, context-dependent and do much of their learning through experimentation, trial and error, problem-solving and learning by doing for the large part (McGrath and

O'Toole, 2016). To overcome these challenges, entrepreneurs must embrace the fact that they are a reflexive agent engaging in purposeful action (Sarason, Dean, and Dillard, 2006), that the entrepreneurial process transpires over time (McMullen and Dimov, 2013), and that entrepreneurial firms are limited small businesses without the specialist managerial expertise, reputation, and resources that larger organizations have including financial, informational, and human (McGrath and O'Toole, 2016). But, none of this is new. It is well known that starting a business is a difficult endeavour, but many have been successful in starting businesses and, for the researcher having studied business for as many years as a doctor can, the researcher wonders 'why not me?' Recognizing that the entrepreneur transcends along the entrepreneurial journey through "series and combinations of entrepreneurs' autonomous, innovative, and unpredictable or improvised actions and interactions" (Cha and Bae, 2010), this action research thesis provides the optimum structure for impetus, reflective investigation and sense-making in the midst of action itself since entrepreneurs cannot propose to apply knowledge in any straightforward method when that knowledge has not yet been obtained (Ramsey, 2014). This study developed around the curiosity of a solo-entrepreneur, the intrigue of a researcher and the determination of a practitioner. Ultimately, what effervesced was a multi-fold emphasis around how to cultivate the entrepreneurial experience of Apsley & Grand's autonomous, innovative and improvised interactions into some semblance of informed organizational structure, so it can be repeatable and profitable.

Consequently, this research seeks to address this line of questioning by focusing on the following research problem and sub-questions:

"HOW DOES APSLEY & GRAND BEST APPROACH THE EVALUATION AND SELECTION OF FINANCIAL CAPITAL SUPPLIER PARTNERS FOR A STRONG, RELIABLE SERVICE SUPPLY CHAIN?"

1) WHAT CRITERIA ARE THE MOST IMPORTANT FOR APSLEY & GRAND TO EMPHASIZE TO INCREASE THE LIKELIHOOD OF A BENEFICIAL FINANCIAL CAPITAL SUPPLIER SELECTION AND PARTNERSHIP?
2) IN WHAT WAYS DO THE DIFFERENT CRITERIA IMPACT ORGANIZATIONAL DEVELOPMENT FOR APSLEY & GRAND?
3) IN WHAT WAYS DO THE DIFFERENT CRITERIA IMPACT ORGANIZATIONAL CULTURE FOR APSLEY & GRAND?
4) WHAT KIND OF TOOL CAN BE IMPLEMENTED TO SUPPORT THE CREATION OF THE SUPPLY CHAIN?

As a starting point, this research explores real estate investing supply chain partnerships formed between the real estate investing organization and the potential financial capital suppliers to identify and highlight the significance of supplier selection criteria through multi-criteria decision-making techniques and to develop a quantitative appreciation for the relationship-building process within supply chain management. In other words, the simple aim is to help evaluate beneficial partners; or on the other hand, to avoid negative partners that could result in wasted energy, duplicated efforts, lost profitable opportunities, or even lengthy legal proceedings which would be devastating or destructive to an entrepreneurial endeavour like Apsley & Grand. The goal of this action research project is to allow Apsley & Grand to quickly recognize ideal potential financial partnerships (and avoid less suitable ones without complete dependence upon the steep and expensive learning curve of experience) by implementing organizational tools and developing an organization with a strong culture focused on fostering these essential partnerships.

Overview of Thesis

This thesis on supplier selection in real estate investing partnerships consists of six chapters. The first two chapters are an introduction and exploration into the problem and relevant literature using the concepts of supply chain management, supplier selection and a variety of real estate constructs to inform the conceptual framework for the research beginning with a brief introduction to the organizational context. Chapter 3 provides a detailed theoretical background for understanding the different research methods and proposed mixed method methodological framework. It is within this chapter that the study introduces the Apsley & Grand Investor Indicator, or AGII, which embodies the tactile action in this research project. The following chapter explains the application of the proposed research design in collaboration with real estate industry experts and the analysis of the data. It concludes with three feasibility exercises to test the AGII in real world applications. Then, Chapter 5 clarifies the research findings with detailed evaluations, insights, and organizational progression. The chapter also includes a section that explores the action research outcomes by highlighting key moments in the researcher's reflective journey as an entrepreneur. Chapter 6 closes the thesis with a reflective review of the significance of the research and concluding remarks.

Chapter 2: Research Background and Context

This research operates within the much larger context of real estate investing, service supply chain management and supplier selection. These different layers all interrelate within the organizational context of Apsley & Grand, a solo-entrepreneurial start-up real estate investing firm. Not only does the founder/researcher face the challenges of starting a company alone but must also learn to successfully navigate within the different contexts of entrepreneurship and real estate industry deal-making. For Apsley & Grand, being able to foster and strengthen a strong supply chain of financial capital suppliers is key to effectively operating as a real estate investing organization. And this strong supply chain is determined by the strength of the suppliers selected within it which indicates that supplier selection plays just as vital role as the other contexts for the success of Apsley & Grand.

This chapter helps provide a concise review of the relevant literature available on these contexts to provide a level understanding of the operational realm of the research being performed. By performing this review of the literature, the researcher presents the results of decisions made on "about sources in terms of breadth, selection, relevance, currency, availability and authority" (Badenhorst, 2018). This task is not to be undervalued since the literature review component of any study represents what some consider to be the most important step of the entire research process because it represents the most effective way to familiarize assumptions, ideas, theories, interpretations, vocabulary and models pertaining to a given topic and provides a foundation for giving meaning to the resulting research (Onwuegbuzie, 2018). The researcher supplies this review as a way of unfolding a broader clarification to the importance and multi-faceted reach of the research problem. The following sections concentrate on the overlapping organizational contexts and provide important definitions, figures and explanation to illustrate the important themes needed to address the research questions.

Organizational Context of Research

Apsley & Grand Real Estate Investing and Development Company (www.ApsleyGrand.com) is a new entrepreneurial endeavour the researcher began part-time in 2017. It acquires historical value-add residential, multi-family and commercial apartment complexes through business partnerships with external financial capital suppliers to fund the acquisition, rehabilitation and ongoing maintenance of the properties. The management structure of the company is a sole proprietorship and is currently based in Fort Lauderdale, FL, USA. Within the real estate investing industry, Apsley & Grand's side of the business relationship is traditionally termed the 'working partner' (McNellis, 2016) or 'general partner'. The working partner provides experience, expertise, relationships with local vendors, time and sweat equity in selecting, purchasing, improving, and ultimately selling or tenanting a property for profit and cash flow respectively. These real estate projects are made possible by an initial capital investment from the financial capital suppliers, or the 'money partners,' and are expected to result in a profitable investment with initial capital outlay plus interest repayment at the end of the projects.

Business Model

Within the real estate investing industry, organizations must establish a niche market and product type to reduce risk by expanding knowledge of the area, properties and causes in value changes (Cummings, 2010). Apsley & Grand creates value by offering a highly customized, narrow service that focuses uniquely on sustainable and preservation real estate investment opportunities that offers the highest contribution to the local community while also providing a high rate of return for financial suppliers. It also provides tenants a unique leasing opportunity to use "Bnb'able" apartment lease options to supplement the monthly rent owed by hosting paying guests. Apsley & Grand charges a management fee and coordinates the guests on behalf of the tenants, saving time and energy, while offering a unique selling point for the properties to create additional value for both tenants and capital suppliers. In other words, Apsley & Grand does real estate development and property management using the funds of financial capital suppliers to access these project opportunities. The provided strategy canvas in Figure 1 on the next page is a visual aid to help highlight the business model's strategic value to the marketplace when comparing the Bnb'able apartment model to the other traditional offers of either homeownership or leasing (Kim and Mauborgne, 2015).

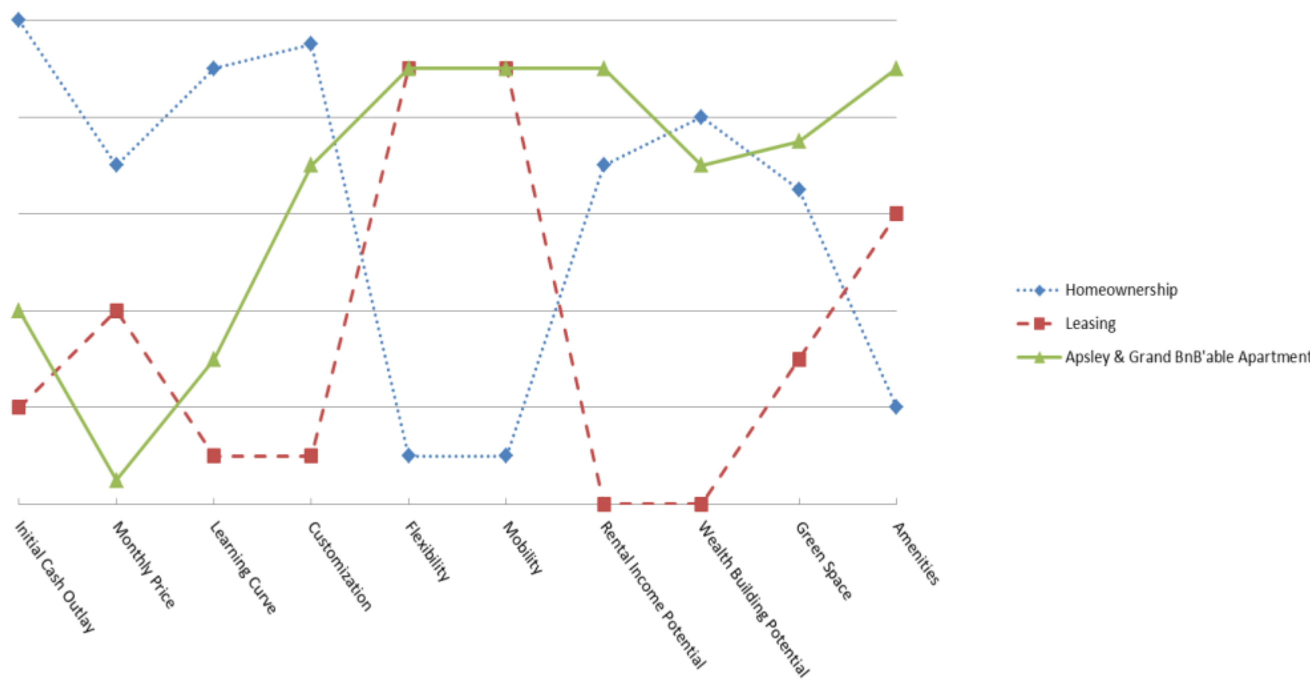


Figure 1 – Apsley & Grand Strategy Canvas

To date, the company is in its beginning formation stages without major capital financial suppliers or large-scale projects. The company completed its first residential transaction in 2018 with no outside financial suppliers to begin establishing foundational real estate investing experience and industry relationships. Apsley & Grand is currently a solo-enterprise, but is operationalizing to allow for quick growth and onboarding in the next 18-24 months. It is this intentional focus on providing structure, process and strategic clarity early in the organization's formation that underlies the research motivation for the benefit of both the external stakeholder onboarding efforts as well as for the new hire employees in future internal onboarding efforts. This structural intentionally also drives the researcher's focus on understanding the interaction between organizational culture, development, external supplier selection and the impact these contextual elements have on the organization as it forms and grows.

As a service provider at its core, Apsley & Grand looks to its financial capital suppliers to play a vital dual role as both vendor and customer; they are a part of the real estate deals from the beginning and through to completion as capital suppliers and simultaneously the organization's primary customer base. Property tenants are final real estate consumers in the value chain and allow additional transactional value with unique lease and property management potential, but are not a focus of this study. Long-term, the goal is to convert Apsley & Grand into a franchise business to allow additional entrepreneurs access to the established operations, tools (like those formed throughout this research) and processes to help reinvigorate their own communities and have a greater global impact on preservation, entrepreneurship and the built environment. These longer-term objectives reinforce the necessity for clear, transferable processes and procedures that future Apsley & Grand franchise entrepreneurs can quickly and successfully apply to their own marketplaces.

To best understand the type of business Apsley & Grand is, the organizational development that is needed and the industry within which it operates, the following sections detail the real estate sector and industry as background supportive information. Future sections lightly apply the terminology and information found here in more specific relation to the research performed, but it was deemed helpful to provide a broad overview of real estate concepts to clarify the setting in which the service supply chain and supplier relationship are managed.

Real Estate Sector

The real estate sector encompasses all the property where people live, work and play. The Internal Revenue Service has recently clarified the description of real estate and defines "real property to include land and improvements to land […which comprises] inherently permanent structures and the structural components" (Dell, 2017). In other words, real estate is simply 'land, and the structures upon it.' Land is a necessary input for production and is a storehouse for wealth (Larson, 2015) and the structures upon it are the tactile, physical entities like buildings and roads that everyone interacts with daily. Most individuals only directly transact in the real estate sector when going to purchase a primary residence with the U.S. homeownership rate at 64.2% for Q1 2018 (Quarterly Residential Vacancies and Homeownership, 2018); however, the monstrous downturn of the 2007-2009 U.S. housing market caused a direct loss of nearly $3 trillion in just two years (totalling a shocking $8 trillion loss from 2006-2012 (Baker and Chinloy, 2014)) and brought real estate to the forefront of the public consciousness as it demonstrated its powerful role in global economics (Mathieu, 2016).

Real estate structures can be broadly categorized into residential, commercial and industrial. Other asset categories include retail, hospitality, healthcare, apartments, infrastructure (i.e. airports or public facilities), office or agricultural (Baker and Chinloy, 2014). In the United States, the national land value was $23 trillion in 2009, with only $1.8 billion being federally owned (Larson, 2015). This means that the remaining $22.9 trillion of land throughout the U.S. is owned and managed by private individuals, partnerships or corporate entities. The development of that U.S. real estate represented an additional $5 trillion market segment in 2009, generated about a third of the U.S. GDP, created jobs for more than 9 million Americans, and was responsible for nearly 70 percent of local property tax revenue that pays for schools, roads, police, and other essential public services (Peca, 2009). And even despite the recent Great Recession, by the end of 2011, allocation to real estate, through either direct property investment or shares of publicly traded real estate investment trust securities (REITs), had doubled from the last decade to 9.1% of domestic pension assets, indicating that real estate is a prominent, and growing, asset class in U.S. investor portfolios (Glascock et al., 2017).

Unlike other investments like stocks, bonds or mutual funds, real estate offers financial capital investors the characteristics of a commodity and the additional ability to generate cash flow income streams, recapture the principal investment, acquire active and passive property value appreciation (Manganelli, 2015) and "is the ultimate hedge against inflation" (Grosso, 2016). Real estate is the one market that is all encompassing; each of us "dedicate most part of our income to real estate realization, directly, purchasing or renting, and indirectly, contributing to the creation and maintenance of the city" where we live as consumers and citizens (Giuffrida, 2012). This universal nature ensures a level of minimum demand that other asset classes do not have. On a more personalized level, real estate development and investment are professions where an individual can strive to make money while having a positive social effect on the world by improving the physical surrounding spaces (Peca, 2009). This potential for meaningful impact (through building a business while building physical structures) is a huge motivational driver for this research and organization.

Real estate investing is distinctive as a place for human and social communication in which individual creativity intermingles with the urban structure (Giuffrida, 2012). This element of individuality is what leads Giuffrida (2012) to call real estate a 'self-referential asset.' Where the value of the real estate is not entirely dependent upon the base utility or yield, like other investments might, but it is similarly dependent upon the agent's individual motivation profile and value perspective. It is where the logic of investing meets the emotion of the marketplace. Real estate investing "combines the assets availability and the financial possibilities with the psychological, cultural and moral features involving values, beliefs, information, expectations and hopes (as they influence the behaviour of the agent through fear or courage, panic or euphoria)" (Giuffrida, 2012). Giuffrida's representation of real estate's self-referential qualities accentuates its subjective nature. This is the side of the industry that is commonly calculated away with fancy formulas of beta and volatility in favour of more traditional, objective financial analysis designed to seemingly hedge the human element completely out. Even though Giuffrida's text is exceedingly abstract, it does a good job of representing the psychological rudiments of real estate that practitioners within this context must acknowledge. It is this distinctive perspective of individuality and interconnectivity with irrational agents that creates vulnerability in the real estate marketplace and that cannot be overlooked.

The real estate market, just like the equities markets, might reveal 'bandwagon' effects as a (at times volatile) side effect of its interconnectivity; also, real estate can be difficult to sell, "difficult to value, sensitive to market conditions, strongly cyclical and prone to speculative bubbles" (Bentick and Lewis, 2004). Real estate carries a degree of illiquidity due to longer transaction time frames and higher transaction costs, and as such, can charge a higher rate of return for having the invested capital less accessible. Additionally, "the real estate illiquidity premium rises during times of crisis because selling these assets becomes more difficult" (Baker and Chinloy, 2014). When facing excess supply situations, real estate investments, unlike other investments, are by in large irreversible, meaning they cannot be shifted from one place to a different area with higher demand (Bentick and Lewis, 2004). Given its immobility, cyclicality and subjective valuations, the market for real estate opens itself up to idiosyncratic and unpredictable behaviour and the associated levels of risk. This risk is both what justifies the return and reward for market participants and what warrants real estate investments outside of those for personal use. But that potential for return is also what attracts speculation which in turn fuels additional degrees of risk, market volatility and the cyclicality for which real estate investing is notorious.

Real Estate Speculation

Many people understandably interchange the concept of real estate investing with real estate speculation, or even gambling, given the promulgation of many late night TV hosts of how easy it is to 'get rich quick' in real estate with no work and no money. Glaeser (2013) decidedly declares "that America has always been a nation of real estate speculators" citing property owners as famous as George Washington and Benjamin Franklin as speculators. Adam Smith in his ubiquitous *The Wealth of Nations (1776)* identified a speculator by the immediate readiness to pursue a short-term opportunity for profit, as did economist John Maynard Keynes, where he described speculation as "the activity of forecasting the psychology of the market," instead of pursuing what he titled 'enterprise' as "the activity of forecasting the prospective yield of assets over the whole life" (Chancellor, 1999). And, of course, it is easy to understand why some real estate transactions could, and should, be considered highly speculative, especially in times of euphoria or panic, that further promotes the general misinterpretations and conventional knowledge associating real estate investing as less desirable than stocks or bonds.

In his book, *Devil take the Hindmost (1999),* Chancellor provides a worthy classification of the subtle difference between speculation and investing: for "the capitalist is confronted with a broad spectrum of risk with prudent investment at one end and reckless gambling at the other. Speculation lies somewhere between the two." Or as a financial advisor from New Jersey puts plainly, "where speculators are trying to outsmart the market, investors simply attempt to participate in it" (Kinney, 2016). Speculation does have the redeeming quality of providing capital for local companies, promoting growth and the optimal allocation of resources (Chancellor, 1999). Speculators purchase property with the expectation of rental rate growth driving up the asset price and/or on the belief of certain asset value appreciation given the asset's location and market to allow a quick or significant (or both) profit (Bentick and Lewis, 2004). These real estate speculation definitions could admissibly be applied to real estate investing, but the primary difference is that real estate investments are done with a longer term time frame and consistent cash flow from rent payments in mind to justify that the property would be able to sustain itself as an asset to the real estate investing organization.

Within the context of this research, real estate investments are not dependent upon appreciation in any way to rationalize the property as a worthy investment, unlike most speculative real estate investments. Investments are found worthy based on factors like historic value, community impact, and other elements along with the traditional financial. This is an important niche and qualifying uniqueness within the Apsley & Grand organizational context that places an emphasis on less speculative and more thoughtful investments. This is an important distinction (between speculative capital suppliers and thoughtful, value-focused capital suppliers) for Apsley & Grand's future supply chain members for mission alignment. All the same, this research focuses on building a business with a reputation for operational efficiency and an organizational culture around analysis and adequate return, not real estate speculation.

Awareness for the difference between speculation and investment and the appreciation for when 'it is too good to be true' is important for long-term organizational success in this industry.

Real Estate Investing Market Participants

Financial capital suppliers, or capital investors, in the real estate market can be individuals, partnerships or LLCs, corporations or REITs. For Apsley & Grand and this research, the organizational focus is specifically on the micro individual/business partnership level capital suppliers. The research does not consider medium or large-size corporations or REIT institutional operators as they have different scale, scope and investment strategies. By focusing exclusively on individuals or small business partnerships Apsley & Grand has the chance to create meaningful one-on-one relationships and focus on mutual values. The larger the organization, the more difficult collaborating on values and forming personal relationships becomes. These smaller-scale relationships also allow for the opportunity to provide more personalized service for the capital suppliers.

Most capital suppliers that are interested in partnering with Aspley & Grand at the outset can be categorized as 'impact investors' as they are motivated to invest in projects that align with personal values and prioritize the creation of social good ('make an impact'), while simultaneously making a financial return on investment (Roundy, Holzhauer and Dai, 2017). On the spectrum where one side is philanthropists looking to only create value, and on the other traditional capital investors primarily focusing on capturing value, impact capital investors are in the middle pursuing both value creation and value capture together (Roundy, Holzhauer and Dai, 2017). Capital investors solely looking for financial return are not interested in supplying financing for Apsley & Grand projects because the returns are not high enough when compared to other investment options due to the added historic and sustainable expenses associated with the specific product offering. There are other real estate investing and development companies participating within this marketplace as competition to Apsley & Grand that provide similar services.

All real estate investing organizations like Apsley & Grand aim to use known market knowledge (though imperfect and asymmetric) and available financial tools to acquire ownership of profitable real estate investments (Goddard and Marcum, 2012). They all operate within the real estate market which is comprised of a general set of rules, obligations and conditions for property right transfers and ownership legality (Belej et al., 2016). This marketplace is concurrently national and regional due to reactivity to federal interest rate policies and national banking regulations. However, the most important factors in this marketplace are undoubtedly a local affair and real estate market participants primarily interact with local economic and demographic conditions (Belej et al., 2016). Shilling (2003) points out that even though the local real estate markets may be unique and specialized, real estate investing companies tend to have uniform expectations, price properties in the same ways, and are unfailingly confident in expected future returns regardless of price movement. This homogeneous outlook of participants could be said for investors in other industries as well. And yet, this confidence and expectation uniformity can lead to what Glaeser (2013) considers the real estate investing company's "dominant mistake: to underestimate the impact that elastic long-run supply of land, structures and crops will have on future land values." Nevertheless, what distinguishes the investing organizations from each other is how they can create meaningful partnerships and execute strategies to quickly, profitably and repetitively transact within the marketplace.

Real Estate Categorizations and Strategies

Apsley & Grand focuses on all real estate product types allowing the historic property to be redeveloped for the most appropriate use for its location and highest value for the community. This is not industry standard as many real estate investing organizations focus on a specific product type to standardize and lower operational risk (Boardman, 2012). This one of the first decisions many real estate investing organizations must make when entering the market and is a key strategic point for the organization. As mentioned previously, there are many different types of real estate product types that encompass the real estate market ranging from single family homes, to airports, to large apartment complexes to athletic stadiums. But, it is residential, retail, office and industrial that would be considered the "Four Food Groups" of real estate investment property types (Goddard and Marcum, 2012). Others would add Farmland, Land Speculation, Hotels and Shopping Centres as other important investment types to consider (Cummings, 2010).

Residential includes single family homes, duplexes (2-unit), triplexes (3-unit) and quadraplexes (4-unit) products. Commercial real estate products, like retail and office, are anywhere people do not live or apartment buildings five units or above (Grosso, 2016). By having a broad categorization of real estate types, Apsley & Grand has an increased likelihood of withstanding market volatility in one product type through diversification and idea cross-pollination from participating in other product types. Although this diversification may be more difficult and have a more challenging organizational learning curve, working in multiple product types provides the opportunity for experimentation, advancement in the field, and exciting new challenges to avoid repetitiveness and burn-out from doing the same types of projects repeatedly. This strategy also allows Apsley & Grand to provide future franchise operators a wide knowledge base of process and procedures for different types of real estate products.

Market participants must then select the appropriate real estate investment strategy for the local market cycle and for the individual business without succumbing to euphoric sentiment or overconfidence. John Vogel says it best in that "real estate is an industry characterized by ten-year cycles and five-year memories" (Poorvu and Cruikshank, 1999). For real estate investing strategies, there are five major mind-sets: opportunistic, growth, high yield, balanced and income as illustrated by Figure 2 (Pyhrr, Roulac and Born, 1999). With each of these strategies comes a declared expectation of risk and return that tends to inform the real estate investing company's other decisions like submarket and product type.

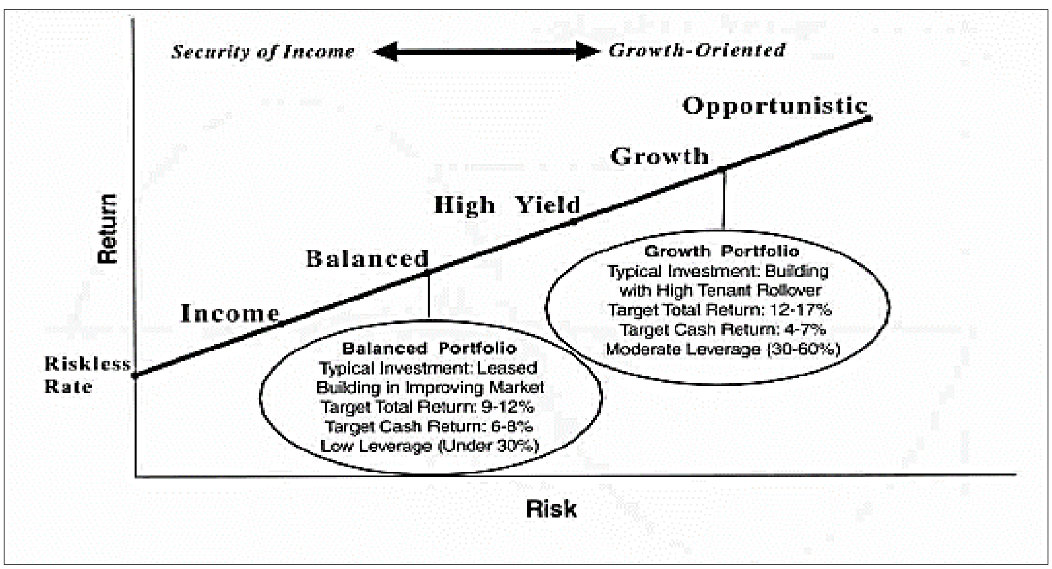


Figure 2 – Real Estate Investing Strategies (Pyhrr, Roulac and Born, 1999)

Apsley & Grand adheres to a balanced or high yield strategy aiming to have a 9 – 12% return. To be successful with this strategy, Apsley & Grand avoids speculative, opportunistic rates of return and instead focuses on building the necessary supplier relationships with impact financial capital suppliers, or 'impact investors,' willing to sacrifice higher rates of return for a larger social impact and greater value creation. It is important to focus on an all-encompassing strategy that acknowledges timing is just one factor among others like product type, market, life-cycle and leverage used to achieve investment success (Tse, Palumbo and Ziering, 2011). The ability to identify and partner with such a specific type of capital supplier that understands and agrees with the company strategy adds to the complexity of the supplier selection process for Apsley & Grand.

Once an organization has selected a market, property type(s), strategy and analysed the local market cycle indicators, they must define the category, could also be called risk class, of the properties they are seeking to outline the overall investment composition. Within the real estate market, the four categories are core, core-plus, value-added, and opportunistic (Fisher and Hartzell, 2016). These categories at times are substituted with classes by real estate investing organizations and Realtors to define properties status where Class A properties tends to indicate core properties in prime locations, up to Class C or D for opportunistic investments in less desirable neighbourhoods. Core / Class A or Core-Plus investments are purchased by companies with a strategy of income replacement looking for low risk properties. While the value-added and opportunistic investments are exposed to development risk and significant leasing risk which justifies the higher expected rates of return at 12% to 18% for these property categories (Shilling and Wurtzebach, 2012).

Apsley & Grand focuses exclusively on value-add properties to create value due to forced appreciation from renovation as well as passive appreciation from market value increases. This matches with the organizational investment strategy for balancing the risk with the expected return of 9 – 12% given the extra costs and development risks associated with this product type and strategy combination. In 2009, value-added properties had grown to over 30% of total property investments, up from 2.5% in 1984 (Shilling and Wurtzebach, 2015). Companies that purchase value-add properties are buying properties that either have issues that can be resolved or are not being appropriately utilized (Grosso, 2016). These kinds of properties provide opportunity for value creation and social good by helping improve the community. And it is with this explicit understanding of the market, product, strategy and category of property that Apsley & Grand can participate in the real estate marketplace and clearly communicate its organizational product offering to potential financial capital suppliers and other stakeholders as well.

REAL ESTATE SUPPLIERS

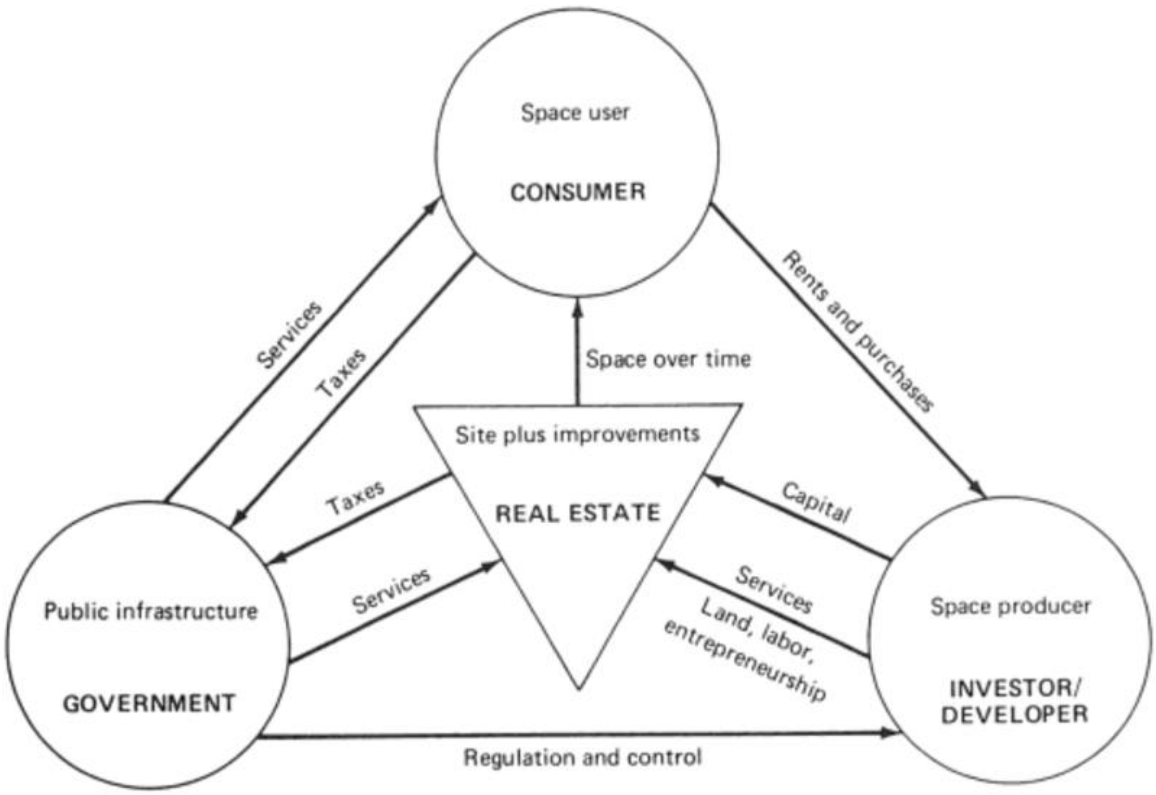


Figure 3 – Real Estate Market Interactions (Pyhrr et al., 1989)

In the real estate investing environment, there are more than just the working and money partners themselves. Many other service providers like real estate agents, inspectors, lawyers, and appraisers (Goddard and Marcum, 2012) as well as consumer tenants and buyers are involved in making the marketplace thrive. As demonstrated by Figure 3 (Pyhrr et al., 1989), investors and developers like Apsley & Grand gather the financial resources, land, labour, and services to provide the site plus provide property improvements for the marketplace consumers to purchase or rent with the overarching approval of the local and federal government. This, in a nutshell, is what Apsley & Grand 'does.' This graphic illustrates the different market participants that Apsley & Grand interacts with in the organizational service supply chain. A key point of differentiation that the graphic does not illustrate is that of all the different suppliers involved in the real estate transaction, the financial capital supplier is the only one that operates as both supplier and customer to Apsley & Grand as space producer providing the capital that is flowing in and out of the real estate market. This places an extra prioritization upon these special relationships and is what justifies the extra organizational effort spent on these specific suppliers. As a service supply chain that depends upon liquidity, financial suppliers and the capital they provide feed the organization, without which the company would cease. Tenants also provide important liquidity in the form of leases, but it is not the primary source of capital. The financing the financial capital suppliers provide becomes even more vital during economic downturns and recessions that can place the organization in precarious positions. None of the other suppliers have the same ability to dictate the livelihood of the organization quite like these suppliers, and because of that, it is vital for Apsley & Grand to find tools and methods to appropriately select and curate these particular partners.

Developers and real estate investing organizations like Apsley & Grand rely upon financial capital suppliers if they are unable to raise personal funds to provide the capital that allows the business to operate and to grow. The larger the properties, the larger the project and financial scope becomes; the higher the leverage, the higher the level of risk becomes for all parties. These financial relationships can at times involve very large sums of money thereby increasing the financial exposure of the project and making the investing organization even more dependent upon the capital suppliers (Manganelli, 2015). This research focuses specifically upon this dependency, which is heightened in the case of entrepreneurial organizations that lack the liquidity that other more experienced organizations may be able to access.

Real Estate Financial Capital Lending

Now that the importance of the financial capital provided has been highlighted, this section explains the methods in which capital suppliers can provide the financing to organizations like Apsley & Grand. There are two general kinds of categories of financial capital: debt and equity. Debt capital funds are provided by entities like banks, savings and loans, pensions, life insurance companies, hedge funds, wealthy individuals or commercial banks. Typically, these debt lenders, or creditors, provide a share of the property purchase price to the financial capital supplier in return for repayment of the loan plus interest (Goddard and Marcum, 2012). Debt lenders are broken into three categories: fiduciary lenders, semi-fiduciary lenders and non-fiduciary lenders (Peca, 2009). The only fiduciary lenders are a commercial bank or savings and loan bank which must return 100 percent of a depositor's money on demand. Semi-fiduciary lenders have more flexibility in the loan structures like merchant banks; the biggest difference between the two is that commercial banks and savings and loans cannot make equity investments within the U.S. (Peca, 2009). This research focuses on the third category, non-fiduciary lenders, which are the most liberated lender category able to take on greater risk and determine the own risk thresholds that includes individuals, private loan companies and foreign funding providers (Peca, 2009). Apsley & Grand may also use bank financing when able to provide more capital to projects and the organization, but that is not within the scope of this research. The focus of the organizational strategy is to form strong lending partnerships with non-fiduciary lenders to allow greater access to more flexible and responsive capital.

Equity capital lenders provide funds similar to debt lenders but expect a certain, normally expensively high, rate of return instead of repayment with interest. They, unlike creditors, are not guaranteed a return and only receive the return after the debt investors are paid (Annamalai, Gemson and Bansal, 2014). Equity lenders can be found within all the same sources of debt lenders like foreign investors, wealthy individuals, life insurance companies, hedge funds, etc.; all lenders except commercial banks or savings and loans banks (Peca, 2009). Using debt and/or equity lenders to help fund real estate transactions is a reoccurring responsibility for real estate investing organizations since it is rare to be able to self-fund or generate enough from operations alone (Boardman, 2012). Normally, the companies struggle to use only debt financing for residential investing as personal assets, credit scores, tax returns and personal guarantees are required for each transaction by lending establishments (Grosso, 2016), so equity and debt must typically be used in combination. However, a unique feature that real estate offers investing companies and developers, that other commodity and investment options typically do not, is the power of leverage.

Leverage occurs when using 'other people's money' with only a percentage of the required capital provided by the investing organization or developer themselves as down payment with the remainder of the purchase and renovation or construction loans provided by others. This financing amalgamation is called the 'capital stack' (Rowan, 2013). Real estate investing companies like Apsley & Grand can completely own an asset while only paying a fraction of the price using leverage provided by financial capital suppliers. Unfortunately, for inexperienced or unqualified investing organizations, like Apsley & Grand at its outset, from a bank's perspective they are too risky and are normally reduced to only equity lending options from friends, family, acquaintances or private equity lenders to get started (McNellis, 2016). This inability to access traditional bank financing consistently and the precariousness of running a business dependent on social connections leaves organizations like Apsley & Grand with the challenge of developing other sources of financial supply.

For beginners in the real estate industry, many start looking for financial capital suppliers by asking for capital from friends and family, especially since close relatives expect the lowest level of return; however, Lee and Persson (2016) explain that this type of personal finance comes with shadow costs that make this capital less attractive with monitoring costs, social penalties, and a greater level of risk aversion. If the project fails, the family debt 'never really goes away' which causes either harm to the relationship or expectations of costly reciprocation through favours; this further emphasizes the value of an impersonal transaction to channel away these shadow cost risks from the borrower's social circle (Lee and Persson, 2016). The largest, informal investments tend to come from strangers where the expected return rate increases with the financial supplier's social distance from the entrepreneur (Lee and Persson, 2016). Apsley & Grand focuses exclusively on impersonal investments to avoid shadow costs and test viability of the business by excluding family and friends from the initial scope of financial capital suppliers.

These non-familial capital suppliers and Apsley & Grand must be governed by some formal communication methods, like contracts and legal vehicles, to ensure expectations are met on both sides to further foster the development of long-term relationships. These legal details are outside the scope of this research, but are typically entities like a limited partnership (LP) or a limited liability company (LLC) because of the legal liability limitations (protection of the personal possessions) they offer (Nachem, 2007). Another common structure is through joint venture agreements which allows for co-investment in a property between two or more parties (Hanley, 2009) with an astonishing "25 percent of all reported real estate transactions over the 1978-2009 period in the United States are accounted for by joint ventures" (Shilling and Wurtzebach, 2015). These partnerships require clear delineation of roles and responsibilities and highlight the importance of selecting the most appropriate suppliers for the different real estate projects to avoid distracting miscommunications and potentially costly legal disruptions. This action research focuses exactly on avoiding these potential challenges between partners through building a supply chain of partners (outside of family and friends) that are reliable and share similar values.

Now that the business context has been introduced, the following sections provide an overview of the broader contexts of supply chain management and supplier onboarding within which Apsley & Grand intends to generate new practice processes and new organizational knowledge.

Supply Chain Management

Supplier selection criteria and evaluation research originated in the 1960s (Kannan et al., 2013); and yet, the term "supply chain management" (SCM) has only been in academic and practitioner popularity for just the last few decades (Imeri et al., 2015). The earliest supply chain research focused primarily on the linear, dyadic transactions of buyers and sellers (Pilbeam, Alvarez and Wilson, 2012) and was typically defined as "an integrated philosophy to manage the total flow of a distribution channel from supplier to ultimate customer" (Ellram and Cooper, 1993 cited by Lummus, Krumwiede and Vokurka, 2001). However, this led to the general confusion in terminology between 'supply chain management' and 'logistics' as the two concepts were seen to overlap and were subjectively defined within organizations with various degrees of specificity (Lummus, Krumwiede and Vokurka, 2001). So, more contemporary definitions have evolved, along with the breadth and scope SCM research being increasingly triggered by the exponential rate of industry implementation and acceptance of SCM criticality.

In a more expansive contextualization, SCM can be seen as a strategic tool used by management to enrich overall customer satisfaction, while also improving competitiveness and profitability (Giunipero and Brand, 1996). More typically, the concept of SCM is seen as "the design, planning, execution, control, and monitoring of supply chain activities with the objective of adding net value" (Tramarico, Salomon and Marins, 2017). This definition is appropriate because it allows for the expansion of the dyadic relationship into a more network-based depiction of SCM with a focal firm and its upstream and downstream relationships and associated tasks (Miemczyk, Johnsen and Macquet, 2012). More specifically, for this research context, this definition helps provide the foundation for the organizational context as a player within a supply chain network full of relationships. Some define the main objective of a supply chain is to provide value at low costs and high speed (Kawa and Koczkodaj, 2015), but this is too specific and too simplified to capture the true purpose and all-encompassing nature of supply chain management.

Where logistics is focused on the effective and efficient network flow and is hierarchically performed under the overall organizational supply chain, SCM goes further and views the entire organizational process as one inter-related system where the performance of each member of the supply chain affects the overall supply chain performance (Lummus, Krumwiede and Vokurka, 2001). For many organizations, the strength of the supply chain is one of the main determinants of the company's very survival (Kahraman, Öztayşi and Onar, 2016). For entrepreneurial organizations like Apsley & Grand, the development of a strong supply chain facilitates organizational scalability and flexibility and it plays a major role in the variety and sizes of real estate deals the company can expect to transact.

The importance of an organization's supply chain cannot be underestimated, especially given the growing intensification in complexity as a result of higher speed expectations, larger quantities of decision criteria, aggregating severity of poor decisions, greater outsourcing, increased globalization and other progressively complex factors (de Boer, Labro and Morlacchi, 2001) that impact the organization's ability to function. Therefore, the more modern definitions of supply chain management must address these increased intricacies by highlighting value, integration and the organization-member relationships used to create a strong network with a hard-to-replicate competitive advantage. SCM can, and should be, seen as the strategic, transparent integration and achievement of the company's social, environmental and economic goals (Ashby, Leat and Hudson-Smith, 2012). This concerted effort allows leading organizations to thrive within any kind of supply chain, including service-focused supply chains.

Service Supply Chain Management

Most SCM definitions concentrate upon a manufacturing supply chain mentality of physical product logistics (Boon-itt and Pongpanarat, 2011). When SCM definitions are reduced down to their core meaning, supply chains have a "product" (physical or service) at the "point of origin" delivered to "the point of consumption" (Wang et al., 2015). And yet, when the unique characteristics of service industry organizations are applied, there are structural inadequacies that appear with traditional SCM definitions, most obviously with the intangibility and simultaneity of service performances (Baltacioglu et al., 2007). Therefore, for Apsley & Grand which provides real estate services, the definition used for this research must incorporate a service supply chain contextual element.

There are two different types of supply chain management systems within service industry organizations, Service Only Supply Chains (SOSCs), such as psychological advice, tele-communications, tourism, or financial consultancy; and the Product Service Supply Chains (PSSCs), like restaurant and food retail supply chains, product design and retailing supply chains (Wang et al., 2015). These different types of service systems add a new layer to strengthen the SCM concept contextualization. At their core, service supply chain systems are networks of suppliers, service providers, consumers, and other supporting units that produce services; transforming necessary resources into supporting and core services; and delivering these services to customers (Baltacioglu et al., 2007). This service-focused form of supply chain network between providers and consumers accounts for over 90 percent of the U.S. GDP (Cho et al., 2012). The current and continuing phenomenon for industrialized economies to shift away from manufacturing towards a service orientation (Smith, Karwan and Markland, 2007) highlights the growing need and relevance of service-focused supply chain research. It is a subject matter that has been underemphasized and has had its complexity under-appreciated to date.

Service supply chains are uniquely challenging because they must be able to manage intangible capacity instead of inventory, deal with customer-supplier duality, and are very hard to imitate (Boon-itt, Wong and Wong, 2017). The service supply chain is also distinctly bi-directional where customers may provide resources and or labour blurring the standard customer and vendor segregation and heightening the importance of relationship management (Boon-itt, Wong and Wong, 2017). It is this distinctive behaviour of bi-directional customer/supplier relationships that is found within real estate investing supply chains that is one of the challenges that Apsley & Grand faces. But, first and foremost, the suppliers themselves are a required element in building all types of supply chains and this unavoidable collaboration with suppliers carries all organizations into the enduring challenge of supplier selection.

Supplier Selection Process

Within SCM research, one of the most studied problems is how to properly evaluate and select vendors (Yu and Wong, 2014); the supplier selection problem has received attention in operations management literature in the past thirty years (van der Rhee, Verma and Plaschka, 2009). As a matter of strategic importance, all organizations strive to develop “a network of capable, reliable, trustworthy vendors” (Adebanjo et al., 2013) to ensure a best in class portfolio of suppliers are available when needed

(Lo and Sudjatmika, 2016). The significance of the supply chain management team (or ‘purchasing’ or ‘procurement’ team depending upon industry) to align the supplier selections with the overall business strategy is well known and researched (Nair, Jayaram and Das, 2015). However, there are tangible and intangible factors that cause vagueness and ambiguity in the supplier selection problem (Afzali, Rafsanjani and Saeid, 2016) which makes this alignment challenging if there are not appropriate operational structures or clear organizational guidance. Appreciating the potential for this misalignment and finding methods to avoid it is a primary focus of this research; for Apsley & Grand, this study facilitates the investigation into creating organizational alignment and develops the necessary level of intentionality behind these supplier selection structures to be successful. The research facilitates this investigation by using the supplier selection process as an illustrative guide for the research methodology itself but also to guide the corresponding organizational development as well.

Organizational Problem Definition

Supplier selection is the initial act of SCM at which the organization is introduced to external network members upon whom it is dependent. As shown in Figure 4, the supplier selection process consists of four main phases: organizational problem definition, criteria formation, supplier qualification, and final selection (de Boer, Labro and Morlacchi, 2001).

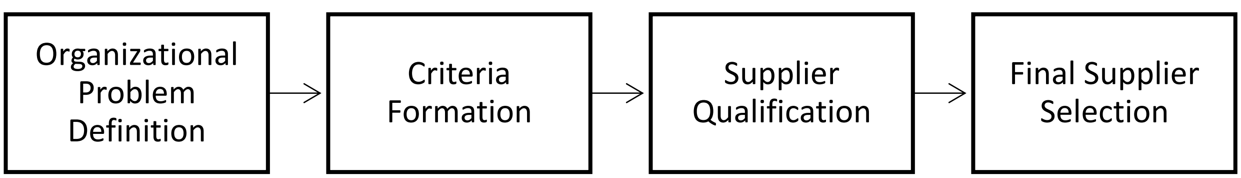


Figure 4 – Supplier Selection Phases

In the first phase, suppliers are segmented by determining the number of available suppliers, the importance of the purchase and the amount and nature of uncertainty in the evaluation process (de Boer, Labro and Morlacchi, 2001). Without clear understanding of the organizational strategy, goals and problem definition, the following phases are more likely to result in inappropriate qualifications and ultimately a bad supplier selection outcome; therefore, it is important during this initial phase that the proper selection method is clearly articulated (de Boer, Labro and Morlacchi, 2001). This articulation is a challenge for many practitioners. Organizations tend to struggle to clearly communicate and achieve consensus on problem, strategy, criteria and process when selecting suppliers with large varieties of associated pros and cons. This can be especially true for entrepreneurial organizations where communication and consensus tend to be replaced with founder preference to expedite, simplify and conserve limited resources. Apsley & Grand seeks to avoid this challenge by focusing energy and resources on the supplier selection process as the organization grows to promote clear communication and a competitive advantage through SCM.

To define the organizational problem appropriately, the organisation can focus on a variety of areas in the supply chain's composition, in particular whether or not to use more or fewer suppliers. Another potential focus can be replacing certain suppliers or working to improve the current relationships? Ultimately, the organization must decide what the problem focus is and why selecting one or multiple suppliers would optimise the organizational supply chain (de Boer, Labro and Morlacchi, 2001). These managerial implications of SCM highlight the need to ask the right questions of the organization up front to solve for the right problem from the very beginning of the process and also review on an ongoing basis.

The contemporary goal of organizational purchasing and supply chain management departments is, not only develop long-term partnerships with vendors that supports the organizational strategy, but to also use "fewer but reliable suppliers" (Ho, Xu and Dey, 2010). Of course, there is no clear recommendation for the proper number of suppliers for any particular industry or company. A large number of suppliers typically provides lower prices and decreased risks of supply chain interruptions but comes at a higher operating cost through maintenance, sourcing, negotiation and controlling efforts (Kawa and Koczkodaj, 2015). The appropriate number of suppliers is part of defining what the organization sees as suitable to guide the evaluation and selection process moving forward. This is a critical point of organizational differentiation that practitioners in larger organizations tend to underestimate by delegating away the strategic responsibility.

For entrepreneurial and smaller-scale organizations like Apsley & Grand, this strategic responsibility rests appropriately with the founder due to necessity, and will remain when growth occurs and new employees are added to the selection process. There is conclusive agreement among researchers that, although the segmentation and selection approach may vary, supplier selection is ultimately a multi criteria decision-making (MCDM) problem that has trade-offs between conflicting qualitative and quantitative criteria (Yu and Wong, 2014). These conflicting trade-offs can make the organizational task of criteria formation particularly problematic and perplexing for practitioners with limited research access, assistance or experience. Growth will therefore not make this challenge disappear.

Many organizations tend to focus on objective, quantifiable logistical measurements like price and on-time performance to simplify the supplier evaluation and selection process ignoring soft criteria like innovation and agility (Sodenkamp, Tavana and Caprio, 2016). This tendency is repeated within SCM research as many of the supplier selection criteria found in the literature are focused on the standard four broad categories of price, delivery, quality and service, with price normally being supreme (Florez-Lopez, 2007). The oversimplification and focus on measurable criteria is but one issue for an organization like Apsley & Grand. The larger issue is the traditional emphasis on logistical elements which is structurally incompatible with service supply chains and causes most supplier selection criteria research to be irrelevant and inapplicable for this particular research context. This literature limitation impacts Apsley & Grand, and other service industry operators, negatively when attempting to define organizational supplier selection and supply chain management structure and process. Nevertheless, researchers and practitioners alike conclusively agree that the standard single criterion approach of lowest cost is not robust enough in present supply chain management (Ho, Xu and Dey, 2010) and the paradigm has begun to shift toward appreciating the need for a value-add perspective and a more multi-dimensional analysis of supplier appropriateness for a greater variety of supply chains. Managers must therefore work within this more complex world of multi-dimensional analysis and find the best way of traversing the four stages of supplier selection for their own organizational environment.

Criteria Formation

The second phase in selecting suppliers is to form a set of qualifying strategic and operational standards that align the dynamic, competitive external environment with the defined organizational problem (Sarkis and Talluri, 2002). To do this thoroughly, the departments must define the organizational supplier criteria and be governed by these preferences throughout the supplier selection process because appropriate and consistent application of these criteria ensures unambiguity, predictability and leads to a careful and strategic identification and selection of suppliers (Nair, Jayaram, and Das, 2015). Unfortunately for practitioners, there is a confusing array of different criteria classifications and options.

Dickson pioneered the research for criteria in supplier selection in 1966 by providing a comprehensive list of 23 criteria (Yu and Wong, 2014). Since then, many new criteria suggestions and categorizations have been proposed (Florez-Lopez, 2007; Imeri et al., 2015; Secundo et al., 2017). Some suggest that supplier selection criteria should be placed into product performance, service performance and cost criteria categories (Kahraman, Cebeci and Ulukan, 2003). This categorization is unique from more traditional categorizations by adding an element for service performance since this would call for organizations to not only examine objective product performance metrics but also scrutinise customer support, professionalism and follow-up as additionally important elements of firm assessment (Kahraman, Cebeci and Ulukan, 2003). Another classification for supplier selection criteria could be as benefits or costs, with benefits scoring higher and costs scoring lower in the most desirable candidates (Yu and Wong, 2014).

Most research, in a more traditional manufacturing context, focuses on operational supplier selection criteria which relate to delivery, flexibility, cost and quality (Nair, Jayaram and Das, 2015). This is not appropriate for service supply chain environments and has a limited breadth of subjective criteria. Strategic supplier selection criteria offer more inclusive criteria that incorporate quantitative and qualitative elements such as innovation, feeling of trust, and compatibility (Sarkis and Talluri, 2002; Nair, Jayaram and Das, 2015). The challenge then becomes operationalizing these subjective criterions. Another classification for criteria suggested by Sarkar and Mohapatra (2006) is to use capability (resources) factors and performance factors categorizations which would then translate into motivated versus demotivated supplier filtering. Adebanjo et al. (2013) highlights a need to incorporate customer values and expectations when designing supplier strategy and categorizations. Florez-Lopez (2007) categorizes criteria by the supplier’s capacity to create value through direct or indirect value variables which is an interesting yet idiosyncratic idea that would need additional supporting research to become a more mainstream concept.

Supplier selection criteria definition and categorization must be strategically formalized to help organizations select the most suitable suppliers for their supply chain; this is paramount for organizational success and survival. Without it, the likelihood increases that an organization selects unsuitable or unsatisfactory suppliers which can unbalance organizational finances through high costs and delays, and upset operational efficiency through low quality and unreliability (Imeri et al., 2015). These criteria can also have value in the supply chain management process for suppliers long after the initial selection by being used to measure and monitor performance to reduce cost, risk and promote continuous improvement (Lo and Sudjatmika, 2016). The research, although ever more detailed, still is lacking in the ability to help entrepreneurs and practitioners work out clearly what the criteria might be for their unique organizational context. The value of the criteria is understood, but identification and selection of appropriate criterions is still a large challenge for many companies.

Supplier Qualification

The third phase of supplier selection is supplier qualification which results in the application of the criteria to the pool of potential suppliers. A large majority of the research published in purchasing management and supplier evaluation is focused on the supplier selection problem (Segura and Maroto, 2017) providing ample case studies, methodologies and approaches for qualifying suppliers to meet organizational needs. Logically, there are no better or worse techniques, just techniques that are more appropriate for particular decision problems than others (Dağdeviren, 2008). Ho, Xu and Dey (2010) provide an excellent literature review from 2000 - 2008 on the MCDM supplier evaluation and selection approaches available and found Data Envelopment Analysis (DEA) to be the most popular individual approach and Analytic Hierarchy Process (AHP) most popular integrated approach. The literature may be rich with models, but there is a clear dichotomy between the literature and business application with many of the approaches rarely ever being used to solve real world problems (Secundo et al., 2017). So, researchers and practitioners alike should be cognizant that it would be wise to focus solely on using methods that are more widely accepted and practitioner-friendly to ensure implementation success of the chosen supplier qualification method.

Final Supplier Selection

The final phase of supplier selection is the final selection of the appropriate supplier(s). This may appear obvious, but to arrive at this point requires substantial work, especially for practitioners without industry experience, connections or adequate resources to dedicate to the selection and evaluation process. There is not enough emphasis in the literature today on acknowledging the problems emerging in practical implementation of these supplier selection decision-making approaches and the degree of satisfaction with the outcomes (Secundo et al., 2017). Furthermore, once a supplier is selected, that is not the end but merely the point where a decision is made and action must follow. Supplier selection is less a task and more of a cycle with indispensable, on-going maintenance that is also not very well articulated in supplier selection research. This entire selection and evaluation process must be regarded as dynamic and periodically reviewed for aptness by practitioners. Suppliers come in and out of the marketplace, criteria applicability may change and departmental understanding of its role within the organization may shift the entire supply chain problem they are tasked with addressing. This revaluation tends to lead to a redefinition of the organizational problem, relaunching the supplier selection process again with an updated perspective. Thus, it is critical that supplier selection is seen as more than a checkbox or chore, but is strategically engrained in the organization as a valuable activity that merits attention, resources and diligence. It is this criticality and integrated perspective that guides this research as Apsley & Grand attempts to develop this cohesive appreciation for the strategic importance of supplier selection activities.

It is equally important to recognize that the MCDM decision models found in literature supporting supplier selection evaluation activities, like those found within this research, are merely instruments for provoking, communicating and analysing personal and subjective preferences as part of a larger organizational conversation rather than a severe format for selection devoid of human involvement (de Boer, Labro and Morlacchi, 2001). There will always be a human element involved in these supplier selection processes. Because, at the end of it all, it simply remains individuals forming relationships on behalf of the partner organizations. Supplier selection is no exception to this component of personalization running throughout almost all aspects of business. For this study, appreciating this level of individuality embedded within the supplier selection process, and research, and even organization in action being developed, is a core concern of the researcher and central tenant of the action research.

Researcher/Solo-Entrepreneur Presence in Context

Solo-entrepreneurships, also categorised as microenterprises, are business with “limited capital, operated by the owner, having few, if any, employees, and… typically serve as an alternative to working for someone else” (Cook, Belliveau, and Sandberg, 2004). Solo-entrepreneurs are self-employed in the generation of material wealth by commercially provisioning goods and services and therefore fall under the broad definition of entrepreneurship (Nandram and Samsom, 2006). They require a unique research approach and have not been the focus traditionally of academic research (Isoherranen and Ratnayake, 2018); this is counter-productive given the impact these types of organizations have on the global economy. For example, from 2007-2011, 93.4% of Finnish companies had fewer than 10 employees, 92% in Indonesia, 95.5% in Cyprus (Isoherranen and Ratnayake, 2018), and 92% in the United States with 86% of those US enterprises as non-employers, or solo-entrepreneurships (Carr and Anacker, 2013). The scale of solo-entrepreneurships and microenterprises is much greater than many, including this researcher, initially recognize by directly accounting for approximately 26 million jobs in the US in 2011 which was "more than the total number of individuals employed in the government sector at the local, state and federal levels, and more than twice as many who worked in Manufacturing" (Carr and Anacker, 2013).

For this research, Apsley & Grand currently operates, and will for the foreseeable future, as a non-employer solo-entrepreneurship with the founder as the only employee. Nevertheless, a subset of the research problem is how to prepare for growth in both the supply chain of financial capital suppliers but also the eventual growth of adding employees through organizational development and organizational culture considerations to support a larger supply chain successfully. For any growing firm, like Apsley & Grand seeks to become, the first hire is the single biggest growth event challenging solo-entrepreneurs to effectively double their workforce and [turning] solo-entrepreneurs into employers" (Coad, Nielsen, and Timmermans, 2017). The researcher aims to understand the broader implications of the organizational and founder identity changes that occur with hiring and growth that Apsley & Grand will eventually face as a direct result of the successful resolution of this research problem.

Additionally, the organizational context of this research is not specifically focused on specialized expertise on supply chains or supplier selection but on broader, more generalized business acumen and aims to create superior procedures, processes and relationships (as opposed to more traditional real estate investing strategy which focuses on growing localized industry-based knowledge and local relationships) for both the success of the organization and to eventually allow rapid international market expansion and growth. The veil of entrepreneurship sits atop this entire research problem but is not addressed head on as it is outside the scope of this research problem. Nevertheless, given the fact that Apsley & Grand is a sole proprietorship by a solo-entrepreneur, identifying the multi-faceted presence as researcher, as entrepreneur, as practitioner and as industry new-comer, the founder's individual personal connection and role within the organization is an important point for reflection and for action research transparency.

In 2004, Lazear introduced a "Jack-of-all-trades" theory of entrepreneurship and stated that not only must entrepreneurs be multi-skilled individuals, but that they must go about developing skillsets through a particularly generalized human-capital investment profile compared to those that work for others. Lazear's findings have been wildly supported (Silva 2004 and 2007; Giuri, Rullani and Torrisi, 2007; Kaiser, 2010; Stuertzer, Obschonka and Schmitt-Rodermund, 2012; cited by Hussin, Alias and Ismail, 2013). For even entrepreneurial organizations of small scale with one founding employee like Apsley & Grand have cultural considerations, like guiding principles of creativeness and cooperation with external supply chain members (Duobienė and Pundzienė, 2007), and it is pertinent to acknowledge these considerations within the research context for the researcher to be able to adequately illustrate the range of impact this research problem has upon the founder and the organization. This acknowledgement is done by identifying the current-state organizational transition within the entrepreneurial process, beginning with purely entrepreneurship activities, ending with purely management activities after leaving the entrepreneur state, with activity mixture in between (Belt, Paloniemi and Sinisammal, 2015). The cultural considerations for this mixture of organizational activity are integrated in more detail throughout the research process, but the next section helps build a foundation for the value that organizational culture as a construct provides to this study.

Entrepreneurial Organizational Culture

Selden and Fletcher (2015) describe the entrepreneurial journey of building a business as a five-level system hierarchy. Starting with Level 1, the entrepreneurial sense-making creates the idea, Level 2 turns the idea into an operational business model describing the entrepreneurial role within stakeholder subsystems, and then proceeds to build the business in the sense of describing capabilities and marketable commodities in Level 3. The first three levels are when an individual begins to emerge as an entrepreneur; Apsley & Grand is currently at Level 3 in its own entrepreneurial journey. Level 4 is where business relationships begin to form, and Level 5 is when socio-cultural systems like culture and practice are presented to the wider societal environment. For this research, Level 4 and Level 5 are of distinct interest because of their proximity for the researcher and Apsley & Grand as the next steps on the journey. This journey and this research have a forward perspective towards building a successful supply chain and also building successful organizational systems. By appreciating the importance of Level 4 and Level 5 prior to having the pressure of daily operations, the researcher intends to embrace the strengths of a strong culture and work towards reflexively identifying cultural elements at all stages of business building and network forming making it important to capture within this research context.

An organization's culture can be understood to be "a group of values, beliefs, and behaviours belonging to the essential identity of the organization" (Sánchez-Marín, Danvila-del Valle and Sastre-Castillo, 2015). In other words, it is 'the way things are done around here' (Caruso, 2017). Culture is ever-evolving over time, but the cultural origins rest solely upon the organizational founder(s) (Ortega-Parra and Sastre-Castillo, 2013). Other idealistic definitions of organizational culture wrap leadership, structure, symbols, policies, decision-making, language, informal systems, myths, etc. (Caruso, 2017) into the concept completely diluting its realistic relevance and applicability for practitioners. For this research, organizational culture is defined more pragmatically as a tool used to encourage commitment and achieve organizational goals (Ortega-Parra and Sastre-Castillo, 2013).

With culture framed as a tool capable of communicating consistent beliefs and values both internally and externally, a successful company can grow. Even a solo-entrepreneurial organization like Apsley & Grand can use a tool like organizational culture to consistently exude organizational values, language and goals to supply chain members and therefore is primed to carry this culture into the onboarding process when beginning to bring on employees in future stages of organizational growth. This research would argue that organizational culture is not dependent upon the quantity of people on an organizational payroll, but more on the consistency of interactions on behalf of the organization within its environment, even within a solo-entrepreneurship context. For it is not important to vendors, customers and other organizational interactions in a growingly remote, globalized environment to verify employee count before cultural considerations can be valid; on the contrary, this researcher believes it is paramount that founders give appropriate diligence to organizational culture *prior* to employee onboarding if able as a proactive practice instead of a reactive one to foster its construction with care and purpose.

A strong culture is principal for organizational coordination, control, efficiency and goal achievement (Sánchez-Marín, Danvila-del Valle and Sastre-Castillo, 2015). Culture is predicated upon the organization's values and these values are what provide stability in time of crisis, create personal connections between the company and its stakeholders, create a sense of community, and create a path for creating loyalty-based contexts (Rosenthal and Masarech, 2003). It is the element of externality that elevates organizational culture to becoming more than just a type of organizational climate. The externality that organizational culture encompasses is what further supports the importance of recognizing cultural considerations for sole-entrepreneurs as a method to helping establish their place within the market appropriately. For strong, adaptable cultures with clearly embedded beliefs and values are the conduit that helps organizations estimate and prepare for environmental changes and helps lead to long-term successful performance (Duobienė and Pundzienė, 2007).

Organizational responsiveness to the business climate is particularly vital in capital intensive and volatile industries like real estate. For a business to survive the cyclicality of the real estate market fluctuations, it requires short-term solvency and operational efficiency (Peca, 2009). Thus, it is these two aspects of financial liquidity and organizational foundational structural growth that are found at the heart of this research. The ability to adjust to the market cycle with appropriate strategies and tactics pivots around the company culture. The clear, constant communication of its organizational values, beliefs and desired behaviours both inside and outside the organization is what helps sustain and grow an enterprise like Apsley & Grand. A goal of this study is to help provide insight into how to best craft that communication to external supply chain members to begin building the cultural language and organizational environment for upcoming internal growth. The organizational culture will allow new team members to amplify the dialogue and increase the level of collaboration that has already commenced between the organization and the external stakeholders. Another goal is also to support the growth and development of Apsley & Grand from solo-entrepreneurship into a robust, thriving industry participant which requires a clearer understanding of the organizational development tasks necessary.

Organizational Development

Where initial culture is foundational, the continued system-wide and values-based process of developing an organization towards effectiveness is collaborative and adaptive (Rothwell and Sullivan, 2005). Organizational culture must constantly be curated, reinforced and further developed through development activities for organizational flexibility and health. The field of organization development emerged in the late 1950s and early 1960s with its roots being largely in the training and development of employees (Burke, 2004). With a large variety of definitions, it can be said that organizational development applies behavioural science knowledge to implement plans for improving and applying features unique to the organization like its strategies, structures, processes, people and culture (Rothwell and Sullivan, 2005). For Apsley & Grand, energy put towards implementing and improving procedures provides another opportunity for proactive intentionality that the researcher is keen to explore through the efforts of this study and well beyond it.

Church et al. (2016) add an interesting element to the concept of organizational development in that it uses "data to unfreeze the present state, enhance self-awareness, and facilitate behavioural change to a desired future state." This idea of unfreezing the status quo to allow for self-awareness brings attention to the individuals involved in the organization, even an organization with only one individual founder, and highlights self-reflectiveness and behavioural awareness to promote an optimum future state. However, more information and guidance is needed for how to best gather, disseminate, and support this unfreezing data effort, as well as more clarification on how to best define the future state is likely necessary before practitioners integrate this element into mainstream organizational development theory.

Today, there remains confusion not only around the general definition of organization development itself but also where organizational development fits best within an organizational structure, as the practice is immature when compared to other behavioural science streams like psychology and sociology (Sorensen, Yaeger and Narel, 2017). Burke (2004) summarized the different options and describes five models of organizational development structure: traditional, independent, decentralized, integrated, and strategy. A majority of the models subordinate organizational development within human resources departments or departmental heads, but the study does highlight that with an integrated model, human resources and organizational development could be merged allowing organizational development functions and contributions to be legitimized and viewed as important contributions to the organization (Burke, 2004).

For new small organizations, like Apsley & Grand, the distinction between these different departments and structures is superfluous, but at its core the goal of integrating and appreciating the development, improvement and implementation of collaborative efficiencies is undeniably significant and should be acknowledged for future growth considerations. When organizations grow quickly without structure already in place or prepared, they lose the capacity to be agile and lack the organizational development functionality to stay ahead of destabilizing change (Sullivan, Rothwell and Balasi, 2013). It is through organizational developmental tools, interventions and a supportive organizational culture that organizations can scale with true efficacy. The interaction between development tools and managerial support is what this research is particularly interested in and it is through this research that the researcher intends to provide the foundational framework necessary for any future onboarding efforts. Without it, the company would most-likely begin growing without this proper structure leading to inefficiencies and wasted efforts in the future when the structure must be retrofitted into the mingled organization. Apsley & Grand seeks to dedicate energy prior to onboarding or extensive growth-focused transactions towards developing an agile, supportive organization structure upfront.

For Apsley & Grand and other similar solo-entrepreneurial endeavours, it is important for the founder to clarify organizational values through consistent cultural language, processes, procedures and supporting strategic guidance for both internal and external stakeholders. As a service supply chain operator, Apsley & Grand is unable to depend on most traditional supplier selection literature to aid in determining the appropriate criteria for evaluating and selecting potential financial capital suppliers that would be suitable partners and that share similar organizational values. The challenge simultaneously presents an opportunity for Apsley & Grand to create an organizational direction for defining the supplier selection problem and clarify the important supplier selection criteria for a service supply chain organization within this context. These opportunities culminate in the creation of an actionable tool for organizational use that is used to communicate financial supplier criteria results on the surface, but underneath provides even more in the form of organizational culture cues, promoting organizational development and inspiring further organizational growth and action. The following chapter details the innovative approach to attempting to solve this multi-criteria supplier selection problem.

CHAPTER 3: RESEARCH METHODOLOGY

To best address the research problem, an integrated mixed method research methodology for determining the most influential criteria when selecting and evaluating financial capital suppliers is proposed through a combination of Analytic Network Process (ANP) and the 'Technique for Order Preference by Similarity to Ideal Solution' (TOPSIS) methods. This research model also relies upon action research to identify and incorporate the researcher's presence and actionable outputs as the duality of researcher/practitioner and researcher/entrepreneur interlaces within the research. Each of these different methods are but tools; it is the entire research methodology that dictates how these tools will be used to address the research problem (Hesse-Biber, 2010). Therefore, the research methodology is made up of six stages: (1) a frequency count survey is distributed to clarify the appropriate criteria to be used to address the research problems; (2) an ANP structure is created and pairwise comparisons are gathered from industry experts; (3) ANP criteria weight computations are performed; (4) Actionable organizational tool for TOPSIS output is applied; (5) Evaluation of potential financial capital supplier alternatives with TOPSIS is performed; (6) the selection of qualified suppliers is determined. These stages also have points of action research monitoring cycling throughout the entire research project as points of reflections and iteration. Each of these stages are discussed in more detail in this chapter and are shown in Figure 5 on the following page.

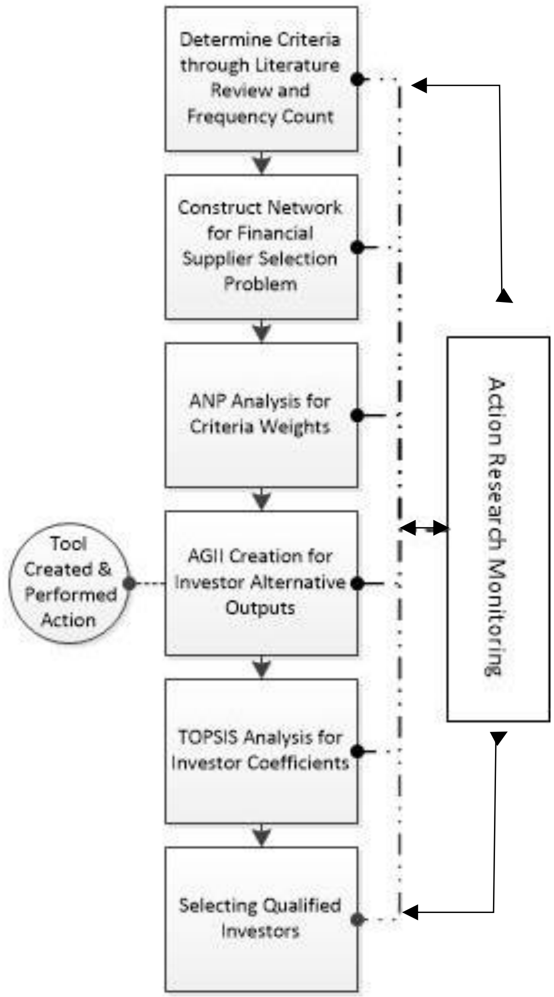


Figure 5 – Research Methodology Diagram

SCM literature has many examples of different supplier selection criteria and categories as previously mentioned that could be used in evaluating financial capital suppliers, so the first step of this proposed model is to review and synthesize the information appropriate for a service supply chain context and present it for expert sign off on the identified criteria through a frequency count survey. With industry experts selecting and validating the appropriate criteria to be used in the ANP survey, this allows the research problem to be reconstructed into a network and supermatrix format. This format serves as a guide for the third stage ANP analysis to calculate and assign appropriate priority weights for the criteria.

With the ANP criteria determined and weighted in terms of importance, the creation of the AGII is the next step that creates a methodological and organizational bridge between the ANP analysis and the TOPSIS analysis. The AGII is generated using a gathering of scholarly scales and surveys to present in questionnaire format for potential Apsley & Grand financial capital suppliers. Using the AGII results, these potential partners are then ranked and assigned an internal closeness coefficient index score using TOPSIS method in the final analytical stage of this proposed model. The suppliers that meet the minimum total score are recommended as qualified financial capital suppliers and are identified as potentially beneficial members of Apsley & Grand's service supply chain. All throughout this research, the action research monitoring activity infuses as an additional degree of observation and reflection at each step of the process to incorporate the active role of the founder/researcher that is completely integrated with both the creation of the research results as well as the business context itself. A detailed description of each step of this proposed research is provided in the following sub-sections and an all-encompassing illustration is provided in Figure 6 on the following page.

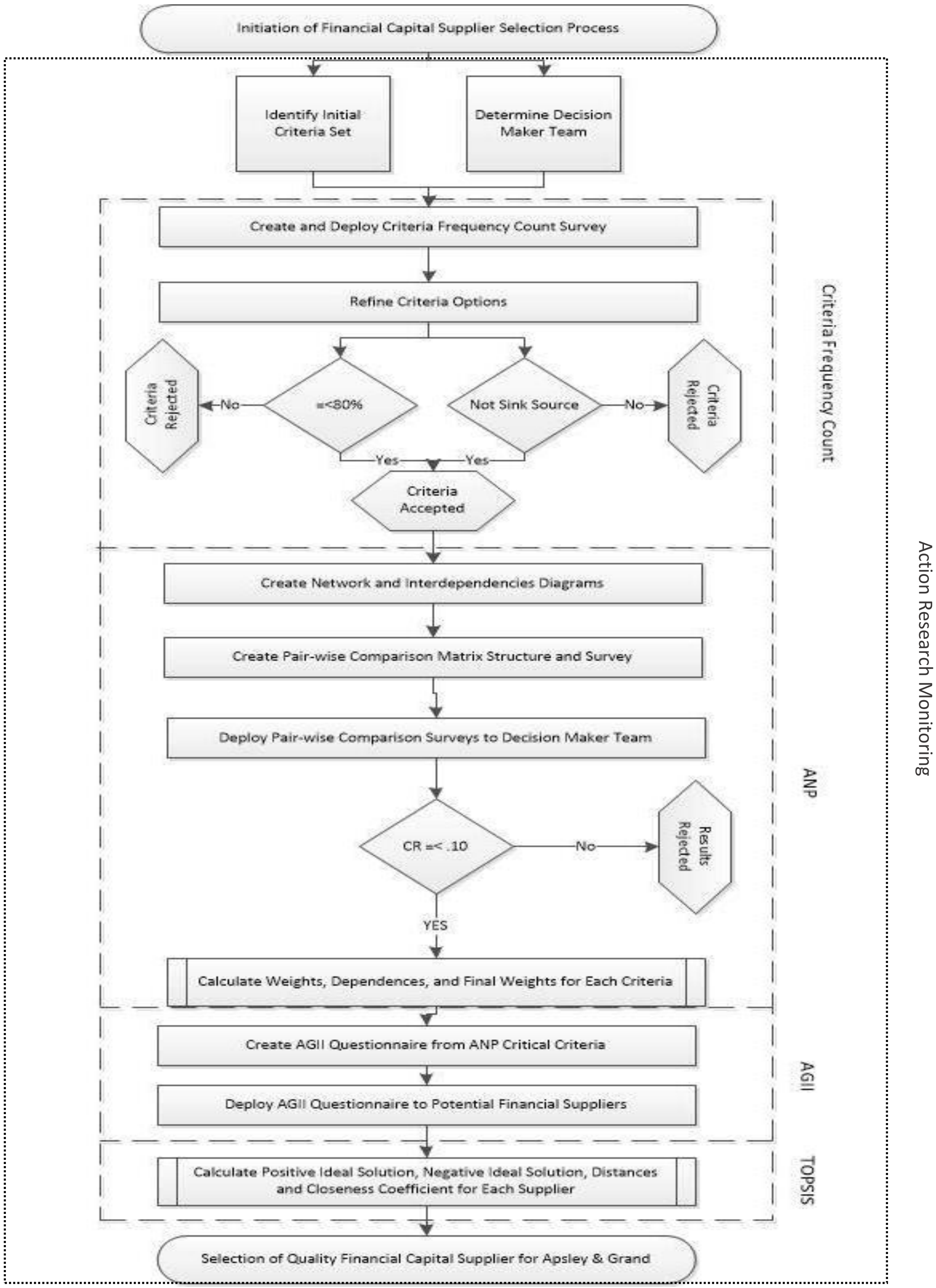


Figure 6 – Schematic of Research Design

MIXED METHODS RESEARCH

This research problem requires the ability to intentionally combine the strengths of multiple methods of research across qualitative and quantitative methodologies to encompass the different contexts interacting within this entrepreneurial, interpersonal problem. With mixed methods, the design of the research is able to add meaning to numbers with narrative that would otherwise be ignored or left out (Hesse-Biber, 2010). And for this project, mixed methods is appropriate in its ability to aid in the development of the research by creating a collegial effect where the "results from one method… help develop or inform the other method" (Greene, Caracelli, and Graham, 1989) which allows the research to incorporate action research monitoring as a qualitative aspect into a quantitative foundation. This was necessary given the central presence of the researcher as founder and sole representative for Apsley & Grand.

All studies should acknowledge the supposition that the researcher's "values, feelings, and attitudes cannot be removed from the research relationship but instead should be taken into consideration when interpreting the data as part of the knowledge construction process" (Hesse-Biber, 2010); this is especially pertinent for a research problem of a solo-entrepreneurship. The founder-researcher is central to both the entire organizational construct and entire researching process without employees with which to collaborate as is more common in traditional practitioner-based action research. Therefore, during the construction of this study, or any study really, the researcher is required to acknowledge the fact that "methodological choices are influenced, to varying degrees, by researchers' positioning with regard to epistemology (i.e., the relationship between the knower and the known), axiology (i.e., the role of values in research), and ontology (i.e., the nature of reality and truth)" (Han, 2018). This researcher tends to avoid a solid stance on one side or the other when it comes to any of these larger concepts, but instead reconciles the oppositions by resorting to pragmatism and focuses on what works best in each situation with the use of diverse approaches and ultimately finds valuable contributions in both objective and subjective knowledge (Han, 2018). Mixed method research proceeds despite ontological and epistemological differences by combining qualitative and quantitative methods by employing an overarching paradigmatic framework (Dewasiri, Weerakoon, and Azeez, 2018). Nevertheless, the ontological and epistemological challenges are not the only challenges researchers face when employing mixed method research.

One of the most challenging aspects of mixed method research is the fact that simply incorporating a qualitative method and a quantitative method into a study does not equate to a mixed method research study. A mixed methods study “is more than the sum of its parts” in that it is not about layering, or ‘stirring,’ in qualitative methods on top a very numerical analysis to artificially add insight, but instead should be used to “address distinctive research questions that can only be answered with a mixed methods approach” (Bergman, 2008). For this research problem, Apsley & Grand is not only interested in understanding how to build reliability and scalability into a service supply chain but must acknowledge the impact of the researcher in all organizational aspects and seeks to understand broader implications of a more qualitative tendency on the organization’s future. Simply put, mixed method use is not always appropriate but depends completely upon the nature and context of the research problem itself to determine applicability (Dewasiri, Weerakoon, and Azeez, 2018). Making the determination on what research problems are appropriate for mixed methods and which would be best left as either a qualitative or quantitative approach can be difficult.

Another challenge with mixed method research is the fact that is remains unclear what is really involved when integrating qualitative and quantitative research together as far as the meanings of terms and the implications for practice which in turn makes it hard to accurately communicate what has ultimately emerged out of a mixed method project (Bergman, 2008). For this study, the individual methods would not be able to produce as much organizational value without the complementary data from the others, so the mixed methodology clearly transfers value and meaning from one step to the next. Another potential challenge is being able to identify which aspects of the study are qualitative and which are quantitative depending on how they are used in conjunction and combination (Bergman, 2008; Morgan, 2018). Therefore, it is a good opportunity to quickly clarify the difference between the two in more detail.

Qualitative research concentrates on meaning-making within context and “requires a data collection instrument that is sensitive to underlying meaning when gathering and interpreting data… [since] qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences” (Merriam and Tisdell, 2016). Qualitative methods tend towards the more subjective data like words, narrative, stories and non-numeric values. Qualitative inquiry is “interpretive, experiential, situational, and personalistic” (Stake and Usinger, 2010). Within this research, qualitative research plays a major role in bringing forward the thoughts, experiences and context of Apsley & Grand within the perspective of the researcher-founder through action research monitoring and journey reflections. This research would deflect a huge aspect of the solo-entrepreneurial context and the entire researching process forming new organizational and practitioner knowledge without the input of this qualitative element. The qualitative inquiry provides the context of individual perspective and humanity which is a key for the construct of building a business, researching an organizational problem and generating actionable knowledge within a start-up organization. It is an important part of this study that supports the quantitative, analytical aspects of supplier selection that forms the remaining bulk of the research's methodology.

Quantitative inquiry is complementary to quantitative, but with fundamentally different tendencies; the relationship between the two remains a point of tension within mixed method researchers (Morgan, 2018). Quantitative research aims to represent the phenomena of the world by using "theories, hypotheses, models, equations, samples, data or parameter estimates" (Zyphur and Pierides, 2017). Quantitative tends to produce data through the use of numbers, and qualitative with the use of words; and even though there will always be a degree of blurriness between these two concepts, this is one of the oldest and most frequently discussed differentiators (Morgan, 2018). Quantitative tends to be more scientifically focused using statistics as "the connections between empirical observation and mathematical expressions of relations" (Hoy, 2010). This research depends heavily on quantitative research methods to inform the methodological approach and address the supplier selection aspect of the research problem. The use of mathematical decision-making methods lends to the study an element of repeatability, objectiveness and scalability which are extremely valuable attributes for the research's output. For this particular research methodology, it is upon the foundation of the quantitative methods that the qualitative momentum is bound, and they work together to generate organizational value and address the research problem through the methodology described in the next sections.

Frequency Count Survey

This study begins with a preliminary frequency count survey that serves the needs of the more dominant ANP analysis by verifying the appropriateness and limiting the scope of the different supplier criteria, to be studied using a handmaid design (Easterby-Smith and Thorpe, 2012). This survey clarifies the primary criteria and helps design a more accurate and reliable ANP survey but does not serve a major role in the final deliverable result of this research, the development of the Apsley & Grand Investor Indicator (AGII) tool.

Similar to a frequency count deployed by Azadnia, Saman and Wong (2015), a list of financial and personal criteria in the relevant literature is verified by the expert participants as they select the important elements given their experience in real estate investing partnerships with Yes/No operators. A score of 1 is defined for each answer of 'Yes' and 0 for each answer of 'No.' The relevancy score is calculated for each criterion with a simple average calculation of the 'Yes' answers and a threshold of 75% is required for a criterion to be considered relevant. The frequency count survey also asks the participants at the end of the survey to include any criteria they may use in their own financial supplier decision-making that were not included in the original list to capture any ideas that may have been excluded unintentionally. These additional comments are coded for additional criteria, given a score of 1 point for each mention and ranked along with the other criteria from the literature review when determining the final ANP criteria structure. The specific questions themselves can be found in Appendix 1 – Frequency Count Survey Questions.

This preliminary survey is performed simply to validate and decide upon the criteria in focus and ensure no critical criteria were missed from the literature review process. The frequency count survey does not include questions about preference or importance as that is determined using the more powerful ANP analysis in the next level of research.

Analytic Network Process

Analytic Hierarchy Process (AHP) was first developed by Professor Thomas Saaty in the 1970s by drawing inspiration from the research projects he directed for the Arms Control and Disarmament Agency at the United States Department of State (Tramarico, Salomon and Marins, 2017). Saaty (2013) describes AHP as "a general theory of measurement… used to derive relative priorities on absolute scales from both discrete and continuous paired comparisons in multilevel hierarchic structures." As the name indicates, AHP enables users to imagine and analyse problems in a hierarchical format in terms of criteria and sub-criteria (Kannan et al., 2013). In other words, AHP aims to simplify complex problems into hierarchies to deduct the best solution given the priorities provided by decision makers. AHP has grown very popular in not just different academic fields but internationally as well with AHP publications in countries like Taiwan, Turkey, China, Korea, Greece, and India (Sipahi and Timor, 2010). Often, in order to '*divide and conquer,*' AHP occurs in two phases throughout the decision-making process: problem structuring and the deduction of priorities through pairwise comparisons (Ishizaka and Nemery, 2013). However, sometimes the real world with all its complexity cannot and should not be forced artificially into a deceivingly simple, hierarchical format. AHP has a strict flow of influence, top to bottom, from goal to criteria to alternatives, and this limits its broader applicability to the more complex, intertwined issues of more elaborate structures (Saaty and Vargas, 2013). And this is where Analytic Network Process (ANP) comes in.

Saaty followed up AHP quickly with ANP as "the first mathematical theory that makes it possible for us to deal systematically with all kinds of dependence and feedback" (Saaty, 2016). By incorporating interactions on different levels of the hierarchy, it replaces the rigidity of the flow of hierarchical influence and allows the structure to transform into a network, to develop in a more realistic and natural way to more faithfully describe the real world (Saaty and Vargas, 2013). Many MCDM problems include intangibility and interdependence where feedback plays an influential role upon the results such that ANP is more appropriate for increasingly accurate findings. Roughly 31% of all supplier selection research between 2000 and 2008 used an AHP, ANP or integrated AHP approach to deal with this particular subset of multi-criteria decision-making problems (Ho, Xu and Dey, 2010). Though Data Envelopment Analysis (DEA) was found to be the most popular individual approach for supplier selection, integrated AHP was found more widely applicable "due to its simplicity, ease of use, and great flexibility" (Ho, Xu and Dey, 2010). Also, the software support provided by Saaty for AHP and ANP methods gives it an additional advantage over other methods as well.

The Analytic Network Process can be applied to decision-making problems by following some very logical steps. First, the goal or objective needs to be defined, as well as the criteria and alternatives necessary to accomplish that goal (Mukherjee, 2017). These criteria are used to design the main analytic network structure in relation to addressing the decision that needs to be made or problem that needs to be solved. It is this first step of determining the criteria, and then forming the network interdependence feedbacks connections between criteria, that requires a thorough analysis of the problem and is one of the most important steps of the entire ANP method (Aragonés-Beltrán, García-Melón and Montesinos-Valera, 2017). ANP typically consists of several clusters, or groups of similar criteria or elements, that relate to each other by their dependences thus forming the network connections (Mukherjee, 2017). The top of the network design is the goal of the decision/problem and the bottom is formed by the alternatives to be evaluated in terms of the criteria found in the middle (Morteza et al., 2016; Aragonés-Beltrán, García-Melón and Montesinos-Valera, 2017). Luckily, this network design process mimics the typical supplier selection thought process that many practitioners are familiar with (Yu and Wong, 2014); it is just a more formalized, mathematical approach with the ability to incorporate more powerful analysis of the quantitative and qualitative elements.

After the goal, criteria, and overall network have been determined and designed, the next step is to calculate the priorities of the elements in the network and the alternatives of the decision itself (Saaty and Vargas, 2013). Both AHP and ANP depend upon expert decision makers to use relative scales and ratios to rate their preferences using pairwise comparisons (Mukherjee, 2017). Pairwise comparison methodology was first introduced by Fechner in 1860 and further developed by Thurstone in 1927 (Han, 2014). The experts provide their preferences by applying paired comparison judgements to pairs of homogeneous elements using Saaty's fundamental scale of absolute numbers in Figure 7 (Saaty and Vargas, 2013). These special comparisons represent the expert's "best understanding of the influences involved" (Saaty and Vargas, 2013) and are a vital component to the methodology. Once a decision maker identifies their preference, or the intensity of importance between the two paired elements, the inverse comparison is assigned to the lesser element with a reciprocal value of 1/x (Saaty and Vargas, 2013). For example, if Cost is 9, or extremely more important than brand, brand is $1/9^{th}$ more important than Cost.

Intensity of Importance	Definition	Explanation
1	**Equal importance**	Two activities contribute equally to the objective
2	Weak	
3	Moderate importance	Experience and judgment slightly favor one activity over another
4	Moderate plus	
5	**Strong importance**	Experience and judgment strongly favor one activity over another
6	Strong plus	
7	**Very strong or demonstrated importance**	An activity is favored very strongly over another; its dominance demonstrated in practice
8	Very, very strong	
9	**Extreme importance**	The evidence favoring one activity over another is of the highest possible order of affirmation

Figure 7 – Scale of Absolute Numbers (Saaty and Vargas, 2013)

It is pertinent to point out that the problem structure design grows in size and difficulty when there are high quantities of criteria, clusters and/or interdependencies. Supplier selection structures are straight forward when a few, independent criteria are chosen. However, when the problem calls for interdependencies between criteria and alternatives, or the quantity of criteria increases, the problem becomes more complicated and requires more involved use of advanced decision-making tools like ANP (Sodenkamp, Tavana and Caprio, 2016). Although technically able to extend the scale and compared elements indefinitely (Saaty and Vargas, 2013), one of the major issues using AHP or ANP is the high number of paired comparisons, n(n-1)/2 for n number of elements, that result when criteria, cluster, interdependencies or alternative counts grow (Gupta and Tiwari, 2016). A high number of pairwise comparisons can result in decision-maker fatigue and should be taken into consideration when designing the network.

Equation 1 – Matrix Format; Priority Weight Formula (Afzali, Rafsanjani and Saeid, 2016)

$$\begin{array}{c c} & \begin{array}{ccc} C_1 & \cdots & C_n \end{array} \\ \begin{array}{c} A_1 \\ \vdots \\ A_m \end{array} & \begin{bmatrix} x_{11} & \cdots & x_{1n} \\ \vdots & \ddots & \vdots \\ x_{m1} & \cdots & x_{mn} \end{bmatrix} \end{array} \quad W = [w_1, \ldots, w_n]$$

After the pairwise comparisons are performed, the answers are plotted in a matrix format similar to the format of Equation 1 for each individual decision-maker that participated in the ANP survey questionnaire (Afzali, Rafsanjani and Saeid, 2016). Along the left-hand side, $A_1;\ldots;A_m$ are possible alternatives that the decision makers have to choose amongst; $C_1;\ldots;C_n$ along the top are the criteria where X_{11} is the rating of alternative A_1 with respect to criterion C_1 (Afzali, Rafsanjani and Saeid, 2016). All the pairwise comparisons and their corresponding inverse ratios are populated within the matrix. After completely populating the pairwise comparison values into the matrix, the geometric mean of each row is calculated and then averaged against the summation. This allows the priority vector (W) for each matrix to be evaluated (Gupta and Tiwari, 2016). These priorities are then idealized by dividing the weights by the largest priority within the matrix. This idealization step allows those values to be ready to be populated in the larger problem supermatrix format.

To conclude this pairwise comparison priority calculation step, the final consistency index (CI) and consistency ratio (CR) of the matrix must be calculated to identify if the decision-maker made any inconsistent misrepresentations throughout their pairwise comparisons which would lead to conflicting ratings (Kannan et al., 2013). For example, if Brand is more important than Cost, and Cost is more important than Location, then Location surely cannot be more important than Brand. If the decision-maker considered Location more important than Brand, the answers would be found to be inconsistent. The matrix could be found to be unreliable due to the decision-maker's lack of experience and expertise or due to the complexity of the problem trying to be addressed (Ergu et al., 2011). This consistency calculation is very important to the validity of the results, especially with ANP, as the ANP priority conclusions can change if the pairwise comparison matrices are inconsistent even slightly (Ergu et al., 2011). The CI is calculated similar to the eigenvalue method, provided in Equation 2 (Han, 2014).

Equation 2 – Consistency Index (Han, 2014)

$$CI = \frac{\lambda_{\max} - n}{n - 1}$$

The CI lambda max is calculated by taking the summation of each criteria and multiplying it by its corresponding priority vector. These results are totalled to find the matrix lambda max (or referred to as the largest Eigenvalue (Morteza et al., 2016)) and are used to calculate matrix CI. The CR is then calculated by dividing the CI over the average random index (RI) based on matrix size (n), thus CR = CI/RI (Ergu et al., 2011). Some researchers have used different RI values to calculate consistency (Tummala and Ling, 1998; Raharjo and Endah, 2006), but the alternative random index values are so relatively similar to Saaty's original index, shown below in Table 1, that Saaty's index is used in this research. The RI is determined by first selecting the corresponding column for the matrix being calculated; 'n' represents the count of elements (rows and columns) in the matrix.

Table 1 – Random Consistency Index Table (Saaty, 1994)

n	1	2	3	4	5	6	7	8	9	10
Random Consistency Index (R.I.)	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49

For a 3 by 3 matrix (n=3), the resulting consistency ratio (CR) should be about 5%, 4 by 4 matrix (n=4) should be 8%, and any matrix larger (n=>5) should not go above 10%, or CR = .1, for the results to lead to an informed decision (Gupta and Tiwari, 2016). The resulting CR determines if the pairwise comparisons are consistent enough to be used or if the decision-maker needs to clarify the pairwise comparison answers. Once found satisfactorily consistent, the priorities (W) from all comparison matrixes (as there may be many different matrixes depending on the overall control structure) are populated into an unweighted supermatrix based on the initially designed network structure. This is done for each decision maker involved in the ANP analysis.

SUPERMATRIXES

A supermatrix is defined as an aggregate of many measures across many scales (Cooper and Yavuz, 2016) as displayed in Figure 8. It is an important resulting figure of the ANP pair wise comparison methodology. There are three main structures necessary to defining the ultimate priority results in an ANP network: the unweighted supermatrix, the weighted supermatrix, and the limit supermatrix (Saaty, 2016). The values of an unweighted supermatrix are the result of prior calculated pairwise comparisons matrixes priority vectors being transplanted into a larger matrix format similar to the structure in Figure 8. Within the supermatrix structures, there may be some zero entries indicating there was no influence between the corresponding elements of the row/column combination (Saaty and Vargas, 2013). The goal of the unweighted supermatrix is to populate the preliminary structure with the pairwise comparison results to then allow the limit priorities to be derived to help with the ultimate decision-making process.

$$W = \begin{bmatrix} 0 & 0 & 0 & \bullet & \bullet & & \bullet & 0 & W_{1,n} \\ W_{21} & 0 & 0 & \bullet & \bullet & & \bullet & 0 & 0 \\ 0 & W_{32} & 0 & \bullet & \bullet & & \bullet & 0 & 0 \\ \bullet & \bullet & \bullet & \bullet & \bullet & & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet & \bullet & & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet & \bullet & W_{n-1,\, n-2} & & \bullet & \bullet \\ 0 & 0 & 0 & \bullet & \bullet & & \bullet & W_{n,n-1} & 0 \end{bmatrix}$$

Figure 8 – Supermatrix Format (Saaty and Vargas, 2013)

Once the unweighted supermatrix is populated, it is necessary to transform this matrix into a stochastic matrix so each column sums to unity (Saaty and Vargas, 2013). The reason this transformation is necessary is because the unweighted supermatrix may result in columns with summation values higher than one as a result of different pairwise comparison results. Just because one element is a top priority within one cluster or component does not indicate that it is top priority within the entire structure; furthermore, they cannot all be first place within the final supermatrix (Saaty and Vargas, 2013). So, this requires a weighing calculation be performed to convert the priorities according to their influence with respect to the goal itself by using priorities from a pairwise comparison matrix between the criteria and the goal. All the elements in each column are multiplied by their corresponding weighted priority vector and the summation brings all priorities to a column total of one. These weighted priorities are populated in the weighted supermatrix to become the needed stochastic matrix format for the subsequent calculations.

Lastly, the weighted supermatrix is raised until all values in each row are equal. The formula of Equation 3 indicates that the raising of the supermatrix continues into large powers until it converges to the final priorities of all the factors of the entire model (Saaty and Vargas, 2013). For large structures, these calculations would be very difficult to do manually without the assistance of more powerful tools. Following the formula provided below, the SuperDecisions software is available for researchers and practitioners to perform this mathematical calculation and delivers the limit supermatrix.

Equation 3 – Limit Supermatrix Weight
(Wu, Tseng and Chiu, 2012)

$$W' = \lim_{k \to \infty} W^k$$

This limit, or long-run, supermatrix results in relative weights among the criteria through the gradual convergence of their interdependent relationships within the entire network structure (Wu, Tseng and Chiu, 2012). In other words, the limit supermatrix yields the priority of influence of each element on every other element (Saaty and Vargas, 2013). The limit supermatrix priorities are then normalized by dividing them all by the highest value to conclude the highest priorities among criteria and alternatives and conclude the ANP calculations. These priorities are indicative of the decision that should be made, the alternative that could be chosen, or the highest priority criteria to be emphasized and provide decision-makers additional clarity on the goal or problem that was to be addressed. For this research, the limit supermatrix addresses a sub-question of the research by determining the criteria of greatest importance towards resolving the problem of supplier selection. It also supports the more thorough investigation behind these criteria priority weights into the overall organizational supply chain problem by providing clarity on such an important facet of the supplier selection process, but there is still more to be determined to help bring about action for the organization which is where the following research steps come into prominence.

Generally, the decision-makers from the ANP exercise are asked to compare criteria but are also asked to establish the alternatives matrix by comparing the actual alternatives with respect to each criterion (Chang et al., 2015). These standardized comparisons are then weighted against the criteria which provides the necessary outputs for TOPSIS or ultimate decision making. However, for this research, it would be impossible to ask capital suppliers or decision-makers to have opinions on complete strangers or to recalculate the ANP pairwise comparisons with each new alternative, so the AGII was incorporated to provide a more appropriate bridge between the two methodologies.

Apsley & Grand Investor Indicator (AGII)

The Apsley & Grand Investor Indicator (www.ApsleyGrand.com/AGII) is a web-based questionnaire that potential financial capital suppliers take to determine their prospective suitability for partnership with Apsley & Grand on upcoming real estate investment projects. For the capital supplier, the AGII is a free explicit service, a point of instant interaction with the company, and provides personalized feedback for new capital suppliers that instils a slight sense of reciprocity, curiosity and excitement. It is a novel communication tool between the potential supplier and the organization; simply put, it aims to be a fun way to begin a new partnership. For the organization, it is an analytical and marketing tool used throughout the relationship, but most importantly during the onboarding phase of a new financial capital supplier. Finally, for the research, the AGII provides nominal value inputs for the internal TOPSIS analysis on the potential suppliers' suitability. The AGII is the point of intersection for this research between ANP and TOPSIS and serves as a tactile form of truely applied action research with its creation and implementation.

The initial experience the supplier has on the Apsley & Grand website is designed to provide information and the AGII in turn is designed to gather information. Once a supplier has completed the AGII, the perception of service excellence increases and the premium supporting facilities that follows the initial AGII interaction elevates Apsley & Grand above other similar service organizations (Reid and Koljonen, 2000). The AGII also gives more substance to the Apsley & Grand website providing visitors 'something to do' that is distinctive and interactive instead of a standard website with information and a 'Contact Us' form.

The use of the ANP analysis clarifies and assigns weights to the pertinent criteria; however, the criteria themselves are mostly constructs, or latent variables, that cannot be directly measured (Gutiérrez-Nieto, Serrano-Cinca and Camón-Cala, 2016). To allow the appropriate assessment of these criteria, indicators or measurable proxy variables are used through an amalgamation of different scales, assessments, quizzes and questions. The different indicators result in the appropriate nominal values needed for the analysis of each individual supplier alternative to commence. The criteria for the ANP can be objective and subjective, qualitative and quantitative values making the expression of them as exact numerical values inappropriate which is where the use of indicators provides important flexibility (Chen and Zou, 2017). The ultimate resulting AGII is an online questionnaire interface with a decision tree like structure that funnels supplier results into different TOPSIS output values to create a unique supplier profile providing invaluable insight for Apsley & Grand during the supplier selection and evaluation process.

TOPSIS

The Technique for Order Preference by Similarity to Ideal Solution, or 'TOPSIS,' was developed by Hwang and Yoon in 1981 to provide another method for ranking alternatives by calculating their similarities to the ideal solution (Mishra, Pundir and Ganapathy, 2017). It is described by Kannan et al. (2013) as "a simple computation process, systematic procedure, and a sound logic that represents the rationale of human choice." According to TOPSIS reasoning, the best alternative should be closest to the positive ideal solution and simultaneously farthest from the negative ideal solution (Krohling, Lourenzutti and Campos, 2015). The positive ideal maximizes the beneficial criteria and minimizes costly criteria; the opposite is true with the negative ideal solution (Kannan et al., 2013). In other words, the positive ideal solution should comprise the best combination of all criteria in the analysis and the negative contains the worst combinations (Gupta and Tiwari, 2016); TOPSIS aims to plot the alternatives between the two poles. Once the distance of separation between the two ideals is determined, the closeness coefficient is calculated for each alternative to determine total score ranking and to highlight the best and worst alternatives (Azadnia, Saman and Wong, 2015).

TOPSIS is one of the more commonly used MCDM tools and is applied widely in supplier selection problems (Yu and Wong, 2014; Dargi et al., 2014). For supplier selection, TOPSIS can provide a meaningful performance measurement for each supplier alternative with which organizations can make necessary supply chain decisions. TOPSIS has been included in this research not only because it is rational, understandable, computationally straightforward, and provides simple depiction of the best alternatives (Morteza at el. 2016), but also because it helps supplement where AHP/ANP is marginally weak. Lima Junior, Osiro and Carpinetti (2014) found when comparing fuzzy AHP and fuzzy TOPSIS that AHP is prone to ranking reversal when a new alternative or criteria is added, while TOPSIS was found consistent. TOPSIS was also found to have no limitations on the number of criteria or alternatives, where AHP has a recommended maximum of 9 (Lima Junior, Osiro and Carpinetti, 2014). Given that Apsley & Grand applies the AGII tool to a theoretically unlimited number of alternatives, TOPSIS is the appropriate supporting methodology to calculate the financial capital supplier rankings reliably and provide indispensable robustness to the research problem solution. Also, TOPSIS aids with future internal departmental communication and market segmentation analysis using the closeness coefficient nominal value output per supplier as a type of internal metric.

For this research, the initial criteria weighting steps are performed by the ANP pairwise comparisons to allow for more feedback and interaction between the criteria. TOPSIS is brought into the research in a supporting subsequent role to help convert the nominal AGII outputs per criteria per alternative from ANP to plot the positive ideal (A*) and negative ideal (A’) solutions. It should be pointed out that TOPSIS can be performed independently of ANP and those calculations are provided in Appendix 2 – TOPSIS Calculations for reference but are not used specifically in this research. Instead, TOPSIS joins this research after the ANP to help identify a type of suitability of the financial suppliers in a comparable format; this is defined by first determining which criteria are benefits and which are costs. The benefit criteria determine the positive ideal per criteria by the maximum value, and the cost criteria determine the positive ideal per criteria by the minimum value. The opposite is performed for the negative ideal solution. Then the distance or separation from the positive ideal and negative ideal is calculated. The closeness coefficient, CCi, is then computed for each alternative using the following formula in Equation 4. This metric is a key step in answering the main research problem. Because once each alternative is assigned a closeness coefficient, the potential financial capital suppliers are now able to be ranked in decreasing order with the best alternative being closest to the positive ideal solution and farthest from the negative ideal solution. This ranking helps reduce subjectivity and imparts the intentionality in building the service supply chain as was the main research goal.

Equation 4 – Closeness Coefficient
(Liao, Lin and Fu, 2016)

$$CC_i = \frac{d_i^-}{d_i^+ + d_i^-}$$

Action Research

A founding tenant of this research methodology is predicated upon action research methodology. For it is impossible to discuss Apsley & Grand without discussing the role of the founding sole employee and the same parallel is made for discussing the research: it is impossible to create action research within the context of Apsley & Grand without discussing the role of the researcher. Action research provides this conversation conduit and introduces important frames of perspective to the researcher for viewing the research in all stages of action and problem-solving.

Kurt Lewin pioneered the concept of action research because, for him, to simply try to explain phenomena was not enough; that one should also try to change them to truly begin to understand them, because when one attempts to change human systems, often it becomes apparent that there are variables involved which are uncontrollable by traditional research methods (Coghlan and Shani, 2014). Lewin fled Hitler’s fascism to the USA as a refugee in the 1930s and focused his energies as a social psychologist to help improve social organization of groups; he was interested in the capacity of human’s supporting each other’s ability to learn (Somekh and Zeichner, 2009). Since its founding in the mid-1940s, action research has struggled to find definition and place within literature, becoming divided amongst a spectrum of approaches like action science, system intervention, and action inquiry (Chan et al., 2013). Action research is an applied focus in a subset of field research; and because of its inductive and iterative process, it should not to be seen as a substitute to traditional research methods, but is best used as a complement to them

(Zhang, Levenson and Crossley, 2015). And yet, in all the different varieties of action research, the consistent feature that has emerged is “working towards a resolution of the impetus for action with the reflective process of inquiry and knowledge generation, to generate new practices" (Somekh and Zeichner, 2009). This is precisely what this research seeks to do in all facets of the study.

For this research, action research is defined as “the application of fact-finding to practical problem-solving in a social situation with a view to improving the quality of action within it” (Burns, 2000). Dissecting this definition momentarily provides interesting insight for this research: fact-finding, problem-solving, improving action – all these things could also represent the iterative process of entrepreneurship as well as action research. A foundational assumption for action research is that it seeks to contribute to both action through problem solving or change initiative development and to create practical knowledge (Coghlan and Shani, 2014). This research focuses on the fact that action research is more generally focused on actionable knowledge and not the process of turning knowledge into action (Zhang, Levenson and Crossley, 2015). Or in other words, action research is not research that hopes to have action, but action that is researched, changed and re-researched (Smith, 2017). It allows a new kind of platform: of introducing changes into a complex social process and then observing the effects (Abrahamse and Lotriet, 2012). With all that said, action research intertwines throughout this research by intentionally and reflexively creating actionable knowledge to stimulate change and growth for Apsley & Grand. As a small solo-entrepreneurship, Apsley & Grand represents the introduction of the researcher as ‘founder’ in new complex social business processes and environments that requires both action and continuous learning.

Action research also supports change and growth for the researcher personally. Somekh and Zeichner (2009) propose that action research highlights a challenge between two distinct ways of being – a scholar and an activist; or, scholar and entrepreneur, an ultimate form of business activist. Applying an action research focus to one’s research is a special form of learning and involves the attempt to break through and overcome this dualism through the development of greater self-awareness (Stern, 2015). Action ‘re-search,’ as a second search, links reflective thoughtful activity into the productive activity and can be considered a form of ‘soul-searching’ by both reflecting internally and influencing change upon external interactions in the way people relate to one another in practice (Stern, 2015). Action research focuses on first conceptualizing the problem to solve, acting upon a potential solution, and reflecting upon the experiential effect as illustrated in Figure 9 on the following page (Rydenfält, Odenrick and Larsson, 2017).

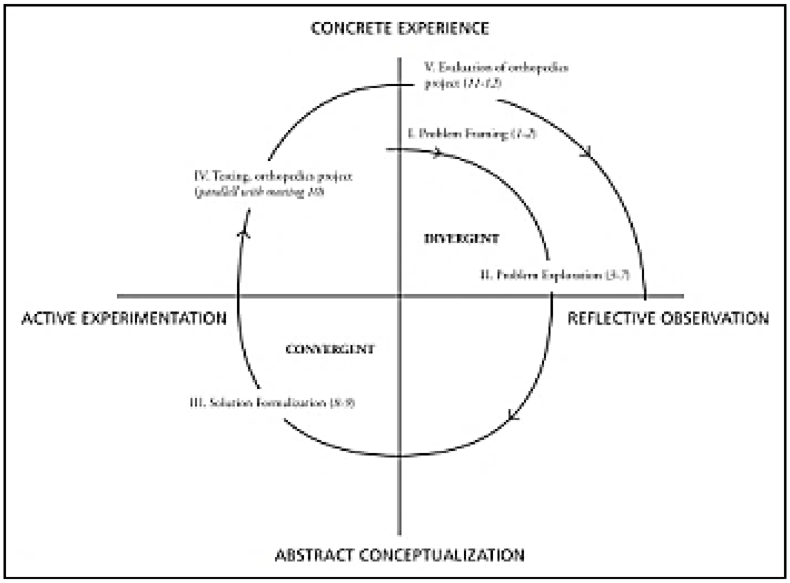


Figure 9 – Action Research Cycling (Rydenfält, Odenrick and Larsson, 2017)

The dualistic interactions between scholar and activist, between internal and external, between status quo and future state, all play a role in action research and this study. For an entrepreneurial organization and research performed within the context of one, it is important to appreciate and acknowledge the constant transformation and cycling that is occurring in the organization itself and its founder. The organization cannot be treated as a formed, static entity but as a social construction that is created, maintained and adapted through communication of the members (Hedman, 2016). This study represents the entrepreneurial journey of determining the problem needing solving, exploration of that problem, actively attempting to bring about a solution, and reflectively observing the resolution. In a very serious sense, Apsley & Grand grows throughout the action of this research problem-solving and the reflective self-awareness of the founder. At its core, action research is 'learning by doing;' when facing a problem, do something to solve it, and if it is still unsolved, try another solution until the problem is solved (Durak et al., 2016). What elevates it above simple problem-solving, or perhaps consulting or entrepreneurship, is the rigorous critical reflection on the choices that are made and their consequences (Coghlan and Shani, 2014). It is the attentiveness to these choices and the transparency about the intended and unintended reactions that is important for conducting quality action research (Coghlan and Shani, 2014). The word transparency is key to acknowledge in this explanation of action research because in this research, action research monitoring is used to highlight the researching process as transparently as possible bringing forward the entire learning and researching experience (the naivety and mistakes included). Even though action research only needs to be found useful in improving practice to be considered internally valid (Smith, 2017), there should be a level of intentionality to each step of the cycle and awareness to the internal and external impacts of each choice for this research to be deemed successful.

Action research also aims to generate in-depth understanding of a problem within the organizational context leading to make a unique contribution to the body of knowledge (Smith, 2017). The ability to generalize insights gained from the action allows the research to be externally valid but does not necessarily imply externality, it just implies that the research lead to improvements that advance or transform the organization in a way greater than just solving the one problem that was studied (Adebanjo et al., 2013). In a way, action research builds on the past, performs in the present with an intention to improve the future (Chandler and Torbert, 2003). For Apsley & Grand, an element of action is required for the formation of the organization and any research done within this organizational context should acknowledge and embrace action research as well as the other methodologies. Action research is also appropriate for an organizational context like Apsley & Grand since it can be conducted alone as an individual, as part of a small collaborative group or a larger section of an organization (Somekh and Zeichner, 2009). There is flexibility in its applicability which is what makes it a great complement to more rigid research methodologies and allows it to be applied from the smallest of organizations to the largest.

So, in summary, the incorporation of action research is simply to better understand or improve the context of an individual's work, to produce useful knowledge, and to contribute to greater equity and democracy by problem-solving (Somekh and Zeichner, 2009). These motivations mimic the desires of the entrepreneurial researcher and the action research basis provides a structural support to hold the different contexts, methods and research problems of this study cohesively together. The following chapter begins to elaborate upon this proposed study in action.

Chapter 4: Application of Proposed Model

To appropriately select and evaluate potential financial capital suppliers, the first step of the supplier selection process requires problem definition. What can be a very challenging and contentious point of organizational debate for larger firms is a point of ease for start-up, entrepreneurial organizations. For Apsley & Grand, the problem is relatively simple to define: more capital suppliers are needed as there are no suppliers to date. This clear problem indicates the need for a variety of supplier selection criteria that help create a clearer picture of the individual supplier across a breadth of unique qualities and characteristics This also aids in segmentation and provides internal metrics for supplier selection analysis. Now that the first step in supplier selection is complete and the problem is defined as needing supplier growth, the next step is to determine the criteria for supplier selection and apply the proposed model towards identifying the best approach for addressing the supplier selection research problem.

Selection Criteria Derivation

The procedure for deriving organizational supplier selection criteria must consider a practical and exhaustive review of both relevant literature and the links between the supplier and the organizational processes (Chemweno et al., 2015). A literature review ascertains competencies and factors for partnering across a broad variety of contexts such as economic psychology, real estate finance, financial economics and personality research. This review process should not be undervalued, for Sodenkamp, Tavana and Caprio (2016) considered facilitating the derivation of the selection criteria to be the most challenging part of a similar study. Additionally, the extra challenge for this research is that most supply chain management and other supplier selection research is operating within a manufacturing or business-to-business context where the relationships between the individuals are not emphasized to the same degree as this is in this research context. The individual supplier’s humanity, quirks and experience is what is of interest, not procedural or logistical qualities of traditional supplier selection or SCM conversations. The dynamic and sophisticated elements of a service supply chain like experience and time, not physical products (Boon-itt, Wong and Wong, 2017), makes many of the available criteria from the literature irrelevant for this study. Nevertheless, the efforts of the literature review are provided broken into two categories for simplicity and clarity: financial factors found in Table 2 and personal factors found in Table

3. Admittedly, these tables of factors may not be completely all-encompassing, but addresses the most meaningful elements that were identified in the applicable literature.

The relevant literature identifies the financial factors as credit score, collateral/capacity, source of down payment, financial habits, risk appetite/tolerance, motivation and financial literacy. Each of these factors represents a different perspective of an individual supplier's financial status and financial mentality.

Table 2 – Financial Factors with Citations

Factor	Citations
Financial Status	
Credit Score	Langely, 2014; Henderson et al., 2015; Eldred, 2012; Agarwal, Ben-David and Yao, 2015
Collateral/Capacity	Cooper, 2013; Schmalz, Sraer and Thesmar, 2017; Agarwal, Ben-David and Yao, 2015; Sánchez-Martínez, Sanchez-Campillo and Moreno-Herrero, 2016; Eldred, 2012; Telyukova, 2013
Source of Down Payment	Telyukova, 2013; Cunha, Lambrecht and Pawlina, 2011
Saving, Spending, and Borrowing Habits	Nau, Dwyer and Hodson, 2015; Robb and Sharpe, 2009; Eldred, 2012; Friedline and West, 2016
Financial Mentality	
Risk Appetite/Tolerance	Berlinger and Váradi, 2015; Kuzniak et al., 2015; Baldan, Geretto and Zen, 2016; Zalewski, 2017
Motivation	Agarwal, Ben-David and Yao, 2015; Sodenkamp, Tavana and Caprio, 2016; Farrell, Fry and Risse, 2016
Financial Literacy	Van Ooijen and van Rooji, 2016; Lusardi and Tufano, 2015; Yang and Lester, 2016; Yates and Ward, 2014

The personal factors embrace the unique merits of the supplier as an individual on a more humanistic level. Demographic factors like gender, marital status, age, location and educational level are standard protocol in most research and were thus included. Real estate investing partnerships are not unique from other businesses in the fact that it is the quality of the partner relationship that is significant to the business endeavour succeeding through building trust with openness, transparency and commitment between the people in the relationship (Lehavi, 2014). Therefore, personal traits and characteristics that go beyond an individual's demographics and financials are important for real estate investing partnerships to incorporate into the selection criteria. As a point of clarity, traits are considered inherited whereas characteristics are built and absorbed by the individual. Traits include elements like trustworthiness, reliability, dependability/consistency, responsiveness, and flexibility and help build trust and facilitate strong partnerships. Other personal characteristics like the communication expectations, career advancement potential, job stability, technical capabilities, and the quality and quantity of past experiences are also potential criteria in supplier selection evaluation in real estate investing.

Table 3 – Personal Factors with Citations

Factor	Citations
Personal Demographics	
Gender	Farrell, Fry and Risse, 2016; Henderson et al., 2015; Oksanen, Aaltonen and Rantala, 2015
Marital Status	Nau, Dwyer and Hodson, 2015; Oksanen, Aaltonen and Rantala, 2015
Age	Friedline and West, 2016; Calafiore et al., 2014; Nau, Dwyer and Hodson, 2015; Lusardi and Tufano, 2015
Location (Distance)	Ghorabaee et al., 2016
Education Level	Farrell, Fry and Risse, 2016; Friedline and West, 2016; Oksanen, Aaltonen and Rantala, 2015; Cunha, Lambrecht and Pawlina, 2011
Personal Trait	
Trustworthiness	Moalagh and Ravason, 2013; Ohanian, 1990; DeWitt, Milbrath and Simon, 2018; Lehavi, 2014
Reliability	Teresa, 2013; Nachem, 2007; Lehavi, 2014; McNellis, 2016
Dependability/Consistency	Teresa, 2013; Nachem, 2007; McNellis, 2016; Lehavi, 2014
Responsiveness	Nachem, 2007; Hum and Parlar, 2014; Sodenkamp, Tavana and Caprio, 2016
Flexibility	Ghorabee et al., 2016; Sodenkamp, Tavana and Caprio, 2016; Straube, Durach and Phung, 2016; DeWitt, Milbrath and Simon, 2018
Personal Characteristics	
Communication Expectations	Adebanjo et al., 2013; Lehavi, 2014
Career Advancement Potential	Ekici and Dunn, 2010; Farrell, Fry and Risse, 2016
Job Stability	Ekici and Dunn, 2010; Langely, 2014; Nau, Dwyer and Hodson, 2015
Technical Capabilities	Adebanjo et al., 2013; Ghorabaee et al., 2016
Quality and Quantity of Past Experience	Eldred, 2012; Sodenkamp, Tavana and Caprio, 2016

A graphical illustration of these financial and personal factors is provided on the following page in Figure 10.

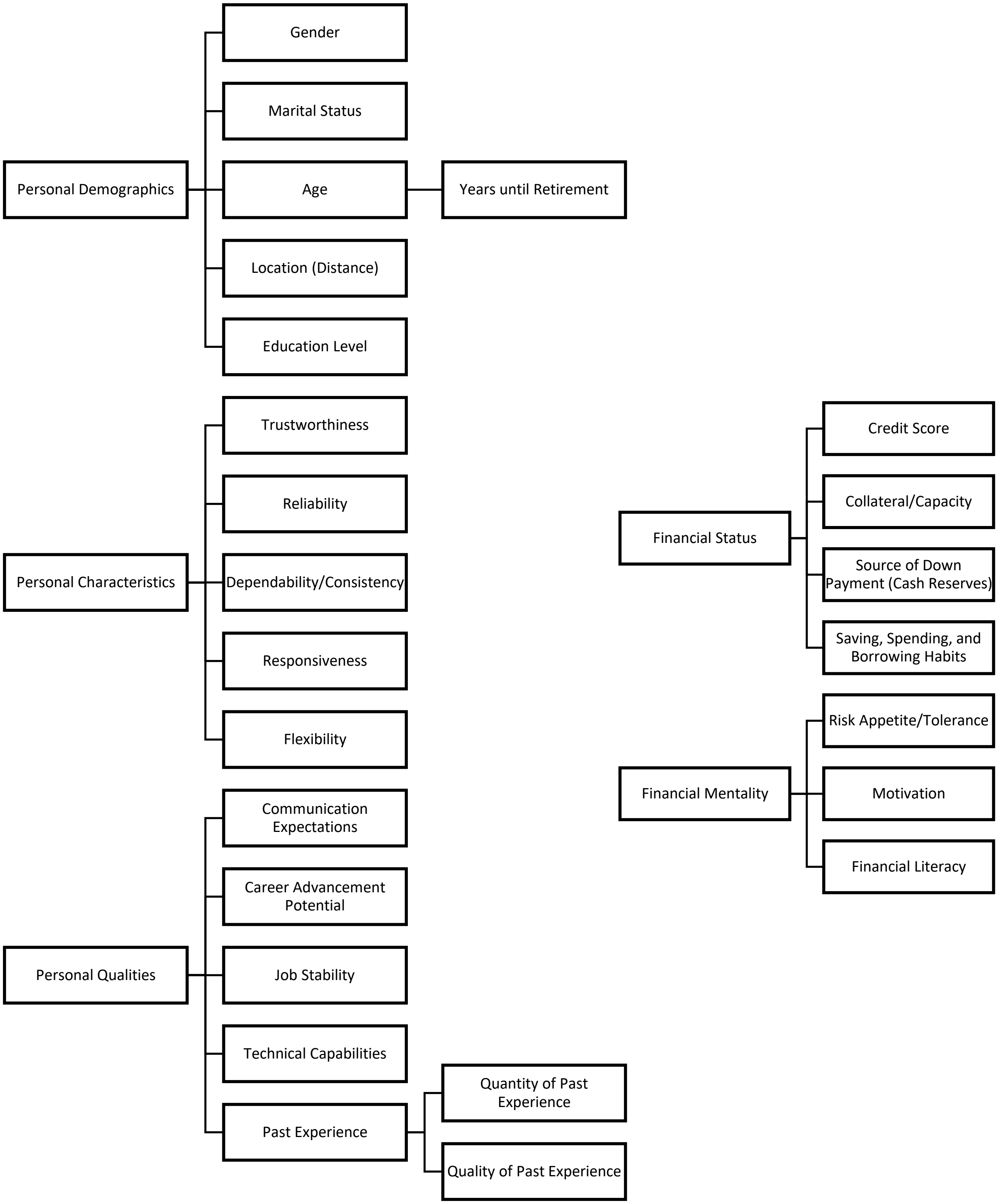


Figure 10 – Frequency Count Survey Factors

Frequency Count Survey

An expert verification frequency count survey uses the factors from the various literature reviews as a potential pool of organizational criteria in the supplier selection process in the first step of the research methodology. Given the service supply chain context and the organizational emphasis on small-scale investing organization partnerships, most of the criteria are related to the more subjective individualistic characteristics which deviates away from the more typical objective logistic measures found in the majority of supplier selection research like price, delivery, quality and service (Florez-Lopez, 2007). The frequency count survey was open online for three weeks in June 2017 on the Apsley & Grand company website (www.ApsleyGrand.com/AGII) and gathered nineteen completed survey results from eligible industry participants.

All expert participants had experience with at least one real estate financial partner transaction and accepted the terms of the research participation prior to participating in the frequency count survey or overall research. The expert team was from across the United States and attended the Urban Land Institute's Small Developer Forum meeting in Detroit, MI providing the researcher ample opportunity to solicit survey participation from qualified survey candidates. The experience base was broad with some participants having only one previous transaction with others' experience count reaching double digits. Fifteen of the frequency survey participants encouragingly volunteered to participate in the following ANP survey.

It is important to mention that this group of individuals may have more altruistic tendencies than industry standard given their attendance to a Small Developer Forum that focuses on having a more intentional, caring, and thoughtful development approach. This may have introduced sample set bias given the limited variety of groups where the survey was advertised which may ultimately skew the results, but due to the variety of locations, professions, experience and communities the experts worked, the researcher found it to be an acceptable risk when gathering the frequency count data. Additionally, this step in the overall research methodology is a precursor to the main ANP and TOPSIS activities, so it was not found critical to push for additional participation.

Frequency Count Survey Results

The frequency count survey helps clarify primary criteria and creates a more accurate and reliable ANP survey by reducing the criteria count and ensuring appropriate criteria are accounted. The frequency count survey questions simply asked if the potential criteria were important when selecting a real estate investing partner; for example, "Is their Financial Literacy Important?" with a simple, Yes or No multiple choice answer. 'Yes' answers received one point and zero points for 'No.' The participants were also asked at the end of the survey to include any criteria they use when evaluating potential financial suppliers and added Sophistication, Net Worth/Accredited Investor Status, Values/Project Mission, and Level of Involvement as additional criteria. The results of the frequency count survey can be found below on Table 4. The criteria were considered 'Relevant' to the ANP survey if they had an over 75% average with a simple average calculation from all the frequency count survey responses. If the write-in comment criterions were repeat or similar to another criterion, they were given a 'NA.'

Table 4 – Frequency Count Relevancy Results

Criteria	**Relevancy Score (%)**	**Relevant**
Credit Score	58	N
Capacity	79	Y
Cash Reserves	68	N
Collateral	84	Y
Personal Financial Habits	63	N
Reliability	100	Y
Flexibility	84	Y
Age	11	N
Gender	0	N
Marriage Status	11	N
Trustworthiness	100	Y
Responsiveness	100	Y
Dependability	95	Y
Risk Appetite/Tolerance	95	Y
Motivation	89	Y
Distance	37	N-
Communication Expectations	89	Y-
Education Level	21	N
Job Stability	53	N
Career Advancement Potential	42	N
Financial Literacy	74	N

Technical Capabilities	37	N
Quantity of Past Experience	58	N
Quality of Past Experience	84	Y
Sophistication	5	N
Write-In Answers		
Quality of Past Experience	84	NA
Collateral	84	NA
Trust/Vision/Mission/Values Alignment	32	N
Trust/Vision/Mission/Values Alignment	32	N
Trust/Vision/Mission/Values Alignment	32	N
Collateral	84	NA
Trust/Vision/Mission/Values Alignment	32	N
Trustworthiness; Trust/Vision/Mission/Values Alignment	100;32	NA;N
Trust/Vision/Mission/Values Alignment	32	N
Patience	5	N
Quality of Past Experience	84	NA
Communication Expectations; Motivation; Level of Involvement	89;89;5	NA;NA;N

Two interesting things resulted from the frequency count survey besides the final resulting list of supplier criteria. First, a few criteria were selected as important by every survey participant: Reliability, Trustworthiness and Responsiveness. With further reflection, this is probably a result of unclear definitions within the frequency count survey and these three words being very similar in definition. This could be clarified in future surveys by incorporating definitions or examples for each criterion for the intention of the word. A qualitative interview format could be used as well to help ensure consistent selection of the intended criterion by experts. For the purpose of the ANP, reliability, flexibility, dependability, and trustworthiness were combined into trustworthiness for the subsequent research after a closer look at the similarities in definitions across the different constructs.

The second interesting result was the overwhelming classification that the different objective criteria options were considered irrelevant. All objective criterions like gender, age or marital status were flatly rejected as unimportant which highlights the prominence of subjective characteristics. Given the context of these personal relationships, this was to be expected, but was a surprise at the degree of absolute confirmation. Even though the criterion for communication expectations was considered relevant, it was excluded from the final ANP criteria by the researcher to allow the resulting criteria to all be benefits, meaning it is desirable to have higher scores of the criteria (indicated with a '+' (Yu and Wong, 2014), (instead of costs where it is less desirable to have higher scores) to simplify calculations and keep the criterion type consistent. In future research, incorporating cost criterion in the ANP study would be a good addition.

The final six criteria, displayed on Table 5, resulting from the literature review and expert frequency count survey were categorized into three financial criteria: Capacity/Collateral, Risk Appetite/Risk Tolerance, and Motivation; and three personal criteria: Trustworthiness, Responsiveness and Quality of Past Experience. Quality of Past Experience and Financial Literacy were originally tied at 74%, but in the written comment section of the survey pushed Quality of Past Experience over the 75% threshold and allowed it to become a relevant criterion moving on into the ANP study.

Table 5 – Final ANP Criteria

Criteria	Sub-Criteria	Relevancy Score	Relevant
Financial (C1)	**Risk Appetite/Tolerance**	95	Y +
Financial (C1)	**Motivation**	89	Y +
Financial (C1)	**Collateral / Capacity**	84	Y +
Personal (C2)	**Trustworthiness**	100	Y +
Personal (C2)	**Responsiveness**	100	Y +
Personal (C2)	**Quality of Past Experience**	84	Y +

Collateral and Capacity were both considered relevant and were combined because their similarity in the financial context. The combinations were done to lower the number of pairwise comparisons needed and to simplify the subsequent ANP structure. Furthermore, having more than nine criterions is not recommended and if more criteria are needed to address a supplier selection or other research problem, a new methodology besides ANP would be more appropriate (Lima Junior, Osiro and Carpinetti, 2014). To clarify, the relevancy score average calculation done in this research can be adjusted as a mechanism to meet specific organizational relevancy threshold levels per the organization's problem definition and departmental focus. The relevancy score benchmark was discretionary and was selected to help limit the criterion count as needed. These resulting six relevant and important criterions create a central part of the analytic network diagram and interdependence structure for determining the influence these particular criteria have on supplier acceptance within real estate investing partnerships.

Supplier Selection Criteria

The next sections describe the six chosen supplier selection criteria in more depth in order of relevancy score. These criteria are fundamental for addressing the research problem of determining the best approach for cultivating a reliable network of financial capital suppliers for Apsley & Grand.

Trustworthiness

It is important when attempting to discuss trustworthiness, to first lay foundation on the construct of trust itself first. And, in the absence of reliable information about an individual's past behaviour, an organization must decide whether to trust new potential partners without personal experience to depend upon for judgement; a decision that entails the risk of substantial loss if they are not worthy of trust or the reward of an extremely advantageous new relationship (DeSteno et al., 2012). Practically every single commercial transaction has an engrained element of trust, especially transactions over time (Arrow, 1972). Trust is not only an essential component to relationships, but is a fundamental aspect of healthy societies (Kusari, Hoeffler and Iacobucci, 2013). For entrepreneurial organizations, trust must be formed by all stakeholders; not only between the organization with the marketplace, but also by potential suppliers, employees and customers.

The concept of trust has many definitions (Sahay, 2003). This research does not explore other applications of the trust construct as it would be far too involved for this project, but could be potential for future organizational investigation. Nevertheless, in the context of this research, trust is a willingness to rely on a partner and is a multi-dimensional construct made up of the facets of competence and benevolence (Ganesan and Hess, 1997). Kusari, Hoeffler and Iacobucci (2013) explain that competence trust is the extent that one believes the other can do what is asked and encapsulates the elements of credibility and reliability within the construct; whereas benevolence trust is the belief that the partner demonstrates a genuine concern toward the mutual partnership and avoids intentional harm. Benevolence trust brings the emotional element that allows for relationships to deepen and allows trust to foster beyond justifiable experience through sentiment, honesty and personal attachment (Ko, 2010).

Trust provides safety within the relationship and promotes greater experimentation that can help firms thrive (Jones et al., 2014). For new relationships, trust is the starting point; each party is feeling initially vulnerable and simply hopes the other is behaving benignly (Kusari, Hoeffler and Iacobucci, 2013). So, trust is also a willingness to take risks, to rely upon a supply chain partner and is what holds collaborative relationships together (Salam, 2017). Surprisingly, awareness of the importance of trust and collaboration in supply chains just started evolving in the last quarter of the 1990s; nevertheless, it is becoming more prevalent because of the innate ability to reduce uncertainty (Sahay, 2003). Especially for smaller firms, trust-enabled collaborations allow the smaller partner to leverage constrained resources to reduce operating or governance costs and increase responsiveness and quality (Jones et al., 2014). Trust is increasingly important for new partners early in a working relationship that lack a reputation where the competence trust is "a vague sense of one partner giving the other the benefit of the doubt" (Kusari, Hoeffler and Iacobucci, 2013). As point of clarity, even though one's reputation can impact the level of trust in a relationship, it is focused on historical actions; whereas trust focuses on future action (Voigt and Inderfurth, 2012). Building trust diminishes the threat of firms being taken advantage of through the opportunistic actions of partners (Jones et al., 2014). Employing trust and distrust (through monitoring activities) simultaneously, managers can maximize the outcomes and benefits of their supply chain relationships over the life of the relationship (Kusari, Hoeffler and Iacobucci, 2013).

Managers that favour collaboration see trust as a vital enabling mechanism and see the high opportunity cost of not investing in building trusting relationships (Jones et al., 2014). However, in practice, relationships are not created equal and trust could be considered 'an occupational hazard' that makes a partner vulnerable and exposed with its dysfunctional effects (Kusari, Hoeffler and Iacobucci, 2013). It is always important to remember that the representatives for each firm are still just humans, so it is recommended to have a guarded trust or healthy level of scepticism. It is also important to recognize the costs associated with trust, especially for smaller firms with limited resources. Trust can be costly and time-consuming to develop for partners with limited liquidity or managerial slack (Jones et al., 2014). Managers can also misunderstand how to build trust properly, may fear being exploited, or may myopically lose sight of opportunities or warning signs due to their levels of trust (Jones et al., 2014). Careful evaluation of whether the supply chain is likely to gain (have favourable relation of trust and trustworthiness) or to lose with a potential partner should be done before sharing confidential information (Voigt and Inderfurth, 2012). Still, it is with high levels of trust that exchange parties can focus on the long-term benefits of the collaborative relationship and the firm's decision to trust or distrust others can influence routines within the firm that signal more or less trustworthiness to partners and is an important link between trust and trustworthiness (Jones et al., 2014).

Trustworthiness is a subjective probability with which one partner assess another (Miguel et al., 2016) and is comprised of the rules and routines that signal that the firm can be trusted to partners (Jones et al., 2014). Ohanian (1990) found trustworthiness to be made up of factors like being dependable, honest, reliable, sincere and trustworthy. The criterion of trustworthiness, or being worthy of trust, is dynamic and fluctuates as time goes by being strongly related to time factor (Kusari, Hoeffler and Iacobucci, 2013). It is by signalling trustworthiness that partners are enticed to collaborate, reciprocate, and increase levels of benevolent and competence trust over time and experience (Jones et al., 2014). And it is by demonstrating trustworthiness through specific actions and a willingness to be vulnerable and reciprocate that inter-organizational trust emerges and allows co-creation of value (Jones et al., 2014). For Apsley & Grand, the act of signalling and reciprocating trustworthiness is foundational to the organization in all aspects of business operations and relationships and is one of the key responsibilities of the founder to embody this cultural feature unfailingly.

Responsiveness

The definition of responsiveness is multi-faceted and context-specific. Within this research, responsiveness is defined as both the probability of meeting a promised delivery time (Hum and Parlar, 2014) as well as the ability of a firm or individual to react quickly to changes in a business environment to seize potential opportunities (Cai et al., 2016). For potential financial capital suppliers, the criterion of responsiveness represents the individual's ability and probability of meeting capital promises within expected time frames. The concept of supply chain collaboration is embedded throughout this research by forming close, joint, long-term partnerships between Apsley & Grand and the financial capital suppliers who are working together to plan, execute and improve operations towards mutual goals and benefits. Supply chain collaboration between the organization and the supplier offers both partners' advantages like information and resource sharing as well as improved firm performance (Cao and Zhang, 2011). This collaborative effort is dependent upon both parties fulfilling delivery promises to maintain operational efficiency and trust. This is a critical focus for Apsley & Grand (and many businesses) as the strength of the supply chain greatly impacts firm performance on vital levels like profit margin, return on investment and sales growth.

Organizational responsiveness is dependent upon the ability of the firm to learn within a fast-paced environment where changes are difficult to foresee; having high responsiveness allows firms to outperform competition (Cai et al., 2016). Responsiveness becomes especially critical when organizations begin to compete in the market based on speed (Hum and Parlar, 2014). A firm's market responsiveness reflects their ability to efficiently and effectively sense, interpret and act upon market stimulus and are considered to have high responsiveness when the firm can both recognize and ably act upon the need (Garrett, Covin and Slevin, 2009). In real estate, the competitive advantage of speed and the ability to close on properties quickly and efficiently is extremely valuable. This realm of competition in literature is considered time based competition and is motivated by the premiums quicker deliveries tend to warrant (Hum and Parlar, 2014).

Another competitive advantage that firm and supplier responsiveness provides is the opportunity for learning from collaboration partners and the addition of a timely, external knowledge base which can continuously test internal expertise and expand organizational learning capabilities (Cai et al., 2016). This is particularly valuable to entrepreneurial organizations that are lacking in established intellectual capital and experience. For without a collaborative supply chain, access to this sophisticated knowledge, opportunity for learning and the obvious resources being provided would be otherwise unavailable (Powell, Koput and Smith-Doerr, 1996). Excitedly, the responsiveness criterion has the ability to expand to incorporate these bigger collaboration concepts in future AGII reiterations.

In a more individualized context, responsiveness can also indicate the probability of meeting promised delivery expectations as mentioned. For this research, the financial capital supplier deliveries are in two forms: capital and information. The aspect of responsiveness for delivering capital within promised time frames is essential to the organization's ability to transact on properties and perform as a firm. This probability and level of responsive dependability are critical in establishing long-term relationships with individual suppliers. The second element of individual responsiveness in delivering information most commonly refers to email responsiveness between Apsley & Grand and the supplier. Even though face-to-face meetings or telephone interactions are richer forms of communication (Brown, Duck and Jimmieson, 2014), email is more appropriate given distance, speed, scheduling and record-keeping concerns.

In 2013, 182.9 billion emails were exchanged across the globe and are expected to rise to 206.6 billion by 2017 (Sappleton and Lourenço, 2016). Mobile and wireless forms of communication are daily, integral fixtures of the workplace today and many people struggle to effectively manage the constant influx of emails (Brown, Duck and Jimmieson, 2014). For successful relationship building and supply chain collaboration efforts, it is important to clarify expectations responsiveness since it is highly likely that people have different perceptions of what is a "timely" or "prompt" response time frame (Brown, Duck and Jimmieson, 2014). Because of the 'email overload' phenomenon, many email recipients choose to ignore or not read emails fully causing low response rates (Sappleton and Lourenço, 2016). As such, the responsiveness criterion implicitly implies that communication is consistent, professional, and prompt as mutually determined as part of collaborative relationship building exercise between the organization and the capital supplier.

Risk Appetite

There is a shocking level of confusion and general vagueness surrounding the concept of risk appetite, so much so that Leitch (2010) has called for the entire concept to be disposed. Aven (2013) gathered an astonishing variety of risk appetite definitions that highlights the confusion and inconsistency around this concept. Especially in the financial sector, risk appetite is understood to be a tool used to document and manage the level of an organization's exposure to risks (Zalewski, 2017). However, a call for clarification is gaining traction as industry leaders like ISO and Basel Guidelines are pushing for more consistent adoption (Gontarek, 2016). Moreover, risk appetite is a significant enough concept that annual, multi-day training seminars for finance practitioners are held in London titled "Making Sense of Risk Appetite" for thousands of pounds (*Making Sense of Risk Appetite*, 2018). Hence, it is an opportunity for Apsley & Grand to be aware and ahead of competition in implementing a comprehensive risk appetite appreciation and understanding.

It is important to quickly clarify initially that risk is "the potential for an unwanted outcome resulting from an incident, event, or occurrence, as determined by its likelihood and the associated consequences" (Luko, 2013). And for this research, risk appetite is defined as a willingness to take on risky activities in pursuit of value that might vary across time (Dupuy, 2009; Aven, 2013). This definition was chosen amongst the plethora of options because of its clarity and focus on value. Per this definition, people pursue risky activities and have an appetite for them because they believe they can generate value, else why have an appetite at all? A relatively high risk appetite means a willingness to take on big uncertain risks in pursuit of value, whereas low risk appetite means the willingness to take on small risks (Aven, 2013). This criterion is important for this research because of the ability to gain a clearer understanding of the levels of risk the supplier is comfortable with while pursuing value. Risk appetite indicates the extent to which a financial supplier is willing to risk and what compensation and value they expect for that risk (Berlinger and Váradi, 2015) which is an important criterion to discern in supply chain partners for a business model like Apsley & Grand. Admittedly, risk appetite is just one aspect of a supplier's risk profile, but it is an important one to isolate and focus on as it represents whether the supplier is a potential good match for the types of uncertainty, risk and value the Apsley & Grand real estate projects (Balanced/High-Yield, Value-Add Historic) possess.

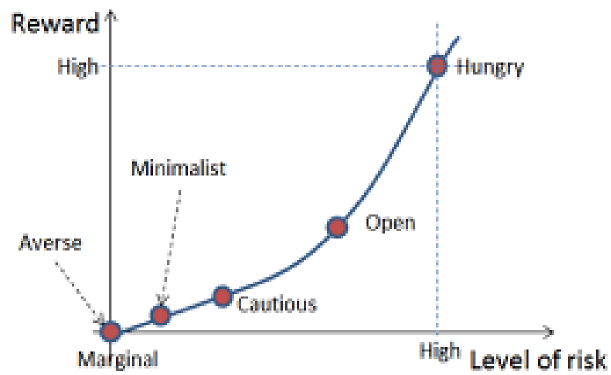


Figure 11 – Risk Appetite Categories (Zalewski, 2017)

Illustrated by Figure 11 are intriguing categorizations of different risk appetite categories and the different profile combinations of risk and expected value or reward (Zalewski, 2017). These appetites are shaped by wealth, health, financial obligations and should be tracked with age and improvements in financial literacy (Muralidhar and Berlik, 2017). For this research, the categories are used to categorize individual financial capital supplier appetites and they also provide jargon for incorporating risk appetite into Apsley & Grand's organizational language when it is paired with the risk profiles of the different real estate investing risk strategies of Apsley & Grand product offerings. Overall, the supplier's risk appetite criterion creates a point of communication, codification and segmentation during the supplier selection process for both initial onboarding as well as selection on particular deals.

Risk Tolerance

Risk and the study of its different components has been of practitioner and scholarly interest for hundreds of years given the sheer amount of terminology and attention; and yet, risk tolerance has only come into focus in the last 75 years (Grable and Lytton, 1999). Some risks are taken as part of normal, daily life while others are reluctantly taken out of necessity (Kuzniak et al., 2015). Surprisingly, even though risk is such an integral part of the human experience, there is a lack of conclusive evidence amongst researchers on the relationship between financial tolerance and socioeconomic variables like gender, age and income (Mishra and Mishra, 2016). The conflict is centralized around the fact that being able to assess one's risk tolerance is difficult because it is an elusive, ambiguous concept (Grable and Lytton, 1999).

To understand risk tolerance correctly, many definitions need to be elucidated to understand where it fits in the overall concept of risk. Grable, arguably the main resource when it comes to the concept of risk tolerance, describes it as "the maximum amount of uncertainty that someone is willing to accept when making a financial decision" (Grable, 2000). The inverse of risk tolerance is the more scholarly term of risk aversion; opposite sides of the same coin (Nobre and Grable, 2015). Ultimately, risk tolerance is a psychological determinant that serves as an input into nearly all consumer and household finance decisions (Kuzniak et al., 2015; Mishra and Mishra, 2016). Nobre and Grable (2015) explain that one's risk profile is made up of their capacity, composure and preference; where capacity is the ability to withstand potential loss, composure is the ability to act consistently, and preference represents one's general feeling towards the situation. Risk need describes the level of risk required to reach financial goals and, along with risk perception, is more variable and based on the decision-making environment (Nobre and Grable, 2015). These three constructs of risk lead to one's risk tolerance and guide one's risky behaviour.

There are two conflicting motivations - security and achievement – at play in each risk decision (Cai and Yang, 2010). For example, a young, high net worth client with a sizable income and a long time horizon until retirement has a large risk capacity and time to strive for achievement without as much concern about security as others (Ryack, Kraten and Sheikh, 2016). So, it can be assumed that a young man with no dependents may exhibit substantially greater financial risk tolerance than compared to an aged female with familial responsibilities (Mishra and Mishra, 2016). No demographic or socioeconomic factors have been shown unquestionably to influence risk tolerance; it appears to be too multi-faceted for something so static and simplified, though the literature is both large and growing (Wookjae et al., 2016). For this research, it is important to recognize both the subjective elements in determining financial tolerance and acknowledge that risk preferences are not constant; an individual's risk tolerance dynamically adjusts during certain stages of the investment period, depending on their goals, wealth, and how far away they are from achieving their financial goals (Cai and Yang, 2010). Moreover, there is a gap between what one says about their tolerance and what they display (Marinelli, Mazzoli and Palmucci, 2017). So, for the risk tolerance criterion and the purposes of this research, risk tolerance is an important inclusion but should be handled with critical awareness of its applicability and its dynamic nature.

Motivation

Motivation plays an extremely important role in understanding consumer behaviour because it is the mental process of stimulation and the direction, persistence and intensity towards a goal; for consumers, the goal is to buy products or services (Grum and Grum, 2015). The criterion of motivation, in this research, represents the individual supplier's direction, persistence and intensity for investment with Apsley & Grand's unique real estate service offerings. Traditional economic principles would assert that individuals are purely 'self-regarding' in that they only care about their own personal material payoffs (Bauwens, 2016). However, this is simplification of human consumer behaviour is contested as social and moral norms of behaviour are also incorporated to behavioural decisions as well as emotions like pride or shame (Bauwens, 2016).

Within this research context, motivation is important due to the organizational goal of motivating financial investment in a start-up organization without experience which is a common yet challenging entrepreneurial activity. Therefore, the organizational founder must have a clear understanding of this particular construct and how to best approach potential financial capital suppliers to spur motivation correctly and successfully. Modern motivation research has begun to refocus in terms of value-based and identity-oriented research frameworks instead of the traditional achievement-based understanding of what is motivating (Ushioda, 2011). Values-based motivation pivots around values as psychological constructs that are guiding principles throughout one's life (Howell and Allen, 2017). There is widespread agreement that values have five key features: they are beliefs infused with feelings; desired goals with motivational ends; transcending actions and situations; standards used to judge; ordered by relative importance (Mills et al., 2009). Values provide a broad framing structure to help in decision-making and are always motivational (unlike needs that are only motivational when left unsatisfied) (Mills et al., 2009).

Now, while values have motivational ends, they do not inevitably relate directly to an individual's behaviour (Howell and Allen, 2017). Motivation is extremely complex and one's decisions are based on shifting perceptions and conflicting individual and social factors (Mills et al., 2009). Motivations could stem from a variety of things, not necessarily from values, like being motivated to save money, improve living standards, or to have a less frantic lifestyle (Howell and Allen, 2017). So, again, while motivation does not necessarily have to stem from values, values are always motivational. Some values could be self-enhancement, power, conformity (Mills et al., 2009) or equality, world peace, or wealth (Howell and Allen, 2017). These values are at the heart of the capital supplier's unique identity and a good match between their values and product offering of Apsley & Grand enhances the supplier's potential intrinsic motivation (Tang, 2016). When thinking of investing of any kind, most only consider extrinsic motivators like wealth and status, but the mission of Apsley & Grand seeks to incorporate more appreciation of values and intrinsic motivators into the relationship building conversations.

No summary of the concept of motivation would be complete without mention of Maslow's Hierarchy of Needs, a centre-point of motivation research for decades which classifies motives from the most basic ones, such as physiological motives or motives of absence, to psychological motives or motives of growth, among which the highest in the hierarchy is the motive for self-actualization (Grum and Grum, 2015). There is also the innovation adoption perspective of individualistic motivation that aims to explain why investment decisions are neither inevitable nor uniformly adapted across a population with innovators, early adopters, and the rest of the majority after standards are set (Bauwens, 2016). These profiles can be found in many different communities, including organizations, where engagement and motivation can vary across individuals greatly (Ushioda, 2011). Nevertheless, an individual's motivation whether it is described as physiological or self-actualized, or categorized as innovator or early adopter, is an important criterion for organizations to identify and engage to encourage connecting with stakeholders on a more essential, deeper value-based level.

Capacity

Capacity "is a core aspect of individual autonomy in our society [that] represents the ability to independently manage one's own financial affairs in a manner consistent with personal self-interest and values" (Gerstenecker et al., 2018) and the ability to successfully facilitate monthly financial obligations. In the United States, the Federal Reserve Board estimated that in 2010, the revolving debt level was more than $800 Billion, with a majority being on credit cards, which represents a 600% increase in debt in the last two decades (Ekici and Dunn, 2010). This growing burden of debt is leaving soaring numbers of Americans vulnerable to potential financial shocks caused by divorce, illness or job loss (Nau, Dwyer and Hodson, 2015). The average US debt is $78,030 with many Americans bringing debt into retirement with them placing an extra burden on their limited, fixed income (Yates and Ward, 2014). Forlornly, more than half of American workers have less than $25,000 in total investments and 70% had less than $1,000 in savings (Yates and Ward, 2014). Not only do debt burdens impact retirement years negatively, but research has shown that western society's younger generations are demonstrating more fragmented adulthood transitions caused by more expensive and longer time in school, reduced and delayed childbirth, and trouble finding secure jobs with sufficient incomes which indicates debt is playing a serious role on their life choices (Nau, Dwyer and Hodson, 2015).

Large amounts of people are finding it difficult to estimate and manage the dynamic inflows and outflows of their finances (Berman et al., 2016), with debt playing an increasingly large role in financial capability. For many, their capabilities with financial well-being does not solely reside with them, but indicates their larger relationship within their social reality and depends more so on what is possible for that person living in that particular society (Friedline and West, 2016). The ability to successfully manage one's personal finances also entails psychological and attitudinal traits, such as needing motivation to seek out financial information, the ability to control emotions, and assurance in their decision-making and capabilities (Farrell, Fry and Risse, 2016). So, for this research, it is important to recognize this larger context and highlight that financial capacity as a criterion in this research is not broaching upon these greater conversations of financial capabilities or literacy, but is representing an individual's budgetary construct. In other words, the criterion of financial capacity is a perceived surplus or deficit of spare money an individual has at a given point of time that can be applied to facilitate monthly debts or investments, similar to the concept of financial slack (Berman et al., 2016). There is potential for this criterion to be expanded in future AGIIs and in more depth with long-term partners as a point of relationship building and supply chain collaboration.

A supplier with high financial capacity considers their spare money to be in a high surplus from higher inflows that not only cover monthly debts but allows for monthly investments without placing the household at risk. The ability to withstand financial shocks, or conversely the inability to afford unexpected expenses, is considered financial fragility and is widespread in the United States (Lusardi et al., 2011). Therefore, locating suppliers that are able to provide stability and consistency to the partnership through adequate financial capacity ensures the partnership is not damaged or impeded by the financial capital partner's personal financial situation once a real estate transaction has commenced. The capacity criterion primarily indicates that these individuals have enough surplus to allocate some capital to investments which is of principal concern for this research. For there can be no partnership with a financial supplier if they have no finances to supply.

Collateral

The study of collateral has interested scholars for decades (Voordeckers and Steijvers, 2006) as collateral is seen as a central feature of a vast majority of credit contracts (Agarwal, Ben-David and Yao, 2015). Collateral is a type of signalling device for the quality of the borrower and has many benefits like lowering agency costs, minimizing underinvestment, reducing risk-shifting behaviour and tends to allow for better credit terms and credit approval when it might not have been granted otherwise (Duarte, Gama and Esperança, 2017). Financial collateral is defined as "cash, financial instruments or credit claims" (Yeowart et al., 2016). Other types of collateral could be assets like real estate, accounts receivable, inventories (Ono and Uesugi, 2009) or even things like interest in architectural plans, trademarks and trade names (Weise and Sepinuck, 2017). The use of collateral is a widespread phenomenon by banks when lending to SMEs with a large majority of loans across the world being secured with fixed assets as collateral (Rahman, Rahman and Ključnikov, 2016). Within most literature and practitioner experience, collateral is used to lower risk of loss between borrower and the lender, conventionally the banking institution. However, for the context of this research, the reverse is occurring – it is the lender's collateral that is in focus, not Apsley & Grand's. This is a change of perspective from traditional collateral literature, but nothing more. Collateral as a criterion is considering value of the real estate and liquid assets a potential capital supplier has available which is a valuable substitute for extensive screening (Voordeckers and Steijvers, 2006). When information asymmetries are more prominent, it is difficult to conduct risk assessment, or when reputation and experience is limited, collateral can play a supporting role in the contractual relationship (Duarte, Gama and Esperança, 2017). For Apsley & Grand, the financial suppliers' collateral provides a key indication of the scale of opportunity, the likelihood of funding projects, and the financial supplier's potential for growth within the organization's supply chain.

Real estate as borrowing collateral is one of the primary focuses of this criterion because of the research context as well as the ability to secure collateral valuations through expert appraiser opinion that is used heavily within the real estate market (Agarwal, Ben-David and Yao, 2015). Real estate in particular provides many households the opportunity to leverage this asset for establishing financial stabilities and increasing consumption (Friedline and West, 2016). It is important to recognize that housing wealth is not real financial wealth, but serves as both an asset, a liability (given associated taxes, maintenance, etc.) and a consumption good (Cooper, 2013). And even though it is not expected for financial capital suppliers to pledge collateral in the traditional banking sense, it is used to indicate supplier strength and financial situation by affirming their experience with, and access to, financial resources. This criterion helps determine the appropriate partners to spend value time and energy forming relationships with because even if the financial supplier scores amazing on all other criteria, if they are unable to provide financial capital through access to collateral or access to financial resources, they would be ultimately inappropriate for partnership.

Quality of Past Experience

Past experience plays an important role in attitude behaviour theories and can influence future behavioural intentions (Yamaguchi et al., 2015). A good first-time experience leads to a positive attitude and encourages future use; whereas, a bad first-time experience may hinder further use (Wang, Harris and Patterson, 2012). Previous experience also creates a brief cognitive standard and helps when evaluating future service experiences (Sultan & Wong, 2013). The better the quality of a service or good, the more positive the emotional assessment of the purchasing experience is while increasing familiarity with the offering and brand (Tosun, Dedeoğlu and Fyall, 2015). Customers without previous experience (first-time customers) have different customer expectations from repeat, experienced customers given their different levels of knowledge and need to depend more upon market information and non-focal experience when setting expectations on service quality (Ji, Li and Nie, 2017).

Experiences come in two forms: experience with the focal product or service and experience with similar products or services other than the focal one; both forms of experience play a significant role in shaping focal service attitudes (Wang, Harris and Patterson, 2012). These service attitudes, or customer expectations, are formed based on past experiences, opinions of friends and family, and available market information (Kotler, Bowen, & Makens, 2014). The quality of experiences in a service context is a phenomenon that generates learning, emotions, and meanings that facilitate the relationship with the organization and configure predispositions for future relationships (Vasconcelos et al., 2015). For the context of this research, all the potential financial supplier's past experiences are with services other than the focal one due to the limited transactional history of Apsley & Grand and focuses solely on previous real estate investing experiences.

The quality of past experience criterion allows the supplier to first indicate experience in the industry and with the real estate investing services like those offered by Apsley & Grand. It then provides the opportunity for the supplier to elaborate on the quality of those past experiences and convey their particular predispositions; this is key for beginning to build these important supply chain relationships because past experiences play a vital role in the overall foundation of the supplier's perception of service quality (Sultan and Wong, 2013). This depth of detail on the past experiences allows Apsley & Grand to appropriately gauge the necessary service performance to provide the supplier with superior service value and strengthen the partnership (Mustaffa et al., 2016). For each service transaction is an important step in enriching the supplier's service quality perceptions, service value during service consumption, and in communicating service brand image (Manhas and Tukamushaba, 2015). This criterion of the quality of past experience does not just represent experience, but a larger construct of the quality of those experiences. And it is significant due to its ability to link the individual supplier's attitude, familiarity and service perceptions to their potential patronage, expectations and loyalty with a new service provider like Apsley & Grand. With growth of the supply chain, this criterion has potential to expand into quality of past experience with Apsley & Grand itself when transaction counts increase with particular financial suppliers as a way to incorporate service satisfaction into the supply chain management strategy. In summary, this criterion, along with the other criteria already mentioned, allows Apsley & Grand to gather critical information at the point of onboarding to evaluate and select appropriate suppliers, but also fosters the strengthening of the partnership and supply chain for the growth and longevity of the organization itself.

Now that these six criteria are clearer and more defined, the next step of the proposed research model applies them as a central component in the ANP analysis. The frequency count survey was able to confirm the most relevant criteria as the first step of the research methodology, but the ANP process allows the industry expert participants to elaborate on the importance of these six criteria when attempting to select and evaluate potential financial capital suppliers and brings the study closer to addressing the main research problem.

Analytic Network Process

The main concern of this research methodology is to allow the measurement of intangibles (Saaty and Vargas, 2013) like the subjective criteria found to be relevant when selecting and evaluating potential financial capital suppliers. The ability to mathematically relate non-relatable elements to provide decision-makers with helpful insight is what makes ANP such a good multi-criteria decision-making methodology. The following sections detail the application of ANP to this study's research problem using the six relevant criteria found in the preceding frequency count survey.

Application of ANP

The six criteria determined relevant by real estate industry experts were split into two groups, financial and personal, for graphical clarity and balance. The financial criteria are risk appetite/risk tolerance, motivation, and collateral/capacity; and the personal criteria are trustworthiness, responsiveness, and the quality of past experiences. When placed in a hierarchical format (as shown on the following page in Figure 12), these six criteria are subservient to the ultimate goal of evaluating financial capital suppliers and eventually leads to either alternative result where there is the acceptance or rejection of the potential supplier. This represents a more hierarchical format, similar to those of AHP methodologies, and is the framing structure from which the network structure for ANP grows off.

Figure 12 – Supplier Selection Problem Hierarchy Structure

This hierarchical structure oversimplifies the complexity of this supplier selection problem by ignoring the interactions, interdependencies or feedback of the criteria between each other and between the alternatives of acceptance or rejection. This structure also implies a top-down approach meaning that the different criteria feed into each other from the goal downwards which is obviously not the case as their placement in this hierarchy is arbitrary. Therefore, this structure is adjusted to incorporate more of a network appearance by reviewing the interdependencies and influences that the criteria have upon each other. To drill deeper into a network and identify the interdependencies between the criteria themselves, the relationship between all different combinations of the criterions is reviewed on whether they have the ability to influence each other and in what direction the influence can flow. The result to this questioning is an interdependence relationship graphic that highlights the increased complexity of the criteria more suited to the supplier selection problem this research intends to address as shown in Figure 13 below.

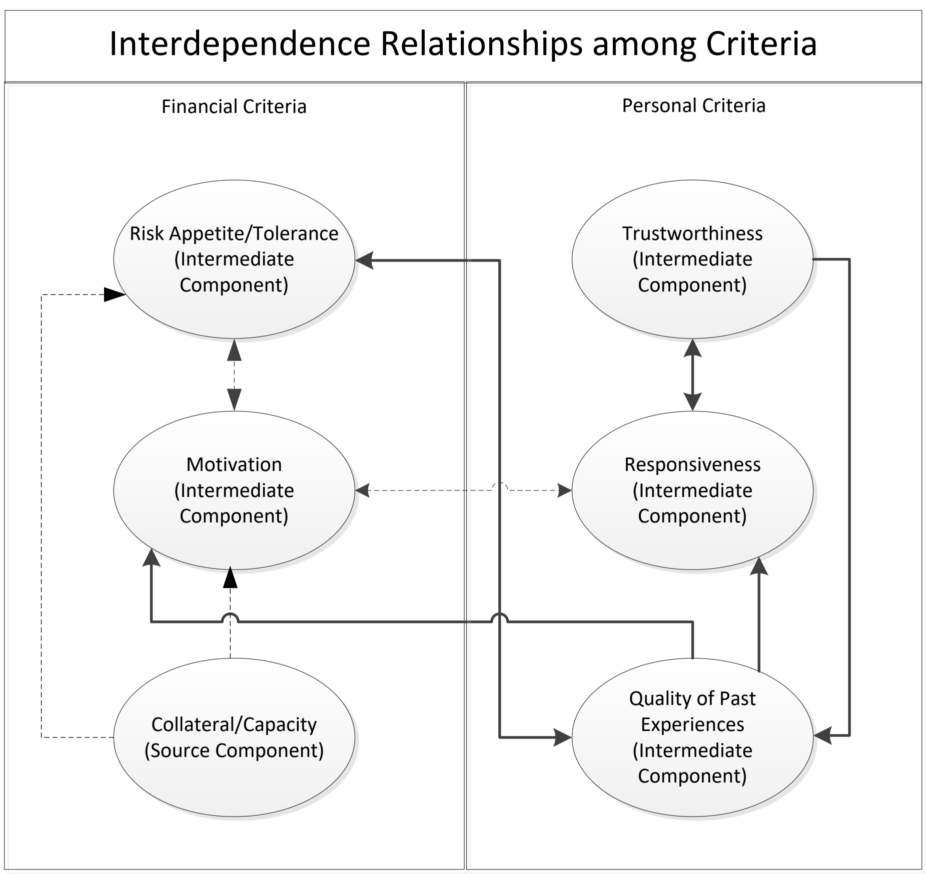


Figure 13 – Criteria Interdependence

The interdependence relationships between the criteria are drawn with arrows that indicate the direction of the dependency between the six criteria. The criteria that are the source node of influence only has arrows coming out from it, like collateral/capacity, which indicates that it has influence upon other criteria, like motivation, but is not influenced by any other criteria. This makes sense as no other criteria would be able to increase or decrease the number of collateral or capacity a supplier may have, no matter how much they wish it. But, a financial supplier's level of collateral or capacity could have an impact on the motivation to invest, especially when the collateral and/or capacity is running dangerously low, or uncommonly high. A sink node criterion would indicate the opposite of a source, in that it only has arrows coming into with influence being perpetrated upon it and yet has no influence upon anything around it. For this research, there are no sink nodes and this was done intentionally to avoid overcomplicating the ANP calculations. In future ANP analyses, sink nodes could add an interesting extra element to the analysis.

And lastly, the criteria that have both influence upon others and also inflicted upon themselves are considered intermediate components (Saaty and Vargas, 2013). The direction and destination of the arrows in the ANP interdependence diagram illustrate the additional pairwise comparisons that need to be completed to ensure that the experts highlight how strong the influence between these criteria are to confirm the appropriate amount of weight is allocated to each criterion in the ANP resulting weight calculations. And, with the interdependence determined, it is possible to define the entire control network structure by merging the hierarchical design with the interdependency results. The outcome is the network design of the ANP control hierarchy for this research problem with Figure 14 on the following page.

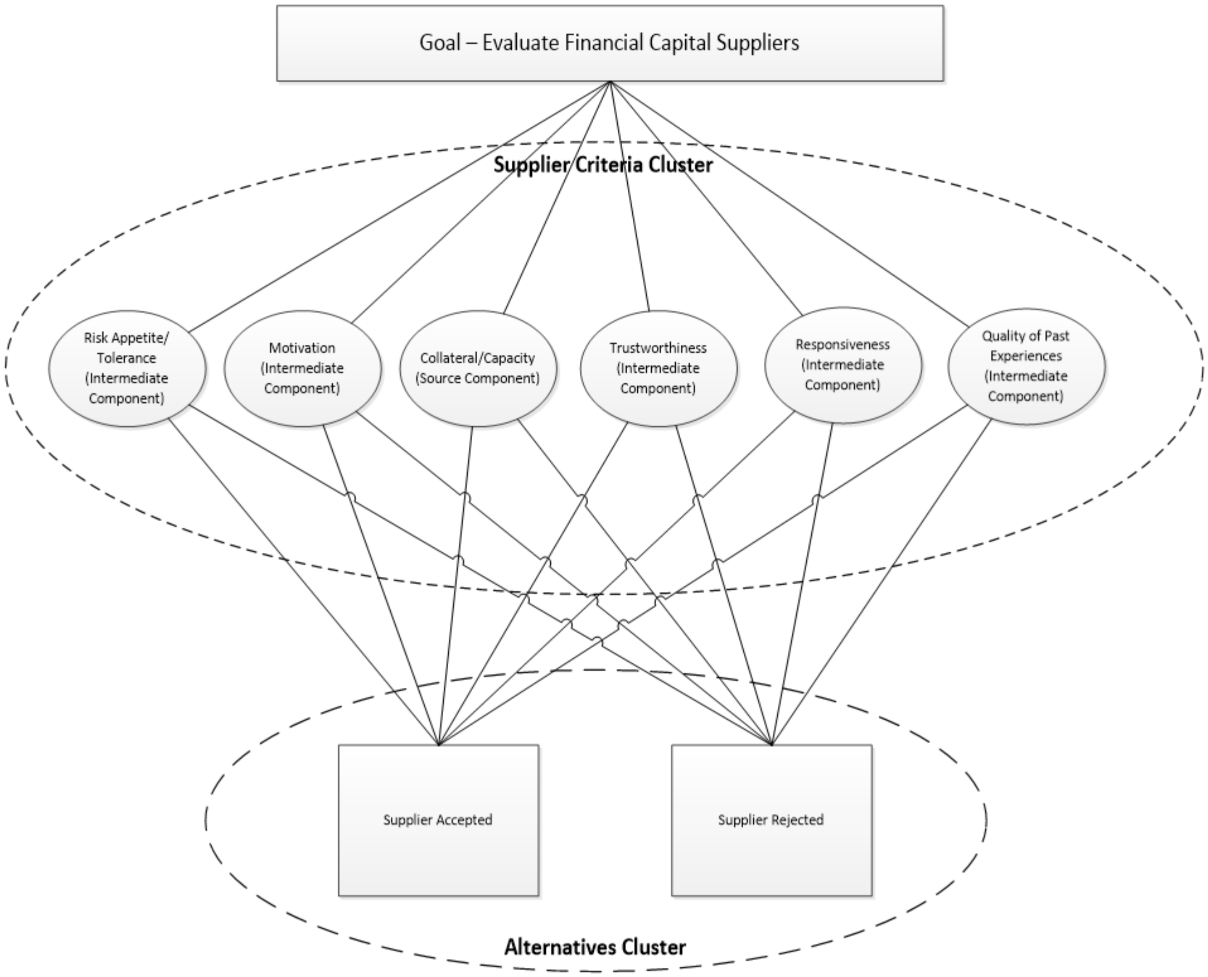


Figure 14 – ANP Network Control Hierarchy

For networks more complex, with more clusters (groups of similar elements), more criteria, or more alternatives, Saaty and Vargas (2013) suggest constructing a zero-one matrix of the criteria against criteria where one represents dependence on another, but this was not necessary for this problem as there was only one main cluster in each level. These interdependences are important to understand when working with ANP because they dictate the number of pairwise comparisons that are needed to accurately represent the network feedback. These pairwise comparisons are what determine the priority weights of the criteria against the goal and the alternatives in the subsequent ANP analysis calculations. At this stage in the ANP analysis, the problem, goal, initial criteria and overall network have been determined and designed. Creating this interconnected network concludes the second step of the research methodology and leads into the use of these network designs and interdependency relationships to calculate the priorities of the elements with the survey results of industry expert decision-makers (Saaty and Vargas, 2013).

For step three of the research model, the priority weights of the six criteria from the frequency count survey results are calculated: in relation to the main goal of evaluating financial capital suppliers, in relation to the alternatives of accepting or rejecting the supplier, and in relation to each other within the ANP network. These criteria are ranked based on preferences provided by expert decision-makers. The decision-makers for this ANP survey were contacted by the researcher from amongst the frequency count survey participants that volunteered to participate in this second round of surveying. This limited involvement ensured that the participants understood the importance of the survey and had already agreed to the research participation guidelines and had been vetted by the researcher as industry participants with appropriate experience to ensure the highest likelihood of accurate results.

Real estate experts from various professions completed the survey, with one participant even taking it twice and one participant leaving a section incomplete resulting in nine usable results. The ANP Survey was located on the www.ApsleyGrand.com/AGII website and had an average completion time of 15.4 minutes. The survey was live on the website for four weeks in July 2017 and the specific ANP survey questions can be found in Appendix 3 – ANP Survey Questions. These industry expert participants were asked 123 pairwise comparison questions using Saaty's relative scale to rate their preferences comparing one element to another. For example, the questions were phrased simply asking "which is more important when evaluating a potential financial partner? Their Motivation or Their Risk Appetite/Risk Tolerance?" The follow-up question was then "And how much more important is (the previous answer automatically input) on a scale of 1 representing equally important to 9 extremely more important?" This repetitive format of questioning allows the expert to indicate the preference between the two options as well as the intensity of that preference.

This formalized pattern of comparison is what drove the creation of the pairwise comparison survey by determining the necessary comparisons needed to generate the ANP supermatrix. The specific questioning style of the ANP survey was dependent upon the ANP control hierarchy with the goal, criteria and alternatives paired up in different combinations to determine the strength of the influential relationships between the elements. The questioning was broken down into specific groups: comparing criteria cluster to goal, comparing criteria cluster to alternative cluster, comparing criteria to criteria cluster, comparing criteria to criteria, comparing criteria to alternatives. The supermatrix is a gathering of these pairwise comparison priority vectors into one unified format as a partitioned matrix of the interdependence influences of the ANP elements; it is with the supermatrix that the cumulative influence of each element on all other elements is obtained (Liao, Lin and Fu, 2016). The priorities of the elements within the network aids in illuminating the problem solution (Saaty and Vargas, 2013). The following sections explain in more detail the process undertaken to create the supermatrix and conclude the ANP analysis priority results.

ANP PROCESS

To begin the ANP analysis with the network control diagram as guide, the supermatrix cluster influences table is created to designate the problem supermatrix structure. The final clusters used for comparison within this research are displayed in Table 6 which are the standard minimum for a supplier selection ANP; no other clusters were considered necessary to address the research problem goal. The cluster structure shows that the supplier criteria interact with the alternatives and have a feedback loop amongst themselves, but the alternatives (acceptance and rejection) do not which is indicated by the '0'. Technically, the different categories of criteria, financial and personal, could have been included as additional clusters in the cluster structure and in the ANP control hierarchy, resulting in an extra row and column in the hierarchy, but this requires increasing the pairwise comparisons without adding very much value or actionable insight, so it was excluded.

Table 6 – Cluster Structure

Clusters	Supplier Criteria	Alternatives
Supplier Criteria	X	X
Alternatives	X	0

The pairwise comparison survey tables are created to ensure the final ANP survey administered to experts have all the different combinations of needed pairwise questions included by using the ANP Control diagrams and the different comparison categories of the cluster structure as a guide. The first pairwise comparison matrix shown in Table 7 on the following page indicates the priority of the criteria against the goal of evaluating financial capital suppliers which is the first matrix for the ANP pairwise comparisons for the decision-makers to indicate their experienced preference between the criteria towards the goal. This table is particularly important because it is used later in the analysis to weight the unweighted supermatrix.

Table 7 – Pairwise Comparison Judgements of Goal against Criteria

Goal	Risk Appe	Motivatio	Collateral	Trustwortl	Responsiv	Quality of	Weight
Risk Appetite/Tol	1	Q1	Q6	Q10	Q13	Q15	W1
Motivation		1	Q2	Q7	Q11	Q14	W2
Collateral / Capacity			1	Q3	Q8	Q12	W3
Trustworthiness				1	Q4	Q9	W4
Responsiveness					1	Q5	W5
Quality of Past Experiences						1	W6

Only a select number of the tables of pairwise comparison questions (Q) and ultimate priority vector weights (W) are included below for illustrative purposes, and the remaining are provided for reference in Appendix 4 – Remaining Pairwise Comparison Tables. The following matrixes designate the priorities for the alternatives against the six criteria shown in Table 8 and Table 9.

Table 8 – Pairwise Comparison Judgements of Acceptance against Criteria

Accepted	Risk Appe	Motivatio	Collateral	Trustwortl	Responsiv	Quality of	Weight
Risk Appetite/Tol	1	Q16	Q17	Q18	Q19	Q20	W7
Motivation		1	Q23	Q24	Q25	Q26	W8
Collateral / Capacity			1	Q27	Q28	Q29	W9
Trustworthiness				1	Q30	Q31	W10
Responsiveness					1	Q32	W11
Quality of Past Experiences						1	W12

Table 9 – Pairwise Comparison Judgements of Rejection against Criteria

Rejected	Risk Appe	Motivatio	Collateral	Trustwortl	Responsiv	Quality of	Weight
Risk Appetite/Tol	1	Q33	Q34	Q35	Q36	Q37	W13
Motivation		1	Q38	Q39	Q40	Q41	W14
Collateral / Capacity			1	Q42	Q43	Q44	W15
Trustworthiness				1	Q45	Q46	W16
Responsiveness					1	Q47	W17
Quality of Past Experiences						1	W18

With these pairwise comparison judgement tables created using the network diagrams, the ANP Survey is developed, deployed and used to plot the expert results. The resulting priority vectors for each decision-maker are then transposed into the "Unweighted Supermatrix" which is just a gathering of the different pairwise comparison matrixes of priority vectors as shown below in Table 10. In other words, the ANP process is simply using the control diagrams that were created by diligently understanding the problem to determine what survey questions to ask the experts for calculating the different necessary weights. These weights are plotted along the unweighted supermatrix and are used to do the ANP calculations by plugging in the answers in the appropriate row and column, similar to populating a type of mathematical crossword puzzle by matching the results from the pairwise comparison matrixes into the associated supermatrix value.

Table 10 – Unweighted Supermatrix

Unweighted Supermatrix		*Financial Criteria*			*Personal Criteria*			**Alternatives**	
		Risk Appetite/Tolerance	Motivation	Collateral / Ca	Trustworthiness	Responsiveness	Quality of Past Experiences	Accepted	Rejected
		W1	W2	W3	W4	W5	W6		
Financial Criteria	Risk Appetite/Tolerance	0	W35	W37	0	0	W45	W19	W20
	Motivation	W33	0	W38	0	W42	W44	W21	W22
	Collateral / Capacity	0	0	0	0	0	0	W23	W24
Personal Criteria	Trustworthiness	0	0	0	0	W41	0	W25	W26
	Responsiveness	0	W36	0	W39	0	W43	W27	W28
	Quality of Past Experiences	W34	0	0	W40	0	0	W29	W30
Alternatives	Supplier Accepted	W7	W8	W9	W10	W11	W12	0	0
	Supplier Rejected	W13	W14	W15	W16	W17	W18	0	0

Referring back to the ANP Control diagram found on page 80, Figure 13 illustrates the directional influence within the Supplier Criteria cluster itself. An element with an arrow point to it, or coming in, represents a weighted value result in the supermatrix row; and an arrow pointing out from an element represents the supermatrix column results when comparing the cluster figure to the final unweighted supermatrix shown above in Table 10. This information helps provide a double-check prior to concluding the ANP survey that all pairwise comparisons and influences from the diagram have been accounted for within the supermatrix results when finalizing the needed supermatrix calculations.

ANP Survey

There were nine decision makers that finished the ANP survey and had judgements populated in the comparison judgement matrixes. With these results, the priority vectors, idealized vectors, consistency index and consistency ratio for the participant results could be calculated. This resulted in only one of the nine participants being found consistent throughout the entire survey leaving eight survey results considered unfit to proceed. Luckily, only one set of results was all that was required for this research to proceed without forcing another round of ANP surveys. This particular participant interestingly had the highest amount of industry experience which could explain the strength of the results for this participant and the weaker results of the other participants.

Consistency in pairwise comparisons is important to have faith in the accuracy of the judgements; however, it is easy to understand with so many comparisons how decision-maker fatigue and confusion could result in inconsistent selections. This research could be expanded in future studies to incorporate multiple decision-maker perspectives into the analysis which could strengthen the legitimacy of the ANP results (Grošelj and Stirn, 2015). In group ANP analysis, the individual decision makers within the group can provide their pairwise comparisons and then, generating a geometric mean of the comparison values, can be normalized to come to a generalized conclusion (Liao, Lin and Fu, 2016). The most common methods for group judgements are consensus, voting or a type of aggregation of the judgement similar to GEOMEAN methodology (Altuzarra, Moreno-Jimenez and Salvador, 2007). For this research, the strongest result with the lowest inconsistency was chosen as the representative analysis because none of the other eight participant's results met the minimum threshold for consistency recommended.

The judgements and calculations for the most consistent decision-maker for final ANP calculation purposes participant are displayed in Table 11, Table 12, and Table 13 on the following page with the remaining comparison matrix tables available in Appendix 5 – Remaining Pairwise Comparison Table Results – Participant Answers. The judgements from the online ANP survey were entered on either side of the row of middle 1 values depending upon which of the two compared elements were selected by the decision-maker. This row of 1 values transcending down the column rows represent that the individual

Table 11 – Pairwise Comparison Judgements of Goal against Criteria - Participant Answers

Goal	Risk Appe	Motivatio	Collateral	Trustwort	Responsiv	Quality of	Geomean	Priorities	Software	Idealized	CI Lamba Max	CI	CR
Risk Appetite/Tol	1	0.2	0.5	0.2	1	0.333333	0.4338	0.058	0.055965	0.153			
Motivation	5	1	2	1	5	1	1.9194	0.256	0.257917	0.676			
Collateral / Capac	2	0.5	1	0.142857	1	1	0.7230	0.096	0.095559	0.255			
Trustworthiness	5	1	7	1	5	3	2.8403	0.379	0.376538	1.000			
Responsiveness	1	0.2	1	0.2	1	1	0.5848	0.078	0.077875	0.206			
Quality of Past Ex	3	1	1	0.333333	1	1	1.0000	0.133	0.136146	0.352			
SUM	17.00	3.90	12.50	2.88	14.00	7.33	7.5013	1					
*PV	0.98	1.00	1.20	1.09	1.09	0.98		n=6			6.344	0.069	0.055

criteria has no influence upon itself and draws a type of border across the pairwise comparison judgement value and the associated reciprocal ratio result.

For example, the first pairwise comparison question (Q1 from Table 7) asked the decision-maker to compare Motivation to Risk Appetite. The participant selected Motivation with a 5 intensity, this is displayed by the row Motivation having a 5 result in the first Risk Appetite Column and the reciprocal of this being 1/5, or .2, in the Risk Appetite Row, Motivation Column. The remainder of the judgements are plotted in this same way. As a point of clarity, the column that says “Software” indicates the results of the SuperDecision software used to compare to the researcher’s Excel calculations as a way to ensure appropriate entry into the SuperDecision software of the decision-maker’s judgements as well as a sanity check that the software was calculating in a similar style. The result of .055 CR is well under the maximum for consistency indicating the participant answered with clarity and uniformity.

Table 12 – Pairwise Comparison Judgements of Acceptance against Criteria - Participant Answers

Accepted	Risk Appe	Motivatio	Collateral	Trustwort	Responsiv	Quality of	Geomean	Priorities	Software	Idealized	CI Lamba Max	CI	CR
Risk Appetite/Tol	1.00	0.20	0.33	0.25	1.00	1.00	0.5054	0.0715	0.069365	0.228			
Motivation	5.00	1.00	1.00	1.00	3.00	3.00	1.8860	0.2668	0.259171	0.849			
Collateral / Capac	3.00	1.00	1.00	0.33	1.00	3.00	1.2009	0.1699	0.174686	0.541			
Trustworthiness	4.00	1.00	3.00	1.00	5.00	2.00	2.2209	0.3142	0.318511	1.000			
Responsiveness	1.00	0.33	1.00	0.20	1.00	1.00	0.6368	0.0901	0.090791	0.287			
Quality of Past Ex	1.00	0.33	0.33	0.50	1.00	1.00	0.6177	0.0874	0.087476	0.278			
SUM	15.00	3.87	6.67	3.28	12.00	11.00	7.0677	1.0000					
*PV	1.07	1.03	1.13	1.03	1.08	0.96		n=6			6.31	0.062	0.050

Table 13 – Pairwise Comparison Judgements of Rejection against Criteria - Participant Answers

Rejected	Risk Appe	Motivatio	Collateral	Trustwort	Responsiv	Quality of	Weight	Priorities	Software	Idealized	CI Lamba Max	CI	CR
Risk Appetite/Tol	1.00	0.25	0.33	0.33	1.00	1.00	0.5503	0.0769	0.073050	0.223			
Motivation	4.00	1.00	1.00	1.00	3.00	3.00	1.8171	0.2538	0.239444	0.737			
Collateral / Capac	3.00	1.00	1.00	0.20	3.00	1.00	1.1029	0.1540	0.162446	0.447			
Trustworthiness	3.00	1.00	5.00	1.00	3.00	5.00	2.4662	0.3444	0.350530	1.000			
Responsiveness	1.00	0.33	0.33	0.33	1.00	3.00	0.6934	0.0968	0.099124	0.281			
Quality of Past Ex	1.00	0.33	1.00	0.20	0.33	1.00	0.5302	0.0741	0.075406	0.215			
SUM	13.00	3.92	8.67	3.07	11.33	14.00	7.1601	1.00001					
*PV	1.00	0.99	1.33	1.06	1.10	1.04		n=6			6.52	0.104	0.084

To finalize the results after calculating the CI, the supermatrix of the decision-maker’s preferences is weighted and brought to a limit supermatrix by raising all elements within the supermatrix until each row is all the same value. These calculations are best performed using advanced mathematics, and for practitioner ease, with the freely provided SuperDecision software created by Saaty himself.

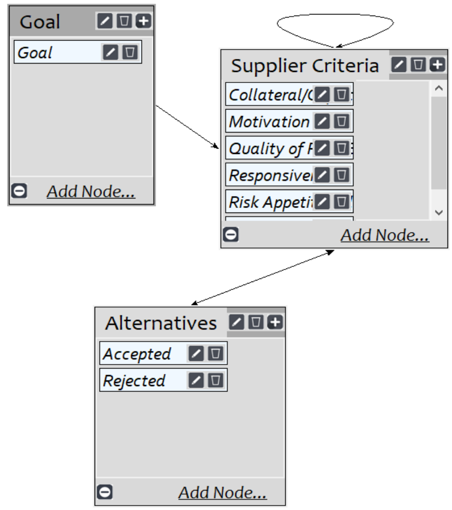


Figure 15 – ANP Network Structure with SuperDecision Software

The SuperDecision network structure created within the software for this research analysis is provided in Figure 15. The supermatrix for the selected decision-maker was recreated in SuperDecisions and the software was compared against the researcher's own calculations coming in very close with any differences being accredited to rounding variance. The research supermatrix formats (Table 14 and Table 16) as well as the SuperDecision results (Table 15 and Table 17) are provided on the next page for comparison of the ANP calculation results and to highlight the value of the SuperDecision software to save energy and effort for future ANP analysis.

Table 14 – Unweighted Supermatrix - Participant Answers

Unweighted Supermatrix		*Financial Criteria*			*Personal Criteria*			**Alternatives**	
		Risk Appetite/Tolerance	Motivation	Collateral / Ca	Trustworthiness	Responsiveness	Quality of Past Experiences	Accepted	Rejected
	Goal: Evaluate Financial Capital Suppliers	0.05597	0.25792	0.09556	0.37654	0.07788	0.13615	0	0
Financial Criteria	Risk Appetite/Tolerance	0.00000	0.16667	0.50000	0.00000	0.00000	0.17443	0.069365	0.07305
	Motivation	0.50000	0.00000	0.50000	0.00000	0.88889	0.69410	0.259171	0.23944
	Collateral / Capacity	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.174686	0.16245
Personal Criteria	Trustworthiness	0.00000	0.00000	0.00000	0.00000	0.11111	0.00000	0.318511	0.35053
	Responsiveness	0.00000	0.83333	0.00000	0.25000	0.00000	0.13150	0.090791	0.09912
	Quality of Past Experiences	0.50000	0.00000	0.00000	0.75000	0.00000	0.00000	0.087476	0.07541
Alternatives	Supplier Accepted	0.50000	0.90000	0.83333	0.90000	0.75000	0.80000	0	0
	Supplier Rejected	0.50000	0.10000	0.16667	0.10000	0.25000	0.20000	0	0

Table 16 – Unweighted Supermatrix - Participant Answers with SuperDecision Software

Main Network: AGII - 2017-11-25.sdmod: formulaic: ratings: Unweighted Super Matrix

Clusters	Nodes	Accepted	Rejected	Goal	Collateral/Capacity	Motivation	Quality of Past Experiences	Responsiveness	Risk Appetite/Tolerance	Trustworthiness
Alternatives	Accepted	0.000000	0.000000	0.000000	0.833333	0.900000	0.800000	0.750000	0.500000	0.900000
	Rejected	0.000000	0.000000	0.000000	0.166667	0.100000	0.200000	0.250000	0.500000	0.100000
Goal	Goal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Supplier Criteria	Collateral/Capacity	0.174686	0.162446	0.095559	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	Motivation	0.259171	0.239444	0.257917	0.500000	0.000000	0.694062	0.888889	0.500000	0.000000
	Quality of Past Experiences	0.087476	0.075406	0.136146	0.000000	0.000000	0.000000	0.000000	0.500000	0.750000
	Responsiveness	0.090791	0.099124	0.077875	0.000000	0.833333	0.131510	0.000000	0.000000	0.250000
	Risk Appetite/Tolerance	0.069365	0.073050	0.055965	0.500000	0.166667	0.174428	0.000000	0.000000	0.000000
	Trustworthiness	0.318511	0.350530	0.376538	0.000000	0.000000	0.000000	0.111111	0.000000	0.000000

Done

Table 15 – Weighted Supermatrix - Participant Answers

Weighted Supermatrix		*Financial Criteria*			*Personal Criteria*			**Alternatives**	
		Risk Appetite/Tolerance	Motivation	Collateral / Ca	Trustworthiness	Responsiveness	Quality of Past Experiences	Accepted	Rejected
	Goal: Evaluate Financial Capital Suppliers	0.05597	0.25792	0.09556	0.37654	0.07788	0.13615	0	0
Financial Criteria	Risk Appetite/Tolerance	0.00000	0.02778	0.08333	0.00000	0.00000	0.02907	0.069365	0.07305
	Motivation	0.08333	0.00000	0.08333	0.00000	0.14815	0.11568	0.259171	0.23944
	Collateral / Capacity	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.174686	0.16245
Personal Criteria	Trustworthiness	0.00000	0.00000	0.00000	0.00000	0.01852	0.00000	0.318511	0.35053
	Responsiveness	0.00000	0.13889	0.00000	0.04167	0.00000	0.02192	0.090791	0.09912
	Quality of Past Experiences	0.08333	0.00000	0.00000	0.12500	0.00000	0.00000	0.087476	0.07541
Alternatives	Supplier Accepted	0.41667	0.75000	0.69444	0.75000	0.62500	0.66667	0	0
	Supplier Rejected	0.41667	0.08333	0.13889	0.08333	0.20833	0.16667	0	0

Table 17 – Weighted Supermatrix - Participant Answers with SuperDecision Software

Main Network: AGII - 2017-11-25.sdmod: formulaic: ratings: Weighted Super Matrix

Clusters	Nodes	Accepted	Rejected	Goal	Collateral/Capacity	Motivation	Quality of Past Experiences	Responsiveness	Risk Appetite/Tolerance	Trustworthiness
Alternatives	Accepted	0.000000	0.000000	0.000000	0.694444	0.750000	0.666667	0.625000	0.416667	0.750000
	Rejected	0.000000	0.000000	0.000000	0.138889	0.083333	0.166667	0.208333	0.416667	0.083333
Goal	Goal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Supplier Criteria	Collateral/Capacity	0.174686	0.162446	0.095559	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	Motivation	0.259171	0.239444	0.257917	0.083333	0.000000	0.115677	0.148148	0.083333	0.000000
	Quality of Past Experiences	0.087476	0.075406	0.136146	0.000000	0.000000	0.000000	0.000000	0.083333	0.125000
	Responsiveness	0.090791	0.099124	0.077875	0.000000	0.138889	0.021918	0.000000	0.000000	0.041667
	Risk Appetite/Tolerance	0.069365	0.073050	0.055965	0.083333	0.027778	0.029071	0.000000	0.000000	0.000000
	Trustworthiness	0.318511	0.350530	0.376538	0.000000	0.000000	0.000000	0.018519	0.000000	0.000000

Done

The supermatrix is weighted using the results of the participant's preference of cluster influence from Table 7. This is calculated by simply multiplying the element by the cluster weight. For example, Motivation under Risk Appetite/Tolerance Column had an unweighted value of .5, resulting in a weighted supermatrix value of .08333 when .5 is multiplied by the cluster weight of .16667. The remainder of the weighted supermatrix is calculated in the same fashion and results in a completed weighted supermatrix. It is only with the SuperDecision software that the weighted supermatrix can be brought to the final step of analysis and a limit supermatrix (found in Table 18 on the next page) is calculated by bringing raising the supermatrix using Equation 3 mentioned previously. This calculation is too advanced to do without the assistance of SuperDecisions and was therefore not done in the researcher's own format.

Table 18 – Limited Supermatrix - Participant Answers with SuperDecision Software

Main Network: AGII - 2017-11-25.sdmod: formulaic: ratings: Limit Matrix

Clusters	Nodes	Accepted	Rejected	Goal	Collateral/Capacity	Motivation	Quality of Past Experiences	Responsiveness	Risk Appetite/Tolerance	Trustworthiness
Alternatives	Accepted	0.376257	0.376257	0.376257	0.376257	0.376257	0.376257	0.376257	0.376257	0.376257
	Rejected	0.078288	0.078288	0.078288	0.078288	0.078288	0.078288	0.078288	0.078288	0.078288
Goal	Goal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Supplier Criteria	Collateral/Capacity	0.078445	0.078445	0.078445	0.078445	0.078445	0.078445	0.078445	0.078445	0.078445
	Motivation	0.143824	0.143824	0.143824	0.143824	0.143824	0.143824	0.143824	0.143824	0.143824
	Quality of Past Experiences	0.061065	0.061065	0.061065	0.061065	0.061065	0.061065	0.061065	0.061065	0.061065
	Responsiveness	0.069426	0.069426	0.069426	0.069426	0.069426	0.069426	0.069426	0.069426	0.069426
	Risk Appetite/Tolerance	0.044125	0.044125	0.044125	0.044125	0.044125	0.044125	0.044125	0.044125	0.044125
	Trustworthiness	0.148570	0.148570	0.148570	0.148570	0.148570	0.148570	0.148570	0.148570	0.148570

Done

The SuperDecisions software, having completed the limit calculations, is able to provide the ultimate priority vectors normalized and finalized. This is displayed in Figure 16 and identifies the most important, per the decision-maker pairwise comparison results, criteria for the goal of service supply chain financial supplier evaluation and selection. This result addresses a major component of this research and helps clarify a critical component of service supply chain relationship building.

Main Network: AGII - 2017-11-25.sdmod: formulaic: r...

Here are the priorities.

Icon	Name	Normalized by Cluster	Limiting
No Icon	Accepted	0.82777	0.376257
No Icon	Rejected	0.17223	0.078288
No Icon	Goal	0.00000	0.000000
No Icon	Collateral/Capacity	0.14382	0.078445
No Icon	Motivation	0.26368	0.143824
No Icon	Quality of Past Experiences	0.11195	0.061065
No Icon	Responsiveness	0.12728	0.069426
No Icon	Risk Appetite/Tolerance	0.08090	0.044125
No Icon	Trustworthiness	0.27238	0.148570

Figure 16 – ANP Priorities with SuperDecision Software

ANP Results

The results of the ANP analysis indicate that Trustworthiness and Motivation are very close, but Trustworthiness is the most important criteria when selecting and evaluating financial capital suppliers. These results are a key aspect of progress for this research and for the focused attentions of Apsley & Grand when engaging with potential financial suppliers. Table 19 below indicates the ANP priority results for the six criteria in order of ANP priority percentile. This ANP analysis indicates the importance of the six criteria when deciding to accept or reject a supplier and also has other interesting conclusions that can be made.

Table 19 – ANP Results

Trustworthiness	27%
Motivation	26%
Collateral/Capacity	14%
Responsiveness	13%
Quality of Past Experiences	11%
Risk Appetite/Tolerance	8%

First, trustworthiness has the highest priority weight toward the ultimate problem goal with an overall importance of 27% with Risk Appetite/Tolerance having the lowest at 8%. This is surprising given the financial context of this real estate investing research and the industry's propensity to naturally jump to risk as a focal point whenever discussing investing or investment strategy. The researcher, and assumedly many in the financial sector, would have applied a much higher prioritization toward risk appetite and risk tolerance when discussing this type of financial relationship because of the colut and prevalence of risk as a construct. This may be yet another example of conventional wisdom misrepresenting the complexity of a situation. Having risk appetite/tolerance rank the lowest (albeit higher than other criteria that were not selected past the frequency survey) would imply that Apsley & Grand, and potentially the larger practitioner environment, would be wise to begin de-emphasizing the resources allocated to risk conversations and analytics and instead redeploy the energy and focus on research and assessment instruments for the subjective, underserved areas within the financial context.

For a service supply chain, another contextual perspective of this research problem, the goal is to transform heterogeneous resources into a competitive service offering (Boon-itt, Wong and Wong, 2017). Clearly understanding the priority of the different criteria that the heterogeneous suppliers are composed of and focusing in on the most influential should help increase Apsley & Grand's competitive advantage and provide superior service to all stakeholders. While it would be easy to focus haphazardly on a variety of other criteria, the ANP survey results indicate that the subjective, personal criteria pose the most powerful influence upon successful supplier selection. With the supplier selection problem of needing more suppliers identified, and the ANP network structure created emphasizing these personal elements as relationship foundation, Apsley & Grand can apply this new-found insight into the creation of an operational proprietary decision-making structure and further deepen its understanding of this critical grouping of external stakeholders for service supply chain success. These six criteria provide vision, guidance, language and organizational clues towards how to select and evaluate the potential suppliers in future real estate projects. These ANP results also provide Apsley & Grand intriguing internal direction on a variety of future actionable activities such as employee training or supply chain communication and help emphasize the identification and fostering of these key subjective criterions with future partners. Nevertheless, these results are also intriguing for the supply chain advantage they present in the active form of the AGII, the next step of this research model and the core of Apsley & Grand's organizational development.

Apsley & Grand Investor Indicator

The Apsley & Grand Investor Indicator, or AGII, has 48 questions that look to gauge an individual financial capital supplier's criteria scores to aid in the evaluation and selection of a potential Apsley & Grand supplier. This online questionnaire can be found on the upper right-hand section of the Apsley & Grand website homepage (www.ApsleyGrand.com/AGII), images included in Figure 17. The AGII questionnaire is mobile-friendly and has a manageable, one question at a time, format. It is hosted on a modern survey-creation website, Typeform.com, which specializes in user experience to encourage survey completion and more accurate results. A questionnaire format was used for the AGII because it allows a large number of participants, randomized options, convenience and low cost (Reddy and Mahapatra, 2017).

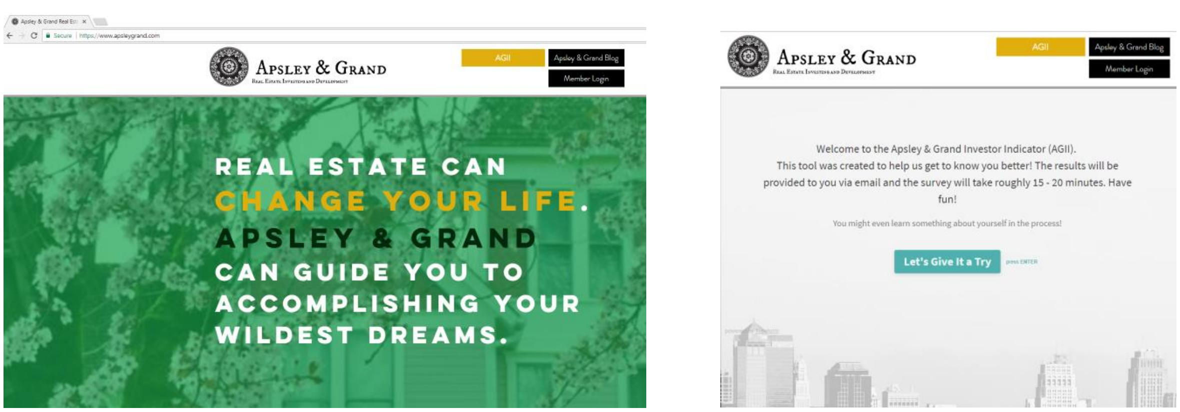


Figure 17 – Apsley & Grand Website

The AGII is not only a place for information sharing, but an interaction point that impresses upon the supplier the uniqueness and scholarly element of working with Apsley & Grand that is not common in the real estate investing and development industry. This action research project finds its demonstrative form of action with the launch of this actionable tool. Its creation and implementation required the researcher to intentionally reflect upon its use for both the research and organization. Organizationally, the AGII is not meant to become an afterthought or 'just a marketing tool,' but a pivotal point of departure for onboarding to further organizational action in supplier selection and service supply chain management. To have a tool like the AGII as a central point of cultural communication for both the internal and external organizational stakeholders illustrates the importance of trusting, communicating and pushing convention that is driving Apsley & Grand's development. The following sections explain the creation, the user experience and the AGII results for the supplier, the organization and the subsequent TOPSIS analysis.

A variety of multiple choice and Likert-style scale questions are asked of the potential capital supplier in the AGII to determine their individual results on the six influential criteria: trustworthiness, responsiveness, quality of past experience, risk tolerance/risk appetite, collateral/capacity, and motivation. As previously mentioned, the resulting criteria themselves are mostly latent variables that are difficult to measure directly (Gutiérrez-Nieto, Serrano-Cinca and Camón-Cala, 2016). A broad literature review brought together different indicator, surveys, scales and other measures to help allow representative measurements of the financial capital supplier criterions. This was more challenging than anticipated given the lack of literature for certain criteria (i.e. responsiveness and quality of past experience) and convoluted over-emphasis on others (i.e. risk tolerance). The specific, ensuing AGII questions can be found in Appendix 6 – AGII Survey Questions. The following sections detail the origin and inspiration behind all of the AGII questions pertaining to each of the six criterions in order of priority.

Trustworthiness (TR)

Trustworthiness was considered the most important factor from the ANP results, so should not be under-emphasized in the supply chain or the AGII. The willingness to trust a potential financial capital supplier depends upon the determination that the supplier is worthy of that trust and worthy of taking on the risk that their future actions could be detrimental to the organization. This criterion is obviously subjective as there is no way to calculate objectively an individual's trustworthiness. So, for the AGII, to indicate the supplier's level of competence trust, a question was added that offers a listing of the different factors found by Ohanian (1990) to make up the trustworthiness construct like reliable, sincere, or honest; the more a supplier self-selected factors, the greater the supplier's trustworthiness score. The other way the trustworthiness construct was incorporated into the AGII was through the inclusion of the Ten-Item Personality Inventory (TIPI) measurement tool.

The TIPI identifies Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness through ten specific word association questions (Gosling, Rentfrow and Swann, 2003). Trust is specifically acknowledged as an element of Agreeableness. For the AGII, these five personality traits are used as indicators for the trustworthiness criteria because of the TIPI's reliability, wide spread use, and ease of use. The TIPI was selected over the similar 10-item Big Five Instrument (BFI) because of its frequency of modern application and by recommendation of the creator to use TIPI over BFI (Storme, Tavani and Myszkowski, 2016). They were very similar in structure and suitably reliable, though the BFI is found to be more reliable than the TIPI for measuring Emotional Stability and Openness to Experience, but as the focus was on Agreeableness for Trustworthiness, this was not as important and the TIPI was selected (Gosling, Rentfrow and Swann, 2003). The TIPI also guides the AGII criteria by recognizing the element of benevolence trust by questioning if the supplier sees themselves as "Critical, Quarrelsome." If they scored themselves high on this particular query, the TIPI reverses their score to result in a lower agreeableness and overall lower trustworthiness result. The TIPI results, along with the word selection count question results, are averaged together to give the supplier a final Trustworthiness (TR) score where 1 is Low and 7 is High.

Motivation (MO)

Motivation was found to be a key criterion, ranking second highest in the ANP survey. This criterion of motivation addresses the individual supplier's direction, persistence and intensity for investing. This agrees surprisingly well with the context of this study and highlights that the elements of motivation for the individual financial capital suppliers are an important distinguishing component of a good partner for Apsley & Grand's product offering. Apsley & Grand emphasizes value-based real estate transactions and it is fitting that motivation be a key factor of the organization's supplier selection processes to best ensure a good potential partnership between partners of similar value-based intentions. Capital suppliers looking solely for maximized return would be better served in other forms of investment other than historic, sustainable property renovations; their motivations would be misaligned with the long-term mission and goals of the organization which is a key point of alignment necessary in developing a strong service supply chain.

The first AGII motivation question asks what some financial goals the financial supplier may be looking to achieve and they receive a point in the AGII for each goal they select. Roundy, Holzhauer and Ye Dai (2017) stress that the one of the first questions to ask a potential impact capital supplier is "what do you *care* about?" Therefore, this line of questioning is the second motivation criterion question in the AGII only because the first question is provided to help prompt the supplier with some ideas for things they care about to avoid intimidating them or confusing them with such a loaded question up front. After detailing what they care about (receiving a point for each item), the suppliers are provided a third question and are able to multi-select values they associate with from Howell and Allen's (2017) Motivational Values List. This particular list of values was selected as opposed to others because of its descriptiveness and focus on values that are similar to the organization's values. Finally, the financial suppliers are directly asked how motivated they believe themselves to be to invest in real estate.

The count of questions specifically relating to this important criterion seems low in comparison with other criterion given that there is a lack of scales and tools available to capture this criterion appropriately. Nevertheless, the supplier's motivation is more likely to be truly gauged overtime, especially by the propensity to follow-through with the act of actual investment. For the AGII purposes, it is most helpful to gather points of similarity between the organizational values and the supplier and also to identify if the values mismatch than potentially anything else in the AGII. If a supplier identifies they are motivated by egoistic values and not by any of the other values, this is a concerning flag may not necessarily count against the potential supplier but provides interesting longitudinal analysis data. The three questions are averaged together to come up with a MO ranking on a scale from 1 – 6.

Collateral / Capacity (CC)

The supplier's access to financial resources is clearly important for the AGII to determine since the premise of the relationship is their ability to supply capital for Apsley & Grand to invest in real estate projects. So, two of the AGII questions concisely ask if they own a home or rent and if they use certain financial investment products like savings, mutual funds, etc. The supplier receives one point for each method used and 6 points for owning a home outright, 4 points for owning a home with a mortgage and 0 points for renting their residency. The collateral criterion is used as a less intrusive substitute for screening the supplier than the way a bank might by asking them for a credit score or actual monetary values. This type of questioning would be inappropriately early in the relationship to be included in the AGII; this tool is intended to excite and intrigue, not pry. The AGII is trying to affirm access to financial resources and leaves the details of the financial situation to farther into the supplier selection process.

So, the AGII gauges collateral by including the financial status section of the Quality of Life scale created by Avis et al. (1996). The four questions are interested in the supplier's self-assessed comfort with their financial security, savings, expenses, and household income. From these four questions, in conjunction with the two investment methods and home ownership questions, a collateral score can be determined based on a 1-7 scale for low to high collateral. Then, in similar fashion, the Financial Self-Efficacy Scale (FSES) developed by Lown (2011), has been included in the AGII to capture the supplier's capacity or perceived budgetary surplus. The six questions of the FSES dig deeper into the supplier's financial situation by asking questions like, "I lack confidence in my ability to manage my finances" (Lown, 2011). This particular line of questioning is extremely important for segmentation purposes and determining appropriate suppliers in Apsley & Grand projects because individuals without financial capacity need more financial education and customer service support than Apsley & Grand may be able to provide in early organizational stages. Together with the other six collateral questions, the FSES results determining if the supplier is a 'Sophisticated, Average, Simple or Know Nothing' Investor are all averaged together to determine the final CC score.

Responsiveness (RE)

An individual's ability and probability of keeping promises is understandably important to consider when selecting a partner supplier. The responsiveness criterion is traditionally reserved for more logistical delivery applications but is still important for this research because of its ability to represent the supplier's ability to aid in supply chain collaboration and strengthening. Given that responsiveness was one of the lower ranked of the six criteria, it does not have as much focus as trustworthiness or motivation within the AGII, but there are still three questions that look to capture this criterion.

The first question is found within the TIPI's Conscientiousness element. The TIPI asks whether the supplier believes themselves to be "Dependable, Self- Disciplined," and alternatively, "Disorganized, Careless?" These indicate the supplier's responsiveness by indicating their ability to be organized and dependable, which is similar enough in principal to able to keep promises. Also, it allows for the use of the same TIPI included in the AGII for the trustworthiness criterion for an additional criterion; two criteria, one instrument. The potential suppliers are also asked two specific questions about their ability to keep promises and their promptness in replying to important emails. These were included as a direct result of the responsiveness definition being used in this research and provide a good foundation for customer segmentation development and aids in customer service expectations. It can be expected that the supplier's ability to provide capital and information promptly and reliably varies from what they report in the AGII and how they actually perform throughout the relationship. This interesting dynamic lends itself well to monitoring given its traceable characteristics and provides the organization with ample opportunity for expansion on the construct. The email response and promises dependability questions are scored on a scale where the supplier receives points for specific answers (i.e. 6 for A, 4 for B, 2 for C). And then, just like the trustworthiness criterion, the TIPI results with the two non-TIPI questions points are averaged together to give the supplier a final RE score where 1 is Low and 7 is High.

Quality of Past Experience (QP)

The last of the personal criteria, the Quality of Past Experience criterion indicates whether or not the supplier has experience with real estate investing. Thus, it makes sense for one of the questions in the AGII to bluntly determine whether they are experienced or not as this impacts their expectations. The AGII has a follow-up question for anyone that designates they have invested at least once before that asks open-endedly for details on the past experiences and provides points for detailed experiential comments. These comments are used to understand the cognitive standards for future service experiences and inform customer service and segmentation. The ANP considered this criterion the least important of the six, but is nevertheless important in its ability to add the supplier's unique past into the AGII. Understandably, someone that has years of experience warrants a different service onboarding experience than someone investing for the first time and this criterion helps capture that dynamic.

For future surveys or expansions of the AGII, this criterion could be extended to include elements of the supplier's family and friends' expectations and any market information they may bring with them when setting their service expectation levels. Also, it would be interesting to draw out more analytical details about past experiences like types of real estate products, amounts, service value and strength of the relationships with previous working partners. For this research, and for this current version of the AGII, none of these elements were included due to the criterion's low level importance and a concern for the AGII becoming too long. Once Apsley & Grand has a more established customer segmentation base and experience with the AGII in the market, these elements could be added then. The one direct question asking about the supplier's past experience is scored on the scale where they receive 6 points for A, 4 for B, 2 for C. Any experienced supplier that provides details within the open comment supplemental question receives additional points for the final QP score. The QP criterion final result is then either a Low, Medium, or High result based on a 2-7 scale.

Risk Appetite / Risk Tolerance (RI)

A seemingly obvious inclusion in this financial supplier context, risk appetite and risk tolerance shine a light on the supplier's willingness to take on risky activities or the maximum amount of uncertainty they are willing to accept when making a financial decision respectively. And yet, this criterion was the lowest ranked of the six criteria in importance from the ANP analysis. The topic of risk has received a large amount of attention and has many tools available for use for testing different aspects of risk such as risk appetite (Muralidhar and Berlik, 2017), monetary quotient (Tang, 2016), risk tolerance (Grable and Lytton, 1999) to name a few. Nevertheless, it is important to recognize that these tools that are all subjective, since objective risk assessments simply do not exist (Aven, 2013). Many in the financial industry speak about these tools and risk as if it can be controlled or determined with precision which is a fallacy. This is understandable given the large plethora of academically reassuring literature supporting such a misconception. It required great discipline not to include all these different scales in the initial AGII. They offer unique and interesting insights into the supplier's risk profile; however, for the sake of survey brevity and given its low importance, only the Grable and Lytton (1999) scale was included in the AGII.

The Grable and Lytton (G&L) scale is one of the only peer-reviewed assessment tools available for public, free use and has been used by over 200,000 consumers for risk tolerance evaluation (Kuzniak et al., 2015). The risk appetite element must then be inferred from the risk tolerance result since risk appetite is encompassed within the supplier's maximum risk tolerance (Baldan, Geretto and Zen, 2016). In future surveys or AGII expansions, the supplier's risk profile and risk appetite specific prompts could make great additions. This criterion received a large count of the questions in relation to other criteria given the length of the G&L, but it was deemed important to include the entire assessment tool to avoid incorrect results.

Even though it does not have its own specific prompts, the financial supplier's risk appetite is determined based on a correlation between the G&L score and the risk appetite similar to that tolerance. For example, if the supplier scores on the G&L as an Average/Moderate Risk Tolerance, then it is assumed they have either a 'Cautious' or 'Open' risk appetite profile (Zalewski, 2017). This is ultimately chosen by the amount of points they receive on the G&L to make an educated assumption between the different appetite categories. The supplier's appetite category makes a good point for customer segmentation and organizational monitoring to see how the levels of risk the suppliers are willing to take on may shift once they grow more comfortable with Apsley & Grand and with their own financial situations.

The AGII Experience

The potential investor or financial capital supplier is interacting with the organization most likely for the first time when taking the AGII. The experience is to energize the act of information gathering while providing personalized feedback. The AGII experience is designed to trigger psychological reactions of reciprocity and curiosity within the supplier to promote investment, follow-up and referral. The supplier navigates online to the AGII on the ApsleyGrand.com website and spend on average 13 minutes filling out the survey as a free explicit service that seems to provide something (personalized feedback about them) for nothing. And yet, the organization is getting critical information about the individual to use internally for market customer segmentation, supplier selection and internal communication. It is a win-win situation for both sides and it is Apsley & Grand's responsibility to continue to grow this tool by adding additional phases of surveys, questions, information and experiences to enhance this onboarding interaction even further in the future.

The AGII tool provides website visitors with a point of action. The AGII allows the organization to provide the user with a justifiable reason for providing their information and taking time to fill out the survey to receive something in return through the result of personalized feedback. The website has been designed to be mobile friendly and modern to encourage user-friendly access to the AGII and also promote sharing between network connections. There is intentional focus on making the survey an appropriate length to encourage completion and to respect supplier time limits. Once they have completed the survey, the potential suppliers are thanked and reassured that results are provided within 24 hours (the goal is to have these results instantly provided once the organization can build more automation into the website). The customized results are emailed to the potential supplier with a summary of the six criteria rankings and a radar map illustrating all criteria simultaneously similar to the image of Figure 18 on the next page.

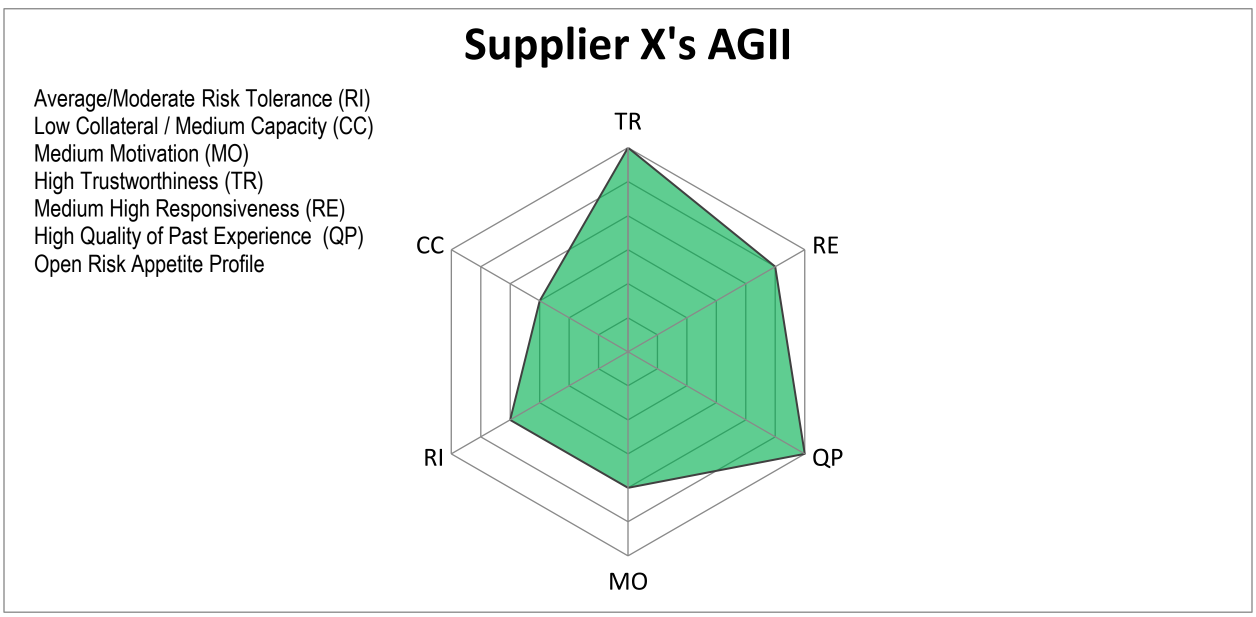


Figure 18 – AGII Radar Map Example

This radar map demonstrates the unique makeup of the individual supplier on the main criteria and the identified risk appetite profile. The numerical values are intentionally removed as the AGII results are mean to stimulate relationship building and conversation, not debate on result values. These results on the radar map of the six criteria indicate the more strength the supplier has on specific points with a heavily shaded green. Each of the six points are guidelines for the initial conversations with the potential financial supplier and provide opportunities for interesting insight by highlighting strengths and opportunities for initial relationship discovery topics. The greener, the stronger the potential supplier as an individual is on these six important criteria.

As the name indicates, the Apsley & Grand Investor Indicator is proprietary to Apsley & Grand and offers a competitive advantage to the organization that other real estate investing and development firms do not offer potential financial capital suppliers. This indicator tool creates relationships with these individual financial capital suppliers by relating to them on a more personal level. Through the AGII, all suppliers naturally self-segment into specific categories by the AGII results which allows Apsley & Grand the opportunity to analyse and potentially target specific market profiles. For market segmentation is nothing more than a market division into smaller groups with distinctive needs and behaviour aligning the organization's resources with the varied needs of the targeted suppliers (Oztaysi et al., 2016); this segmentation functionality is just an additional feature that this actionable tool offers the organization.

The AGII Results

For the time being, Apsley & Grand depends upon Microsoft Excel spreadsheets for the beginning stages of the AGII analysis for internal and supplier metric result calculations. The important point to remember with the results of the AGII is that it is not meant to be a full blown psychological analysis and is not treated as such. It is not to be used in isolation when making supplier selection and evaluation decisions, but the results serve as an input in the dialogue with the supplier (Ryack, Kraten and Sheikh, 2016). It is an important tool, but a tool nonetheless. The AGII provides a thought-provoking introduction to Apsley & Grand as an organization, personalized supplier feedback and internally valuable outputs on the supplier as an individual. The email the supplier receives with their AGII results is left intentionally vague to promote an introductory call with an Apsley & Grand employee to explain the results in more detail and discuss potential partnership opportunities. Internally, the results are used to feed the TOPSIS analysis and create an individualized supplier ranking value. The necessity for a tool like the AGII only grows more significant when more suppliers are added to the organization supply chain making it vital to understand how to balance these various criteria into an actionable, positive outcome.

TOPSIS

As the fifth step of the research methodology, the TOPSIS analysis is used to create the unique ranking coefficient value for the potential financial suppliers with the criteria priority weights from the ANP analysis, and the nominal value outputs from the AGII. The addition of the TOPSIS methodology creates an organizational triumvirate tool (ANP, AGII and TOPSIS methodology) and creates a comparable and easily comprehendible output result to address the organizational supplier selection problem. In other words, by analysing, interacting and identifying the appropriateness of potential financial suppliers, these methods allow Apsley & Grand to address the research problem and introduces the structure necessary for scaling this organizational tool for future problem-solving opportunities. The key of TOPSIS is the singularity of the nominal output it provides; this output is an important internal metric and has great potential for other applications within the organization development. TOPSIS gives Apsley & Grand a numerical sorting functionality that identifies supplier idealness based on the six criteria which is an extremely valuable tool for an organization looking to select and evaluate suppliers with consistency and clarity.

TOPSIS is a perfect application to support addressing the research problem of selecting and evaluating potential financial suppliers because it allows for simple systematic computations and highlights the best from the worst potential suppliers through ranking. Compared to the ANP calculations, the TOPSIS calculations and steps are relatively straight-forward without the need for additional software support. TOPSIS also allows for unlimited additions of new suppliers without expansive recalculations which is an important attribute once Apsley & Grand begins growing exponentially. While TOPSIS reinforces explicit trade-offs between attributes (Kannan et al., 2013), the ultimate resulting closeness coefficient can assign to each supplier ascribes a meaningful and representative value to support fair organizational decision-making practices. The basic principle underlying TOPSIS is that the ideal suppliers should have the shortest distance from the ideal combination of all six criteria, and the least ideal suppliers would be the shortest distance from the negative ideal combination (Tavana, Zandi and Katehakis, 2013).

To best explain the application of the TOPSIS calculations within this research, three hypothetical suppliers (S1, S2 and S3) are included here for illustration purposes. Demonstrative AGII results are plotted in a TOPSIS decision matrix for all suppliers on each of the six different criteria (represented in each column with the associated ANP priority weight in the first row) as shown in Table 20 to begin. These results are then brought to a power of 2 and summed then brought to a power of ½ to normalize the criteria results, indicated in the last row.

Table 20 – TOPSIS AGII Example

	0.37654	0.07788	0.13615	0.25792	0.05597	0.09556
Alternatives	TR	RE	QP	MO	RI	CC
S1	5	7	2	3	4	5
S2	6	6	4	3	4	3
S3	6	5	6	4	5	3
	97	110	56	34	57	43
	9.85	10.49	7.48	5.83	7.55	6.56

With that normalized criteria value, the individual supplier's results are taken over the normalized criteria result to create a normalized decision matrix. For example, row S1/column TR value of 5 divided by 9.85 results in .51. This result is populated in Table 21 (on the following page) and provides a normalized matrix where the results are comparable across all suppliers and criteria. The normalization is done to place the values between 0 and 1, where 1 indicates the most ideal solution and 0 indicates the most negative ideal solution possible (Morteza et al., 2016).

Table 21 – TOPSIS AGII Example - Normalized

	0.37654	0.07788	0.13615	0.25792	0.05597	0.09556
Alternatives	TR	RE	QP	MO	RI	CC
S1	0.51	0.67	0.27	0.51	0.53	0.76
S2	0.61	0.57	0.53	0.51	0.53	0.46
S3	0.61	0.48	0.80	0.69	0.66	0.46

These results are then weighted using the weights of the individual criteria by multiplying the results by the criteria weights found in the ANP calculation on the top row of each table, shown in Table 22 on the next page.

Table 22 – TOPSIS AGII Example - Normalized, Weighted

	0.37654	0.07788	0.13615	0.25792	0.05597	0.09556
Alternatives	TR	RE	QP	MO	RI	CC
S1	0.19	0.05	0.04	0.13	0.03	0.07
S2	0.23	0.04	0.07	0.13	0.03	0.04
S3	0.23	0.04	0.11	0.18	0.04	0.04
	BENEFIT	BENEFIT	BENEFIT	BENEFIT	BENEFIT	BENEFIT

The next step of calculating the ideal solution and negative ideal solution is the categorization of each criterion as either a benefit, something that should be desired, or a cost, something that should be less desirable in a potential supplier. Within this research, all criteria were considered desirable benefits and therefore results in the positive ideal solution, PIS, being the maximum value of each criterion. The negative ideal solution, NIS, would then be the minimum of the criterion values; these MAX and MIN solutions are provided in Table 23. The reverse application of MAX and MIN would be done in the case of a cost criterion.

Table 23 – TOPSIS AGII Example – Positive Ideal Solution and Negative Ideal Solution

PIS	0.23	0.05	0.11	0.18	0.04	0.07
NIS	0.19	0.04	0.04	0.13	0.03	0.04

With the PIS and NIS recognized, the separation each potential supplier has from the ideal solution can be calculated. The ability to determine this separation, or relational proximity to the ideal, is a key aspect of the TOPSIS application and an important point of analysis. It organizes and plots the different suppliers on a level playing field which provides a non-subjective approach to supplier segmentation. It could be assumed that something this significant and valuable might be difficult to calculate, but on the contrary, it is a straight-forward process. First, the distance to the positive ideal, or the positive separation (Si*), is found by taking the weighted values from Table 22 and subtracting them from the PIS values for each criterion column in Table 23, then raising them to the power of 2. These calculations result in the Separation Ideal values on display in Table 24.

Table 24 – TOPSIS Positive Separation from Ideal

Si*	0.0015	0.0000	0.0053	0.0020	0.0001	0.0000
	0.0000	0.0001	0.0013	0.0020	0.0001	0.0008
	0.0000	0.0002	0.0000	0.0000	0.0000	0.0008

The process is repeated to the weighted values from Table 22 to define the negative separation (Si-) in Table 25 by subtracting them now from the NIS values and raising the values to the power of 2.

Table 25 – TOPSIS Negative Separation from Ideal

Si-	0.0000	0.0002	0.0000	0.0000	0.0000	0.0008
	0.0015	0.0001	0.0013	0.0000	0.0000	0.0000
	0.0015	0.0000	0.0053	0.0020	0.0001	0.0000

Finally, with all pertinent TOPSIS values calculated, the rows for both the positive and negative separations are summed and raised to ½. These values are added together for each supplier's individual positive separation and negative separation results. And with the Si- taken over the resulting summation, the closeness coefficient (Ci*) is determined for each supplier alternative, presented in the final column specifically of Table 26.

Table 26 – TOPSIS AGII Example - Closeness Coefficients

								SUM	Ci*
Si*	0.0015	0.0000	0.0053	0.0020	0.0001	0.0000	0.094		
	0.0000	0.0001	0.0013	0.0020	0.0001	0.0008	0.065		
	0.0000	0.0002	0.0000	0.0000	0.0000	0.0008	0.033		
Si-	0.0000	0.0002	0.0000	0.0000	0.0000	0.0008	0.033	0.126	0.259
	0.0015	0.0001	0.0013	0.0000	0.0000	0.0000	0.053	0.118	0.450
	0.0015	0.0000	0.0053	0.0020	0.0001	0.0000	0.094	0.126	0.741

The highest value determines the most attractive supplier and the most ideal partnership given the six criteria. The applications of this nominal value for Apsley & Grand to use internally can transcend simple supplier selection into other aspects of the organization like marketing, retention, training, documentation, and sales. This is a competitive advantage that Apsley & Grand has at its disposal that affords speed, focus and stability; the TOPSIS output is a treasured outcome of the research that has enormous organizational significance for service supply chain management.

These relatively simple TOPSIS calculations allows unlimited amounts of suppliers to be plotted and assigns closeness coefficient values which identify, evaluate and select appropriate suppliers for Apsley & Grand based on their unique qualifications on the six influential criteria. This also permits the organization to begin building a database of comparison points across suppliers and over time. This closeness coefficient could be used as a screening mechanism with a minimum value requirement, but for the onset of the introduction of the AGII and the beginning of building the organization, the value does not definitively determine supplier selection or rejection. It is a point of differentiation and aids in the larger decision-making process. It guides the organization towards more ideal suppliers and away from less ideal supplier options. Additionally, the TOPSIS calculations permits the organization to grow the AGII solution by providing flexibility in supplier alternatives computations. In fact, TOPSIS has been found to be one of the most successful methodologies to address rank reversal issues that occur when new criteria or alternatives are added (Tavana, Zandi and Katehakis, 2013). Furthermore, it supports the relationship building process by offering insight into the unique qualities of that potential supplier giving Apsley & Grand an initial edge when initiating a more personalized and engaging conversation with the supplier.

In summary, there are three key results of the research that are a result of the TOPSIS analysis. First, the strength of TOPSIS is the ability for it to effectively summarize the ANP and AGII results into an actionable resulting value. It clearly answers the question originally set out in this research problem and has unlimited potential for helping solve future problems Apsley & Grand might encounter. Second, the competitive advantage that TOPSIS delivers for the organization in terms of stability and speed when analysing potential new suppliers is very important operationally. And lastly, the internal clarity a single-value output offers throughout the organization, whether it is for internal training, customer service or supply chain metrics, carries with it exponential opportunity to guide future organizational initiatives on behalf of suppliers and the larger supply chain. But now, the true operationalized value should be demonstrated, and the next section puts this supplier selection solution to the test through a few feasibility exercises with real potential suppliers.

Feasibility Exercises

In December 2017, the AGII was launched while the researcher attended a real estate development conference focusing on real estate development financing. Three financial capital suppliers present at the conference were asked to participate with the live AGII version found on Apsley & Grand's website to test the feasibility of using this tool to introduce Apsley & Grand to potential capital suppliers as well as to ensure that the web portal was user-friendly and functioning as intended. The AGII has remained live on the website since and remains available moving forward indefinitely.

Using the AGII Scorecard excel spreadsheet created in previous stages, the participant AGII results are exported from the AGII web portal and input into the scorecard to determine the individuals' results with little manual manipulation necessary. This foray into a real-world application of this research demonstrates the power of the AGII/TOPSIS scorecard solution in providing consistency and speed in evaluating new supplier AGII participants and helps reaffirm the new organizational value this tool offers Apsley & Grand. The following sections exhibit the three feasibility exercise results per participant. The personal information of the suppliers, such as name and email, are suppressed from this research, and instead are referred to as Participant 1, 2, and 3 (S1, S2 and S3).

Participant 1

Participant 1 has partnered on many real estate development projects for years and has become an active member of the real estate investing community. Excitedly, the AGII was able to capture this uniqueness with the highest criteria being Quality of Past Experiences. In this instance, the AGII was able to provide a substitute for contextual conversation and identify some unique key points about the supplier. The AGII radar map in Figure 19 on the previous page indicates graphically the participant's individual results in the larger green sections showing a higher propensity for that specific criterion. The

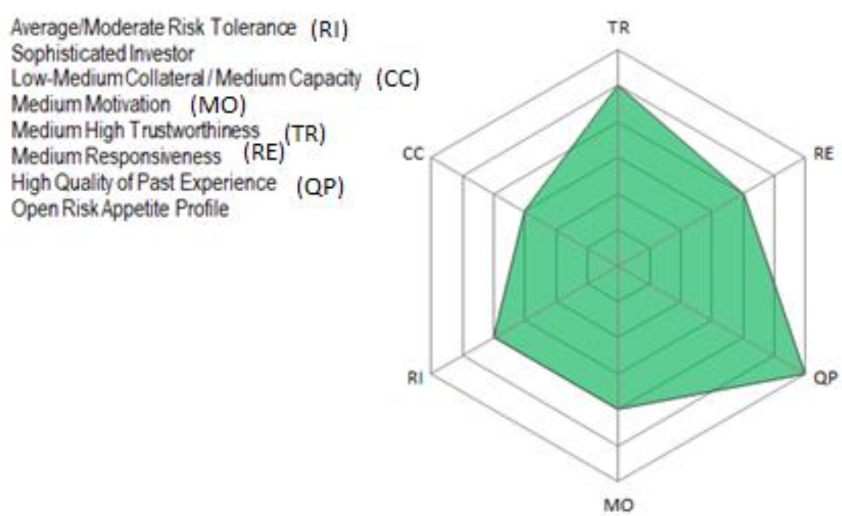


Figure 19 – Participant 1 Radar Map

participant's results ranged medium to low-medium given his personal desire to begin participating in the real estate development aspect of the partnerships moving forward. In other words, this supplier indicated to the researcher that they wanted to begin developing properties themselves and therefore had a lower motivation to partner with a real estate investing organization in future deals. This radar map was emailed to the participant as a free explicit service which initiated follow-up conversations and provided the supplier valuable personalized feedback.

Participant 2

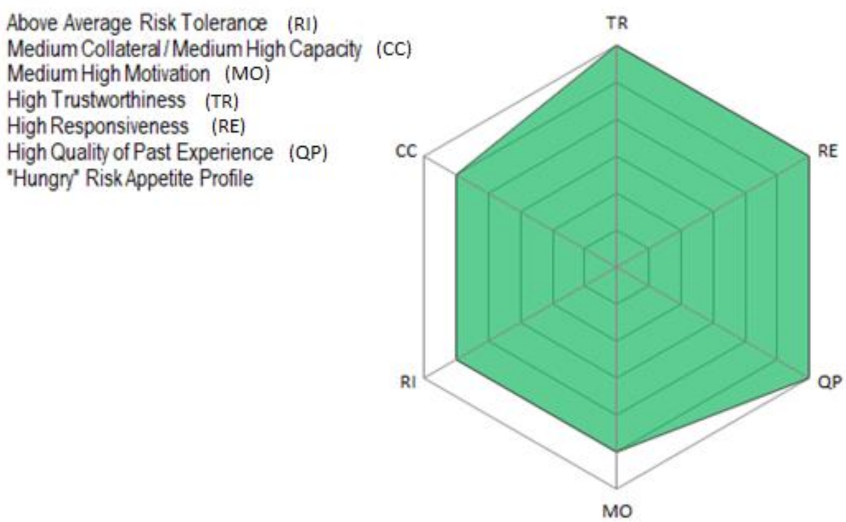


Figure 20 – Participant 2 Radar Map

Participant 2 has contributed to a variety of projects ranging from single family homes to recently investing in underground caves for development in storage, data centres and other creative uses for the spaces. Participant 2 scored the highest on most of the criteria illustrating the supplier's strength and specialized focus in the real estate industry. The radar map in Figure 20 on the previous page was emailed to the participant and highlights the higher intensity of this participant's results when compared to other participants' maps with most of the radar map being almost completely shaded green.

Interestingly, Participant 2 indicated in the open-ended AGII question about describing the quality of past experiences that he has had “Great experiences,” but also mentioned that “I mostly invest in my own deals.” This sheds light on the potential for elaboration on the past experience criteria and potentially demonstrates a limitation in its current ability to capture the AGII participant’s role as either a passive or more involved active real estate capital supplier. This could be a significant element to expand in future AGII surveys.

Participant 3

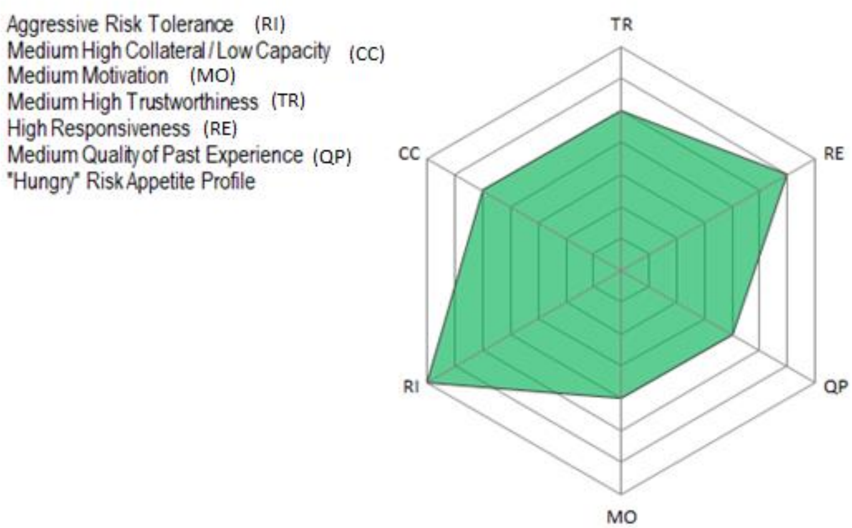


Figure 21 – Participant 3 Radar Map

Participant 3 is a realtor that is relatively new to the real estate investing space but has an extremely high-risk tolerance and appetite which could suggest a propensity of investing in riskier real estate investments. His career would also explain his lowest score in capacity with a variable income which could be a point of concern for a future partnership. Besides capacity, Participant 3 scored medium, medium high or high on the remaining criteria. His radar map in Figure 21 on the previous page, when compared to the other two participants, highlights just how individualistic the results are for each participant.

These three radar maps are included in this study to demonstrate the valuable tangible output the application of this research methodology provides the organization and the supplier. This kind of graphical conversation piece allows the organization to become better acquainted with the suppliers in an exclusive and innovative format. Not only that, but the AGII results and radar maps provide valuable internal metric values that are used in the TOPSIS analysis for further insight.

Feasibility Exercises - TOPSIS Analysis

With all three feasibility exercise participant's results from the AGII calculated, the results are next plotted using TOPSIS to determine their potential appropriateness as a financial capital supplier in future real estate investing partnerships. The calculations for each of the potential supplier's positive and negative ideal separation and the final closeness coefficients found Participant 2 to be the most likely for successful partnership with the highest value closeness coefficient result at .852. Participant 1 was the least appropriate potential financial supplier with a closeness coefficient of .314 and Participant 3 was similarly low at .365. The calculations are available in Appendix 7 – TOPSIS Feasibility Exercises Results. These TOPSIS calculations provided additional quantitative support to the more qualitative visual communication of the radar map and advances the supplier selection decision-making process.

These TOPSIS results were intuitive and unsurprising since Participant 2's radar map clearly demonstrates his overall strength in most of the desired beneficial criteria. As mentioned previously, even though Participant 2 may be the most preferable partner from the three alternatives, he may not be motivated enough to invest in projects outside of those he is personally active in developing which could add an unfavourable element to his partnership suitability that the AGII does not currently capture. Future AGII surveys can be strengthened by incorporating additional elements such as costs, investment style and property type preference to find even more compatibility points between the financial capital supplier and Apsley & Grand.

Understandably, these results do not necessary translate into partnership acceptance or fruition but do deliver Apsley & Grand a working actionable illustration of the potential partners in a comparable, non-subjective format. Potential supplier partners are accepted or rejected from future Apsley & Grand projects based on the AGII results in combination with deal parameters as an overall partnership analysis. Using the AGII and TOPSIS, unlimited potential supplier alternatives can be used as part of an organizational partnership supplier selection strategy and can strengthen the introductory onboarding conversations between the organization and these vital service supply chain partners. Overall, the feasibility exercises plainly exhibit the research methodology's viability and value to Apsley & Grand in providing graphical and numeric communication tools during onboarding and supplier selection while building a reliable and strong service supply chain. The next section will continue to elaborate on the research findings from the application of this methodology and provide insight into the organizational value and growth for Apsley & Grand as a start-up organization as well as insight into the reflections and development experienced by the researcher as an action-researching, solo-entrepreneur.

CHAPTER 5: RESEARCH FINDINGS

This mixed method research focused on incorporating a qualitative Action Research and multi-method quantitative approach to solving a multi-criteria decision-making problem in a service supply chain supplier selection context. The following sections first highlight the personal perspective of the researching that took place for the researcher by detailing the various action research cycles that occurred. And to properly evaluate the action taken and subsequent findings, this chapter then conceptualizes the different layers of the action to determine its reliability, validity, successful elements and limitations from the various research perspectives. It continues by revisiting the research aims and then determines the outcome of these different factors through a quantitative research lens, a practical lens, and an action research lens. Since the main tenant of action in this research was the creation and implementation of the AGII, it plays a central role in this research evaluation effort. The growth of the organization on a cultural and developmental level is also discussed. Then finally, the researcher's personal research journey is reflectively illustrated to highlight the researcher's own role in the research's ultimate findings.

ACTION RESEARCH CYCLES

It is important that this research highlights the convoluted journey the researcher and organizational founder traversed by applying reflexive action research cycles throughout the research process. There were three major action research cycles that occurred within the research: the conceptualization of the research problem and methodological approach, the commencement of writing, and the actual action of the potential solution. The heaviest emphasis of reflection occurred in the later parts of the action research process when the researcher began to more clearly interpret decisions that had been subconsciously made and their resulting impact upon the research and the AGII. The following sections detail the rigorous reflection on the choices that were made in relation to design, purpose, planning, implementation and the research.

The goal of action research is meaningful social problem solving with research, analysis and action (Greenwood, 2015); this action research project is no different. The action research approach was particularly well suited to facilitating organizational change (Elsey and Kit Suek, 2007) and to perform research amongst an entrepreneurial start-up organization rife with change and 'messy' decision-making. The local organizational context of Apsley & Grand was not the only context at play in this action research as it extends beyond the immediacy of Apsley & Grand into the general business context and provides guidance on creating interactive organizational developmental tools to entrepreneurial organizations, clarifies important partnership criteria, and highlights the need for additional research into entrepreneurial service supply chain organizations to continue to grow this specific and critical business type.

The organizational context of Apsley & Grand was chosen immediately at the beginning of the research proposal design process as the primary focus of the researcher's passion and energy. It was one of the easiest decisions of the entire design proposal process and was deemed appropriate for this action research thesis given the organizational context being so transient and entrepreneurial. However, this start-up was lacking the history and organizational pre-existing issues that come with experience in an established business. This entrepreneurial context added an additional element of uniqueness to determining the research problem and action needed to aid the organizational growth and continuous improvement because the obvious action was to start the organization itself. Simply said, the action of completing the first deal was too complex, too externally dependent and had too questionable of a duration to tackle within the allotted timeframe of this research. Therefore, reflection on current action (and inaction) began the continuous spiral of the first action research cycle of problem definition (Davis, 2007).

Action Research Cycle 1: Research Problem and Methodological Approach

The first action research cycle commenced, unbeknownst to the researcher at the time, while attempting to narrow the viable problems into the appropriate size for this research scope. This was a difficult task for the researcher, taking almost a full year to determine a suitable research proposal. It was firstly important to determine what kind of problem would be most likely to maintain the researcher's curiosity and interest for the years of work ahead until graduation. Topics like real estate relationships, real estate agent moral hazard and sustainability in real estate were initially incubated as the main theme of real estate was within the context of Apsley & Grand. At the beginning, all initial problem proposals were deemed inadequate in either potential impact for the organization (being too insignificant of a problem) or inadequately interesting to maintain the researcher's attention for such an extended period.

The researcher had limited experience within the real estate investing context which added additional challenges to creating fresh ideas.

Ultimately, the solution was found once the researcher began analysing the different steps needed to start the business itself: finding money, finding properties and finding time. And out of these steps, the most difficult appeared to be finding money. From that point of realization, the research and research problem formed quickly, especially after literature reviews and practitioner text highlighted the terms “joint venture,” “supplier selection” and “partnership” to help solidify the language that could be used to communicate the concept more fully.

Conceptualizing the research problem and selecting the appropriate methodological approach was an extremely emergent inquiry process, as action research is, and left the researcher feeling at times like a car spinning wheels on ice. In other words, working extremely hard but not getting anywhere. Nevertheless, being stuck in the reflective observation stage of the action research cycle for months ultimately resulted in a strong proposal research problem and led to the creation and approval of this research. Reflecting upon the first action research cycle, the researcher completely underestimated the scale and importance of the proposal definition process and should have placed a heavier emphasis on this early stage of the action research process (Greenwood and Levin, 2013). Instead of reflectively questioning the researcher’s observations, feelings, thoughts and desires in the early months of the project (Smith, 2017), all energy was spent reading literature and reading text about the thesis process. More focus on the personal elements during that early time would have provided even greater awareness into the overall research process undertaken in this research.

Again, the focus was not paid appropriately because the researcher was genuinely and naively unaware that the action research cycle had even commenced. It was a beginner’s expectation that the research did not begin until the data collection began; everything else was secondary. It would have helped to begin with a greater appreciation for the different types of action research that can inform and support a research project. Durak et al. (2016) describe three different types of action research: technical / scientific / collaborative; practical / mutual collaborative / deliberative; and emancipating / enhancing / critical science. Understanding these different classifications and having an appreciation of the impact of the action research cycle on the researcher’s level of awareness occurring at this initial research stage would have allowed the researcher more structure and supporting reflective formats at the beginning of the researching process.

Now, looking back on the initial action research cycle, it appears more clearly that the action research for this research project is of the more positivist type of technical/scientific/collaborative; as the researcher directed the action research application within the different methodology's theoretical frameworks to make it more effective within the overall research context of being solo-entrepreneurial (Durak et al., 2016). Even though the researcher tends to epistemologically lean towards a more subjective approach, the research problem, action research cycle, and research methodologies all had more positivist tendencies looking to measurable data instead of organizational discourse and meaning-making patterns (Hedman, 2016). This was a bit of surprise and resulted in perplexing internal dialogue for the researcher in later reflection cycles about how to best determine one's epistemological belief structure or if it is instead malleable, adjusting to life and research experiences overtime. It was a personal debate that remains unresolved, but helped the researcher feel as if these were just the kinds of questions someone at the doctoral level might be asking of themselves which was encouraging.

The first action research cycle included not only the research problem definition but also included determining the appropriate methodological approach for addressing the research problem. This was even more daunting for the researcher than the conceptualization of the problem because it introduced the breadth of theoretical methodology, terminology and a level of decisiveness that was currently lacking. Fortunately, the methodology selected did not need to be custom or revolutionarily unique, so the goal during the first cycle became to find an inspiring study format that could be applied to the Apsley & Grand context. This graciously allowed the research methodology to follow in the footsteps of previous researchers. This activity was performed simultaneously to developing the research problem as one inspired and clarified the other. The decision to select a mixed approach using ANP and TOPSIS was completely inspired by the MCDM study done by Morteza at el. (2016) on selecting the most optimum tourism site in Iran. The only modification that was made from the inspiration methodology was to exclude the fuzzy number element from the calculations given its added complexity but was replaced with the frequency count survey to ensure the appropriate initial criteria were selected. Thus, the methodology was determined relatively quickly after the literature review confirmed that additional researchers using similar combinations of ANP and TOPSIS to solve similar problems and gave the needed reassuring credence to the selected methodology.

In fact, it was not made clear until later in the process when the researcher gained first-hand experience with them why ANP and TOPSIS were so complimentary. This was a lucky break as it could have worked out the other way that they were incompatible for this research problem and would have caused a large amount of frustration and self-doubt. Additionally, the decision to create the AGII as both an actionable component and a bridge between the two methodologies worked very beneficially and smoothly. This was not consciously done upfront and was another lucky break throughout this research that the pieces aligned without significant conscious forethought on behalf of the researcher in the earlier proposal stages. The value of the AGII was originally included due to purely selfish organizational reasons as the researcher was hoping to create something of tactile value for the business while simultaneously producing adequate research. It was only when reflecting on the entire process, once the data had been gathered and analysed, that the researcher recognized the true value of the AGII for both the company and the research as a vital conversion mechanism and communication tool. The symmetry and smooth flow with all the various methodological decisions was surprising and forced the researcher to wonder whether this was subconsciously calculated or pure luck, or possibly a combination of both. This cycle ended with the submission and approval of the research proposal. It provided the researcher with tangible movement in the researching process as well as significant learning experience in the act of researching itself.

Action Research Cycle 2: Commencement of Thesis Writing

The second action research cycle occurred much later in the research process when the thesis writing began. Through this activity, the researcher began to understand and appreciate the importance of the action research reflective cycles by being forced to write down what steps were taken and realized just how many decisions (crucial and research-altering decisions) had already been made. This was also following a vexing time in the research process between the first and second cycle that led the researcher to believe that even though much energy and work was being applied to the study, not much progress was being made as the months rolled by. It was not until real writing began that it felt as if momentum was finally beginning to build.

The second action research cycle appeared more conscious and deliberate than the previous cycle with the action research cycle itself of reflection, plan, action, observation arising (Elsey and Kit Suek, 2007). The researcher recognized through reflection that the lack of momentum was self-inflicted, and that writing would only happen through diligence. A plan was put together to create smaller, more manageable milestones and to begin the process of offloading other responsibilities in the researcher's professional and personal life until the thesis was complete. This plan ultimately led to the action of creating a very detailed Gantt chart spreadsheet as well as taking a leave from professional work for 10 weeks. The researcher quickly and immediately observed how beneficial both solutions were to generating progress and balance. It also illuminated the value of the reflective looping that action research inspires and pushed the researcher to be more aware, conscious and deliberately intentional moving forward with the remainder of the thesis process. This cycle ended after the writing was complete and the first draft of the thesis was submitted for review. This momentous occasion allowed the researcher to reflect upon the large scale of work that had been accomplished (and the work that remained) and the mental fortitude that was required.

Action Research Cycle 3: Action of the AGII

This third cycle commenced while the second cycle was still active as the writing of the thesis was still in process. The third and final action research cycle started when all the data was finally gathered after the feasibility exercises were complete. As previously mentioned, the addition of the AGII began as an unconscious organizational research add-on but became something much more influential as the research process moved forward. An initial problem of this research was to justify the inclusion of action research and add an element of practitioner problem-solving to the scholarly realm of thesis writing. The AGII was the actionable, demonstrative, organizational change element that solved these requirements. And yet, reflection indicated that the AGII broached a larger problem of organizational culture, development, innovation and service supply chain topics that were much larger than the researcher had anticipated.

Like many other action learning and research projects, the process of innovation had now formally begun and morphed into a continuous feature of the culture of the entire organization (Elsey and Kit Suek, 2007) resulting in the researcher self-loading heavy expectations and mounting pressure to continue to innovate and change for the organization's benefit. It was an unanticipated outcome that triggered yet another action research cycle so close to completion of the project. This never-ending looping became more and more apparent to the researcher and made clear that it would not be managed like a Gantt chart with clear completion targets but should instead be accepted as a relentless rhythm that grows with awareness and attentiveness. And it was this last cycle that reassured the researcher that having an element of action research within this research was completely justified. For both action, like the AGII, and research are intended outcomes and the action research methodology provides the needed adaptability and flexibility for effective change (Dick, 1997). It also brought about personal discovery and awareness for the researcher as a founder and a scholar that might not have been paid any notice without the action research lens calling for observation and reflection.

These action research cycles offer a personal perspective into the researching process and provides personalized findings that took place for the researcher as a solo-entrepreneur as well as a researching practitioner. Action research strives to maintain applicability within the researching process and has a focus on impacting the practice and practitioners (Zhang, Levenson and Crossley, 2015); these cycles identify key points of applicability and impact for Apsley & Grand's founder's growth throughout this research. The next section takes this further by highlighting the applicability and impact the research has had overall for the growth and benefit of Apsley & Grand by first reviewing what motivated and prompted the research to start.

Revisiting the Research Problem

As a point of refocusing, the research problem and sub-problems are included below:

"How does Apsley & Grand best approach the evaluation and selection of financial capital supplier partners for a strong, reliable service supply chain?"

The Research Sub-Questions:

1) What criteria are the most important for Apsley & Grand to emphasize to increase the likelihood of a beneficial financial capital supplier selection and partnership?
2) In what ways do the different criteria impact organizational development for Apsley & Grand?
3) In what ways do the different criteria impact organizational culture for Apsley & Grand?
4) What kind of tool can be implemented to support the creation of the supply chain?

It is with these questions in mind that the research is evaluated. The following sections highlight the different perspectives of the research findings using the quantitative methodologies that identified the supplier selection criteria fundamental to answering the research problem and sub-questions. The first evaluation is of the quantitative findings, the second of the practical evaluation of the research's applicability to aiding Apsley & Grand, and the third is the evaluation of the action research aspect of the research which was vital for reflectively documenting the researching process occurring within this unique entrepreneurial, service supply chain context. With different research methodologies deployed in conjunction, the final findings illustrate a broad, multi-contextual and scholarly presentation of the dynamic problem-solving efforts that took place in this study.

Quantitative Research Evaluation

The AGII design and selection of the questionnaire contents was based on the quantitative analysis of real estate investment financial capital providers individual personal and financial criterions. These criteria were identified in an amalgamation of multiple-choice, open-ended, and short answer questions. The AGII questionnaire successfully created nominal value inputs for the following TOPSIS analysis which then plots the individual suppliers in relation to ideal and negative ideal solutions. The developed ANP questionnaire assessed the six criteria found to be most relevant from industry expert feedback. The research embodies the opportunity that organizations have for using research methodology to guide business process and recommends more advanced information gathering techniques to support relationship building and supplier selection. It also delivers a clear numeric guideline for supplier selection that the organization can use to support strategy and supply chain growth moving forward.

Significant effort was placed on the development of the AGII questionnaire to avoid confusing or unsupportable values for the following TOPSIS. Also, surveys or scales were used in their entirety whenever possible to ensure maximum validity and reliability of the AGII results. This research finds the AGII to be valid because of the organizational value it provides for which it was designed and reliable in creating the TOPSIS input values needed for organizational decision making and supplier selection analysis, the research problem. Additionally, the use of a multi-quantitative methodological research conceptual framework with a variety of industry experts from across the United States provides an acceptable and reasonably thorough analyses development foundation for the AGII questionnaire.

This AGII questionnaire was developed in a very precise context and is not generalizable outside the industry context as the questions are specific to real estate investing and the types of criterion important for discussion with particular financial suppliers. For a measurement instrument to be used in more generalized applications, it should be rigorously tested for validity (that it actually measures its intended constructs) and reliability (that it measures those constructs consistently) (Ryack, Kraten and Sheikh, 2016). To improve the AGII's criterion validity and reliability, suppliers could be asked to complete a test-retest exercise to calculate supplier answer correlations (Cabanas-Sánchez et al., 2017).

Content validity, the degree which a sample of items adequately operationalize the concept definition (Allvin et al., 2009), was determined using the frequency count survey in the preliminary stages of the AGII creation by having 19 industry experts provide feedback on the relevancy of the concept items. Experts were selected to participate primarily based on their industry experience and knowledge of the real estate investing and/or development context. Participants were also offered the opportunity to provide any additional criterion to ensure appropriate coverage of the essential aspects of the supplier characteristics used when evaluating and selecting financial capital partners. The AGII was designed and implemented based on common ethical principles found in quantitative research. There might be a risk that some of the AGII questions could be viewed as intrusive. However, participants were free to decide whether to answer the questions or participate in the AGII at all as it was, and is, completely voluntary.

Practical Evaluation

The AGII provides many avenues internally for organizational growth and innovation. Using the output of the AGII, in conjunction with TOPSIS, provides valuable internal metrics which helps Apsley & Grand evaluate potential suppliers by sorting, ranking and segmenting. The AGII allows for exciting methods of organizational supply chain analysis on supplier segmentation, marketing and supplier retention to name a few. On a minimal level, a success for the AGII from a practical standpoint is the ability of the AGII to be an introductory ice-breaker for a new entrepreneurial organization to initiate conversations with new financial suppliers; it provides an interesting opening topic that is unique and gives the researcher/founder the ability to distinguish the organization from the very beginning with a memorable offering. Its value only continues to grow for the organization once the supplier database begins building.

Admittedly, the AGII is limited on a few fronts. The Excel based tools are still manually manipulated in some respects with no automation incorporated at this stage. The AGII becomes more robust and automated as the company grows and more funds are made available to hire the necessary programming. The AGII could also have more skip logic built into it to allow the supplier the chance to elaborate on specific questions dependent upon a previous answer. This would supply Apsley & Grand additional valuable information without triggering questionnaire fatigue by limiting the amount of redundant or non-value-add questions for specific suppliers. Incorporating referral mechanisms, instant feedback, and potentially project specific questioning into the AGII and Apsley & Grand Website would also be potential points of future strength that are currently limited by time and resources.

It is important to acknowledge and comment on the positive feedback that was given informally during the surveying from the real estate experts on the concept and action research focus. The experts considered it 'intriguing' and 'sorely needed' within the industry. A few even commiserated with the researcher on the unspoken emphasis on learning through trial and error which can be timely, demoralizing and costly. There is an opportunity for Apsley & Grand to continue this researching effort and begin filling this knowledge void through additional action research loops and projects. Many experts were eager to help provide feedback and indicated a desire to participate in future action research which was encouraging. This response and industry support helps the researcher feel like an integral part of the solution and group, as opposed to a new-entrant outsider that is common for inexperienced entrepreneurs. This psychological reformation is yet another benefit that this action research provides for the researcher; it is a unique value that the researcher can offer as a new member of the larger real estate investing community that gives distinctive purpose and identity.

From the standpoint of an entrepreneurial founder, the AGII was an organizational success by introducing a level of organizational structure, process and onboarding uniqueness for Apsley & Grand suppliers. The mobile-friendly, online portal access provides an easy interface for financial capital suppliers to comfortably and conveniently access. Instead of making the information gathering steps of onboarding mundane, the AGII provides an elicit free feedback loop between the organization and the potential supplier making the process more intriguing and stimulating for both parties. The next actionable steps to follow this research is creating documentation explaining the construction and results of the AGII that are included with the radar map result email to help potential suppliers understand its scholarly foundation and increase its value to the supplier even further. There could even be potential for operationalizing the AGII as a product of its own and leasing the functionality to other real estate service providers to use on their own websites in other markets helping Apsley & Grand grow an additional revenue channel. With the necessary organizational energy and focus placed on the AGII, the potential of the tool to access market share, grow brand recognition and increase the vital financial supplier base grows exponentially. Overall, the AGII is a successful start at building a supply chain tool that helps Apsley & Grand answer a difficult supplier selection problem in an already extremely challenging entrepreneurial environment.

Action Research Evaluation

Now, to reflect on the process evolution and evaluate the action taken is a critical step for the researcher in this action research. It is only through this evaluation step that future action can be designed and triggered. The four checkpoints developed by Smith (2017) is the beginning point for evaluating the quality of the action research performed: if the research process is ethically sound and rigorous; the findings are authentic and trustworthy; the action outcomes were useful in improving professional practice, and; contribute to the academy through testing theory. The research, first and foremost, was ethically sound following all University recommendations and ensuring all participants were treated respectfully. The research was also rigorous in the fact that it was extensive in researching and analysing the different contextual elements while attempting to solve a complex workplace issue for Apsley & Grand. The rigour resulted in the actionable, implementation of the AGII tool and the innovative nominal value output of the TOPSIS ranking metrics which was substantial for the organization.

The results of the AGII are believed to be authentic and trustworthy given the private web-based access, the uniqueness of such a tool used in the real estate context, and the amount of emphasis placed on academically supported scales. Authenticity is incorporated throughout the action research cycle process by “being attentive, intelligent, reasonable, and responsible” (Atienza, 2017); all characteristics the researcher adhered to as much as possible during the process. Additionally, all prompts and questions were included to provide the organization with the best chance of understanding the supplier as an individual without being intrusive, disrespectful, redundant or untrustworthy to maintain the highest level of trustworthiness possible.

The outcomes of the AGII itself and the nominal value outputs provide a multi-faceted useful value in improving professional practice. If anything, the third point Smith (2017) offers in the parameter of quality is the strongest strength of the AGII for Apsley & Grand and for the research as it aids the organization in a breadth of ways. The AGII provides a real-world application of a variety of scales and questionnaires as well as providing new knowledge through the feedback of real estate experts on partnership criterion. The AGII creation and implementation was a great learning opportunity for the researcher and a huge point of organizational growth for the organization itself. Based on these points, the AGII could be considered quality action research and a success for the research and the organization.

The AGII had change embedded within its creation and implementation, and it could categorically be deemed an improvement as there was nothing organizationally available prior. Within the action research lens of evaluation, this research is internally valid since it led to significant organizational changes because of the action research analysis and led to improvement (Adebanjo et al., 2013). For Apsley & Grand, the improvement and impact of this research is visible, tangible and provides momentum for future changes. The internal impact achieved is difficult to deny. And when evaluating action research, external validity is another consideration. Atienza (2017) states that external validity for action research is achieved when the research project is grounded in action and not simply grounded in data. This definition is appropriately flexible when dealing with insider action research problems that may not have goals of generalization at the core of the research. The creation of an organizational measurement assessment tool like the AGII provides extremely valuable insights grounded in action and practical, real-world problem-solving. This study satisfies both internal and external validity conditions since the action research has led to a methodology for suitable supplier analysis and successfully and completely transformed the supplier selection process for Apsley & Grand. Furthermore, Greenwood (2015) argues that validity in action research is merely measured by the degree to which the actions produce the desired outcomes to the satisfaction or the researchers and stakeholders; which in the case of this study, resulted in a satisfactory outcome with an expandable tool that can be used beyond the life of the study itself.

In summary, the action research was a success because the action-oriented goal of creating and launching the AGII was achieved. The AGII, and the action undertaken through its creation, solidifies an in-depth understanding of the intricacies of the investing organization-financial supplier relationship and provides a more robust foundation for future relationships. And even more than that, the organization and researcher were transformed as part of the action researching process by reflecting on decisions made throughout the construction and implementation of the study, by gaining an appreciation for the different problems of the industry, and by identifying the critical partnership parameters prior to forming potentially dangerous partnerships. The action undertaken creates new organizational knowledge, improved company problem-solving capacities, and aids in learning about the proper approach for facing organizational problems which is an indication of high-quality action research (Adebanjo et al., 2013). Ultimately, the greatest take away for the researcher was the personal transformation achieved through a heightened awareness and an amplified appreciation for the both complexity of the relationships involved in the transactional level of real estate investing and the complexity of nurturing a service supply chain of scale for an organization to thrive within this industry.

Organizational Development

It seems appropriate that within an action research study, when evaluating the action taken and discussing the findings of the research, that a quote about action is included. Therefore, Guidice, Carayannis and Della Peruta (2012) provide a particularly fitting introductory prompt for this section: "Action is a necessary element of the learning process, while structure strengthens and propagates the advantages arising from the learning that is gained." For Apsley & Grand to continue its development from an entrepreneurial idea into a real, operating business entity, it must strengthen and propagate the learning that the founder experiences through profitable action. Organizational development tools, interventions and a culture founded upon supporting learning and innovation allow Apsley & Grand to begin scaling the organization to meet its growth goals. However, this growth is a delicate balance between innovation and structure, or freedom to explore new ideas and repeatable processes that allow for consistency in service offering and training. Organizational development is the aspect of the business development that creates suitable structures and procedures for that scaling to occur, especially in organizations that experience faster than intended growth (Achtenhagen, Ekberg and Melander, 2017). For Apsley & Grand in the long-term, the researcher's intention is to focus on structure and procedure in conjunction with creating an innovative culture to balance these two pivotal business development aspects appropriately.

Business development activities like refining the value proposition, searching for new opportunities, tracking the business environment, identifying target customers (which is especially difficult for service industries), securing sufficient working capital, and hiring qualified labour are all vital tasks for the founder to attempt to tackle all within a constrained amount of working time (Achtenhagen, Ekberg and Melander, 2017). Not to mention the fact that the financial situation of the company, and the personal finances of the founder, are synonymous, adding additional stress for the individual attempting this extraordinary feat of creation (Belt, Paloniemi and Sinisammai, 2015). For Apsley & Grand, the focus of this research was primarily on the financial aspects of operating a real estate investing organization as it is a capital-intensive service offering and struggles with market cyclicality that can place the business in jeopardy without appropriate structures and relationships in place. It is important for the founder to prioritize amongst all these business development activities and select which to 'iteratively innovate' and which activities deserve organizational structure development and enforceable procedures. This is where the research findings help provide Apsley & Grand with guidance and addresses a sub-question of the research.

It is important to recognize that for businesses the size of Apsley & Grand, focusing on organizational development, or business development activities in general, can scarcely be separated from usual business activities as growth is the only path forward for an entrepreneurial or small-scale endeavour (Achtenhagen, Ekberg and Melander, 2017). The first major finding of this study in organizational development was in determining the balance between business activities that call for organizational development and those that would be more naturally inclined to innovation. The research and the implementation of the AGII have highlighted the need for structure to be placed around the financial transactions of the organization, but not rigidly around the onboarding and initial formation of the relationship which was counterintuitive initially. For such a financial relationship, it would have seemed pivotal to have a very structured policy upfront. However, the findings indicate that subjective elements and the more human, emotional aspects of individuals should be priority. The AGII is the primary tool used in this area of the business for Apsley & Grand and helps provide support to the founder as a guiding and structural component of the business. It is a tangible piece of organizational progress that helps focus organizational development energy and pushes the momentum forward without too much overbearing structure encumbering natural communication and relationship-building.

The second major finding helps address the research's second sub-question of the ways the different criteria impact the organizational development for Apsley & Grand by highlighting the way the different criteria open opportunities for organizational development in the future. The ability to 'unfreeze the present state to facilitate change' as described earlier by Church et al., (2016) can be guided by these criteria to help promote further integration of the six key criteria into the company service offering and the communications fostered between the company and the supply chain. The present entrepreneurial state receives data, supportive structure, and actionable triggers all from the implementation of the AGII which aids in facilitating the onboarding of new suppliers and new interactions for the organization to express its distinctive value. This is exciting as a researcher, practitioner and a founder given its unlimited potential and the uniqueness it offers for presenting the Apsley & Grand relationship as something more than just a financial relationship, but an offering to help the suppliers as individuals gain deeper insight into themselves on these different parameters. There is the potential to allow the business to help suppliers as individuals grow, reflect and improve their own understandings of constructs like risk, trust, or motivation and provide additional value that can hardly be expected of other real estate investing companies. This is the scholarly, organizational development that can now focus on learning and self-awareness coming through in its relationships, structures and policies. In summary, having a clear understanding of the relevant criteria, and alternatively the irrelevant criteria, helps guide the organization to prompt structural efficiency in influential areas in preparation for quick growth and necessary agility.

Organizational Culture

For Apsley & Grand, the organizational culture is still very much a factor of a solo-entrepreneurial endeavour as an organization with only one founding employee and no others (outside of external supply chain members). Within solo-entrepreneurships, founders focus on opportunity creation and strategic management to define the business venture to ultimately work towards a goal of self-actualization (Belt, Paloniemi and Sinisammai, 2015). This, for the foreseeable future, is the fate of the researcher and of Apsley & Grand; so, what does organizational culture have to do in a business with only one founding employee and why emphasize it through the third sub-question in the study? Because this research highlights that solo-entrepreneurs are the jumping off point for all new venture teams and surely all businesses, at some point, started as an idea and endeavour within the mind of its founder. These nascent organizations set the foundation and path for the future during these solo-entrepreneurial beginnings with the external supply chain, industry, professional associations, and the all-important market full of potential customers and potential employees. Therefore, Honig, Liao and Gartner (2009) stress that it is important for new organizations to "work towards constructing a collective identity through cooperative action for the purpose of legitimizing their activities" with these key external stakeholders; this legitimization must come from organizational mission and culture as core tenants for what the organization stands for and represents. This again is why this research believed the organizational culture deserved to be emphasized and addressed as a sub-question: to intentionally and purposefully focus on legitimization and collective identities from the very beginning is critical for the growth of a sound, solid organization and therefore a reliable and strong supply chain.

For Apsley & Grand, this research has helped place at the centre of the organizational culture a focus on organizational learning through the development of the AGII and the dependence upon literature for support, guidance and inspiration. By conducting action research within the context of Apsley & Grand, the researcher has reinforced the duality of action and structure within the business. As mentioned previously, organizational culture for this research is defined pragmatically as a tool used to encourage commitment and achieve organizational goals (Ortega-Parra and Sastre-Castillo, 2013). It is with the organizational culture that a company, especially a bourgeoning business like Apsley & Grand, can signal the kinds of social relationships that mimic the founding entrepreneurs' tendency for innovation (Guidice, Carayannis and Della Peruta, 2012). To encourage commitment to organizational learning, it is important to recognize the organizational learning process as an arranged equilibrium that on one end emphasizes action while on the other emphasizes structural consolidation (Guidice, Carayannis and Della Peruta, 2012). This study exemplifies Apsley & Grand's propensity for scholarly pursuits, self-improvement, and a heightened respect for action and innovation. In other words, it is through the action found within this thesis that the founder indicates to future customers, suppliers and employees where on the organizational learning pendulum Apsley & Grand resides, which is well on the side of innovation and action.

Having said all this, the sub-question for this research was not only focusing on the organizational culture, but more specifically on the different insights provided by the criteria and the way they impact the culture of the business. The researcher can safely make three claims on this account. Firstly, the result of trustworthiness and motivation being the most heavily weighted and found to be highly relevant helped reassure the founder that this is, in fact, the right industry and right business for pursuit on a personal and professional level. With the financial turmoil of the Great Recession still fresh in the minds of many global citizens, real estate has a negative connotation and a dangerous element to many without experience or networks to support their introductory activities. So, by focusing on trustworthiness and motivation with intentional focus per the results of the research findings, it provides a measure of self-confidence and reassurance for moving forward with the organization.

Secondly, the research findings demonstrated that the criterions found financial matters to be almost irrelevant to some experts which was unanticipated for such a financial relationship context. This helps reinstate within the organizational mission (as well as culture) of Apsley & Grand that money is not the most important focus; that the focus can be on community, historic preservation and sustainability to promote a positive future and still build a thriving business within this industrial context. The AGII, and the reflection the researcher experienced throughout this thesis, has reinforced this realization as central aspect of the organization as a non-negotiable element where money is not the primary focus and that the bottom-line has embedded aspects of social and environmental return as well as financial, and that all ideal stakeholders strive to embrace this culture of humanity and conservancy in partnership with Apsley & Grand.

And lastly, the criteria remind the researcher that this industry is very much a 'people' industry that is fundamentally about forming relationships with individuals, unique in their experience, perspectives, intelligence, financial situation, and values. Each person has an individualistic understanding of their role and their purpose, and it is the responsibility of Apsley & Grand to work with these stakeholders, internal and external, to help clarify how the organization can help them learn, grow and innovate within these identified purposeful roles.

Researcher/Solo-Entrepreneur Presence in Research Findings

"Action researchers often experience a complicated research process, not only when conducting their research, but also when trying to report their processes and findings" (Robertson, 2000); this was the case for this researcher when trying to accurately describe the learning, growth and new knowledge developed throughout this action research project. The three action research cycles all played a critical role in pushing the researcher through the researching process, the thesis writing process, and the critical reflection necessary to incorporate the level of insight for the qualitative research findings to be illustrative of the researcher's development as a solo-entrepreneur and a researcher. The organizational culture and the development of Apsley & Grand as an entrepreneurial firm helped demonstrate the qualitative monitoring activities by embedding within the research problem both a broader view of the organizational context and the relationship the researcher as a solo-entrepreneur had within the ultimate research findings. Moreover, the application of the ANP and TOPSIS quantitative methods within this research methodology provided the structure for the generation of the AGII but also provided the psychological structure for the tactile progression of Apsley & Grand as a firm within the mind of the founder.

The AGII and the completion of the interweaving scorecard coefficient values of all three methods together provide the researcher the knowledge and insight on how to proceed with objectively communicating with and selecting capital suppliers. This was knowledge that was otherwise impossible for the researcher to gain outside of practitioner experience which is a huge contribution of time-saving learning and understanding for a nascent firm. Specifically, understanding the quantitative emphasis on Trustworthiness and Motivation helps identify and clarify the intrinsic value in spending time focusing with suppliers on ways of gathering a clearer picture of each individual supplier's scoring on these criteria. As a solo-entrepreneur, nothing can be as valuable as knowing what is important to spend very limited resources of time and energy focusing one's attention on when making such critical partnerships. And given the fact "that micro and small firms usually experience financial constraints, they can gain competitive advantage and achieve success by deploying their social competences" (Baluku et al., 2018) in a focused and goal-oriented fashion. This action research and the resulting findings aid Apsley & Grand immensely in supplementing the financial limitations with greater awareness of important subjective and social dynamics at play with partners.

Robertson (2000) explains that action researchers, when performing action research within their practitioner context, can benefit from the findings even before the research report is completed as action research is uniquely able to deal with issues and problems specific to the practitioners at the time; this was the case for Apsley & Grand by providing momentum, confidence, reflective structure and insights throughout the researching process. Throughout the quantitative analysis step of conducting the research with ANP and TOPSIS, the researching process resulted in something unexpected: confidence. Confidence for the researcher grew exponentially as the researching process and action research reflections progressed. Even though there is a chance that action research reflections can have a negative effect on researcher's self-confidence initially (Robertson, 2000), for this research, the momentum and the interesting insights found throughout the analytical and reflective parts of the study helped the researcher on both an academic and professional level by reinforcing the capability to confidently speak to capital suppliers about important and non-important partnership criteria with statistical backing. In other words, the quantitative data offers Apsley & Grand added confidence in ability and confidence in knowledge not necessarily gained through years of experience, but years of critical researching and reflection which is valuable as well.

The surprising change in perspective the researcher experienced throughout the implementation and analysis of the different quantitative methods was the reduction of intimidation being replaced with increasing intrigue in the results. This research prompted the researcher to want to carry out additional surveys with the same real estate experts that participated in the ANP and Feasibility exercises on a variety of other topics like initial development financing, challenges in partnerships, challenges facing the industry for new-comers, etc. For the researcher, coming out of the exhaustive and exhausting process of a doctoral thesis, it is encouraging to be motivated to perform additional research projects and be excited to do so. This research is only the beginning of much knowledge that is yet to be acquired by the researcher and the Apsley & Grand organization. Ultimately, these research findings are both the end of this study and the beginning of the researching impetus for the solo-entrepreneur to continue building, learning and reflecting. And this could be seen as a signal that the researcher has reached a level of reflexivity by recognising “that the knowledge of the world cannot be advanced apart from their own knowledge of themselves” (Robertson, 2000), that the research is not only aware of the path ahead but is looking forward to actively participating in the understanding that will emerge from the raised awareness of the forthcoming experiences. This signal is investigated further by reviewing the specific reflections that the researcher experienced and the moments of confusion, clarity and consideration that were experienced as part of the researching lived experience.

Research Journey Reflections

Instead of artificially forcing the researcher’s action research monitoring journal reflections into a more conventional “Diagnosing, Action Planning, Action Taking, Specifying Learning, and Evaluating” action research cycle format (Abrahamse and Lotriet, 2012), this thesis chose as an alternative to reflect and demonstrate the action research monitoring in a more authentic fashion of the journey itself and how it was actually incorporated into the research: as sporadic sparks of knowing and ‘Ah-Ha.’ This is done as a nod towards the “pragmatic ‘real world’ focus of Action Research” (Abrahamse and Lotriet, 2012) in the hopes that it comes across genuine and not pre-determined, orderly or sequential by any means. As highlighted by Ramsey (2014), it is important for action researchers to recognize the critical cognitive difference between being *aware*, calling awareness to the forefront of conscious learning of the ideas at play rather than claiming to truly *know* what the opportunities, risks, contexts, experiences and reactions are that one will face. This is especially interesting for reflective cycles within the context of entrepreneurship as it draws awareness to the lack of experience and required level of determination towards the new business context the entrepreneur is working to generate by interacting with the world and therefore innovating a new world into fruition through their actions (Ramsey, 2014).

The researcher took note of many memorable instants of awareness and action throughout the researching process where ‘lightbulb moments’ sparked exciting and motivational breaks of clarity. These action research reflections are meant to be representative of the monitoring activity the researcher undertook by reflectively stepping back from the act of researching and cognitively being aware of the process itself and the researcher’s role within that process. This is even more important for a researcher studying within an entrepreneurial environment as many components of the organization are still yet to develop into reality and much remains within the founder’s imagination requiring a heightened sense of mindfulness while engaging with the ephemeral world.

For Apsley & Grand, the journey on becoming a scholar practitioner was not only an experience in adding to my practitioner perspective by forming an identity as a researcher, but also as an entrepreneur. This identity triumvirate completely reconfigures the way the researcher interacts with the world and the way the researcher views their place in that world. Throughout this action research problem solving journey, the researcher had the exact same reflection as Ramsey (2014) while on a similar journey in that “the answers were never complete, but, rather, always helped me notice new options or required me to investigate different contexts or see particular people.” The people within this research included the various real estate experts, the researcher’s husband and support network, and many within the academic community helping clarify points of confusion and helping evolve the research past an entrepreneurial musing into a more robust research exposition.

The following reflections have been placed into three themes and were selected to help demonstrate the different concepts that were intermittingly unfolding throughout the researching process. It is with these first-person journal reflections that the researcher hopes to elaborate on not only the process of deliberation experienced on this journey, but also highlight constraints encountered and key decision points that were consciously, or in some cases subconsciously, encountered.

The Research Process Theme

Truthfully and naively, the researcher did not recognize that the 'action research' aspect of the study had even begun until much later into the literature review process. All the pre-work of constructing the thesis proposal including decisions made between different topics, methodologies, focuses and perspectives was thought to be inconsequential to the actual act of 'Researching' with a capital 'R' that was surely yet to begin. It is only now, in looking back, that the researcher understands that this early developmental time was an important decision-making feature of the research activity. It laid the foundation and set the ultimate path for the research that was to follow, and the researcher was innocently stumbling through that process without the appreciation for its gravity. Below are some of the occasional points of reflection from the early days of researching which started around November 2016 until the conclusion of the research in January 2018.

April 3, 2017

"At this point in the process, I have been comfortable doing my literature review and am in a place where I am trying to determine who are appropriate interview candidates. I find it important to try to stay grounded in academic research and avoid practitioner texts and magazines as much as possible. Even though Real Estate Investing, especially through REITs, is heavily studied, it is not as particularly scholarly when focusing on the individual practitioner level. I believe this is due to a lack of understanding of how involved many people, especially in my generation given the proliferation of HGTV and Real Estate Investing guru mantras, have become and that this will become a more studied field in the future. I consider myself on the leading edge really and hope that my studies are beneficial to others that may follow; to help them avoid bad partnerships that can demoralize and destroy confidence.

I then wonder if that is what my research is really all about, not only helping me and my own company, but something more personal for the people hoping to use real estate investing to help supplement their income and build a foundation of wealth to help them into retirement. I certainly know that is why I am starting Apsley & Grand, but I do not know if this is something that should be incorporated into my research at this point. How personal and qualitative should this research attempt to be; how quickly can the focus and the chosen methodology diverge if I attempt to incorporate something so emotional as personal confidence (or is that something that should be included as a criterion?)?"

This post importantly admits the plethora of questions still bubbling up for the researcher well into the researching process of both the research and the organizational purpose and mission. The entire post was included to highlight how much mental gymnastics occurred in the early months of literature review and it was during this time that the questions became overwhelming and focus was hard to maintain.

APRIL 19TH, 2017

"I have spent the past few days trying to strategize how to get my momentum back on this project and have done so by updating my Gantt chart and re-scoping the project to see if it is still feasible to expect to be able to graduate next Summer. Hopefully I will be re-energized soon but am definitely beginning to feel the weight of this process and the expectations of becoming a "researcher" instead of simply a lowly practitioner, or (gasp! Heaven-forbid) a consultant!"

Fortunately, the researcher was able to gain momentum by setting very specific, time-sensitive deadlines by having surveys ready for real estate conferences that were upcoming. This provided small, but meaningful milestones which helped move the project forward.

JUNE 1ST, 2017

"Today, I launched the Frequency Survey by posting on the Keyspire forum [Real Estate Membership Platform] and on LinkedIn Group websites like ULI and Real Estate Investors. I had Dan [Researcher's Husband] test the website out as I was not getting any responses and it appears to be working through the mobile and website; so now I will just have to be patient.

I am hoping to get at least 20 responses but am planning to end the survey on 4th of July weekend so I can begin the ANP survey shortly after. I am a little bit behind on my overall timeline, so I hope things go much smoother and quicker moving forward, but I doubt they will as I am spending too much time working and not enough time on my studies. It has been very difficult to find both the motivation and the time necessary to get my Doctorate writing complete, so I am definitely going to have to work out some kind of solution soon."

It was this post that prompted the researcher to begin working on a solution for a leave of absence to focus exclusively on completing the research and thesis writing for 12 weeks. It was only when reflectively recognizing that things were slipping, and that motivation and time were critical aspects for reaching graduation, that priorities were shifted and a solution was created. Surprisingly, taking a leave of absence at the end of the year because of the thesis provided a much-needed respite and was important for not only progress but also mental health and rejuvenation in other aspects of the researcher's personal life.

JULY 2ND, 2017

"Completely reformatted the ANP structure - AGAIN. There has been a lot of learning these past two days as far as the criteria and the structure the research will be taking to help eliminate as much unnecessary pairwise comparisons as possible. My goal is to get good accurate information and not overcomplicate something that is relatively simple."

This post was important to include as an acknowledgement to the frustration that can be caused by the learning and researching process. Once the frequency count survey was complete, the next step was to create the ANP control structure. This is an important step in the ANP methodology as it dictates the pairwise comparisons required to do the ANP calculations. It was hard as a novice to construct this network properly and took three different reiterations until it appeared appropriate enough to move forward. It illustrated the struggle between practicality and data-gorging which required pruning of the criteria and the corresponding pairwise comparisons that would have been needed. Thankfully, this exercise helped keep the scope of this aspect of the research manageable for future phases and helped keep the AGII from expanding too far outside of its practical application as an onboarding introductory tool.

OCTOBER 30TH, 2017

"In researching for the trustworthiness criterion write-up, I started to recognize that I never really realized how important or multifaceted trust as a concept is. Reliability, dependability and trustworthiness being on my initial frequency count survey indicates my naivety with the concept and it was only after all three criteria came back at 100% that I was prompted to investigate deeper. What I should have done prior to launching the frequency survey would have been to do a more complete literature review process and attempt to write descriptive sections then.

While reading Kusari, Hoeffler and Iacobucci (2013) I learned about the different elements of trust being competence and benevolence. It makes perfect sense that competency and benevolence would be different *dimensions that make up trust and would need to be separated. I wonder how I can incorporate this into the AGII appropriately? If possible? Also, how to build in the dimensions of relationships life cycle into the AGII as well."*

This post shows the advancement of the thoughts the researcher began experiencing. Over time, thoughts became less self-doubtful and less erratic and resulted in a more thoughtful recognition of higher-level processing. This post highlights something special; the researcher begins naturally cycling through an evaluation of the different actions that could potentially result from this new information and reviews solutions that could occur from this learning. It was also during this time frame that the term "soul-searching" was associated with action research that helped put a new context around all the different processing that was occurring for the researcher as student, employee, founder, entrepreneur, and practitioner. Kemmis (2010) proposed that action research must acknowledge that changes are not entirely internal and that it can also bring about changes in the way people relate to each other through actions and interactions. The researcher began to experience and recognize this change of social interactions through more critical conversations, perspectives and actions. It was a very encouraging and satisfying point of the researching process when this evolution became more apparent to the researcher.

OCTOBER 31ST, 2017

"Combining the risk appetite and risk tolerance into one prompt confused the actual criterion and should have been split up. Same goes probably with collateral capacity and makes it hard to know what it was about the criterion that the experts were indicating their agreement with and why… it was a bad decision that would need to be improved upon in future research to avoid combining topics like this again."

Critically, the researcher recognized an improvement point in research construction that is unable to be modified this far into the researching process but is a learning opportunity for future researchers to avoid in their own applications. It provides an opportunity for strengthening future studies when the AGII is to be modified.

Apsley & Grand Product Offering Theme

A particularly key moment of insight was on July 30th, 2017 at the discovery of the term 'customer duality' that had become a point of impasse for the researcher. The discovery of the terminology necessary to help illustrate this unique aspect of service industry helped clarify for both the research and the organization the concept of the financial suppliers being both customers and suppliers simultaneously. It is easy to underestimate how important and pivotal these moments of discovery are throughout the researching process, but the hopes with this section is that it provides a level of transparency on the research that has occurred and perhaps an opportunity for learning for other practitioners that aim to use this research experience within their own real estate investing workplace contexts.

April 10th, 2017

"I have been in communication with two investors for Apsley & Grand. Both are very interested in investing in Detroit and yet I am very hesitant to move forward with either of them for a few reasons. One is my lack of experience which is ironic. Two is because I am not sure what questions to ask them or how to determine if they will be good partners which is what I hope the AGII will help me address."

This beginners' hesitation is included to show the entrepreneurial aspect of this research and the lack of confidence a solo-entrepreneur can struggle with amid starting a new endeavour, new industry, new process or new organization. It was an added conflict that the researcher experienced during the research and is important to acknowledge as it compounded the level of self-doubt and added additional trepidation to the research process. On the other hand, it highlights the appropriateness for the organization of the research problem solution in the AGII and how the research not only provided a tangible tool, but most likely also provided a sense of confidence the founder obviously needs to start growing the business.

July 30th, 2017

"All the clues indicate that people do not realize the American dream has changed and is changing. More people do not want the hassle of the house and instead want a home that meets their needs and are willing

to pay for that. This will increase the need for people to purchase and maintain these properties for people moving forward. They do not want to do it themselves. They want the flexibility a lease provides and having a property manager. Apsley & Grand will help by repurposing these properties into these dream projects with the sustainable amenities people are looking for and all the things that will make these properties recession proof, while always maintaining the soul of historic properties which is important to the mission of the company."

This post simply shows that the company's product offering and the way Apsley & Grand fits within the marketplace was still morphing even well into the research process. This took more mental capacity from the research while switching gears constantly between all the different perspectives of researcher – entrepreneur. The research process prompted more dedicated time to think and process while simultaneously taking time and energy away from the business; it was a delicate (and exhausting) balance throughout the entire process.

Research Perspective Theme

It was not until the end of the researching process that the researcher had an important "Ah-Ha!" moment and finally recognized why the literature emphasized epistemological standpoints and perspectives when reviewing the research proposal. The researcher misunderstood the importance and considered it merely a terminological checkbox that needed to be clarified. The following posts highlight the maturation this perspective underwent.

July 22nd, 2017

"Future research could include a more qualitative follow up… ask the decision-makers why they believe so strongly in their criteria selections. From the results of the frequency count survey, it is interesting how subjective these criteria all are, maybe it is due to my personal paradigm of being more constructivist, but in a world heavily focused on quantitative things like credit scores, accredited investor status and financial wealth value being prioritized, we have lost sight of the "good people" qualitative parameters that really should be emphasized in business."

This post highlights the constructivist terminology as an after-thought, not a central focus of the research or of the researcher's purview. It also highlights the researcher's tendency to prefer qualitative aspects and a slight element of distain for quantitative criteria's supposed simplicity which is surprising and ironic given the final research methodology was mostly quantitative! It nevertheless opens opportunity to initiate more qualitative conversations with the suppliers and kicks off the relationship-building process.

OCTOBER 8TH, 2017

"The time is long overdue: Is this research positivist or constructionist in nature - using a survey to help classify people seems positivistic? Perhaps the alternatives were wrong; the AGII does not need to "Accept or Reject" being so definitive but could become more constructionist focusing on the relationship-formation more so than a positivist "yes or no" reality. The AGII opens conversation and provides value to both the company and the supplier similar to other personality examinations. So, would all personality examinations be classified as positivist? This tool will allow actionable loops and continuous long-term monitoring of investors for lifetime cycle value and customer marketing purposes, focusing on the relationship and the longevity of that relationship seems to help construct a real interaction between two humans, two entities. By using the AGII to help clarify this goal and help segment investors after they are accepted will not only provide clarity in messaging, but organizational culture and purpose.

Apparently, the time has not come as I am still unsure, but it appears that this research has a positivist tendency throughout which was unintentionally done and is seen in things like using deterministic tools to segment individuals through Accept and Reject options."

This was an important post and point of progress for the research as reflection on this critical foundational point finally began making more sense to the researcher. Why it was so important to identify individually and as a researcher was because it starts leaking out throughout the research through research design, or specific adjective or verb choices. Understanding this can help control the infiltration in a more professional, intentional manner in the research.

OCTOBER 19TH, 2017

"While coming across the following line from one of the Organizational Development articles I was reading tonight, "The underlying assumption of the dialogic OD approach is that organizations change by changing

the conversations," I realized that I really need to clarify my intentions for this research whether it is constructionist or positivist? While scalability cannot be sacrificed for meaning-making and discourse, disruption and innovation must always to be cherished. The AGII is but one tool in the beginning of many tools to help clarify internal and external culture. It could be a deterministic extrapolation, a positivist defining tool for supplier segmentation with rigid "Yes-No" parameters. And yet, for me, Apsley & Grand's AGII has become more of a communication tool at its core, an organizational culture and development efficiency procedure that allows one to change the conversation towards promoting positive behaviour and customer service management by highlighting key qualities. The organization is not necessarily, nor is the research for that matter, necessarily focused on data analytics and using tools as such, but more on introducing concepts in a manageable and systematic fashion to allow concurrent scalability and humanity.

So, scalability in both deterministic metrics and scalability in conversation promotion and relationship building. Leads me to wonder, after all this work, was such a positivist quantitative methodology appropriate if the true goal is communication? The research questions were addressed far better than the researcher imagined possible, but maybe a new research question has emerged focused on organizational communication? Nevertheless, the AGII works exceedingly well as an introductory tool; the qualitative constructionist elements are built into the culture around these tools for clarifying communication and expectations internally and externally. Can research have elements of both positivist and constructionist within them and still be clear, accurate and valid? For the AGII is both a tool for understanding and predicting simultaneously."

To the researcher, this was one of the most important posts of all the action research reflection journal posts. It shows how advanced the reflections had become by the end of the research and the growth the researcher had experienced. It also shows the struggle that still raged between the different concepts; the post could even be highlighting the growth yet to be experienced. Perhaps it is most important to acknowledge the conversation itself, the significance of having this type of internal dialogue and the fact that growth and learning are still necessary to provide further clarity in not only this research, but in all things.

NOVEMBER 18TH, 2017

"I must remember that the AGII is an introduction and 'investor indicator,' not a full blown psychological analysis. While reading through the survey questions, I realized that if I had wanted to make something like this tool as solely a practitioner, I would have thrown some survey questions together, maybe googled for an hour or so and that would have been the extent of it. I would not have had the time, patience, or wherewithal to do so much academic digging and reflective thinking about why those questions, why those criteria, why that order, etc. It made me really realize in that moment what the idea of being a scholar-practitioner really means. It requires an extra level of intention and intensity outside of what practitioners

would normally require. It requires extra criticality in the action that I am producing and putting my name behind because as a practitioner, I would not know any better about survey questions and metrics and the whole process… but now as a scholar, I am expected to (and do) hold myself to a higher level of comprehension and output."

While pushing through to complete the thesis, it became apparent just how mentally challenging this process truly is and helped justify why scholars have such pride and protective tendencies toward the concept of "research." This post speaks for itself of the awakening the researcher experienced as to exactly why scholar-practitioners must take research activities so critically and seriously. The level of responsibility embedded in the title of 'Dr.' finally *clicked* while the researcher reflected on the research process, the outputs and the prideful accountability they endowed upon the successful graduate.

In conclusion, these journal reflections illustrate the intermittences of the researcher's individualistic improvements within the action researching process. The reflections highlight the transformation from practitioner to scholar, from industry outsider to new member, and from practitioner to solo-entrepreneur. Being able to interject these instances of reflection into the research process provides the researcher the opportunity to preserve these experiences and reinforce the gravity of the parallel moments of progress on the more personal, individual level. It is easy for the focus and resulting research to become impersonal and appear simplistically structured. And so, it is through this type of inclusive action research monitoring vulnerability that the researcher can introduce the humanity that is more representative of the real world facing practitioners and the true messiness of research.

Organizational Impacts of Researcher's Entrepreneurial Journey

It is significant as an entrepreneur performing action research to highlight the transformative experience of building a new world out of the current. Modern entrepreneurial researchers emphasize correctly that "entrepreneurs pursue an imagined future 'as if' it is real to exploit contingent experience and bridge the gap to an 'unknowable' future" (Selden and Fletcher, 2015); this section details this entrepreneurial researcher's personal pursuit. Entrepreneurial journeys produce value for others and are fueled by the entrepreneur's innate belief that by producing value for others, they are producing values for themselves (McMullen and Dimov, 2013). By transforming the potentiality of opportunity into a new business, Apsley & Grand produces values for its founder, its suppliers, its community and its stakeholders.

Currently, at the start of Apsley & Grand as a solo-entrepreneurship, it is important to clarify that an individual tends to acquire entrepreneurial awareness before actively experiencing entrepreneurial behaviors for themselves (Newbery, 2018). The researcher considers this research to be an act of acquiring critical awareness into an important facet of Apsley & Grand's future functions which is part of the overall entrepreneurial journey. The awareness being two-fold: awareness of the inner arcs of attention, of how the founder makes sense and responds to the entrepreneurial environment which is a new space; and awareness of the outer arcs and the way the actions of Apsley & Grand as represented by the founder are effective in the entrepreneurial context with stakeholders and the marketplace (Ramsey, 2014). By presenting the AGII and this research to the outer world, it takes the entrepreneur and the organization another notch farther along the entrepreneurial journey. It was an important step from the internal into the external that serves as a source of proof entrepreneurial intent and provides momentum in this early stage of entrepreneurial identity formation.

Apsley & Grand was impacted by this entrepreneurial journey by exhibiting the ongoing activities supporting the researcher and founder's entrepreneurial intent through elaborating upon, refining, changing or even discarding different strategies, to test the viability of the underlying business idea while addressing unforeseen problems through a process of discussion and interpretation (Selden and Fletcher, 2015). For example, the journal post July 30th mentioned earlier, discussing the product offering that Apsley & Grand is pioneering, was a key moment of growth for the organization by refining the value and strategic organizational offering underlying the entire business model. It was only through constantly changing and adapting that Apsley & Grand formed from an entrepreneurial idea into a business plan and a viable entrepreneurial endeavor; this research helped that refinement and provides the impetus for continued future adaptations and actions.

Future Organizational Actions

Specifically, this research has promoted some very specific action items as continued entrepreneurial intention is expressed for Apsley & Grand. Primarily, with the completion of this research, the researcher has the confidence to leave full-time employment and focus completely on developing Apsley & Grand further which is a huge moment of accomplishment. Additionally, to support the AGII further, a new emphasis will be placed on building supporting marketing documentation and advertising the benefits of the AGII for future suppliers. Promoting a larger online presence will help the organization improve the current situation and build recognition and gain traction online. Incorporating Apsley & Grand through a legal entity to open business bank accounts and more formalized legal structure will also be something to follow this research as a way of continuing to legitimize the business operations for the marketplace as well as the researcher psychologically. Finally, a major action item will be to begin onboarding financial capital suppliers and introducing them to the business culture and the business products that Apsley & Grand offers through real estate projects kicking off; bringing value to the market will be the ultimate future organizational action that will propel Apsley & Grand into tangibility. All of these forthcoming actions are the direct result of the researching process and the researcher's journey of awareness, investigation and reflection which provided the founder the confidence to believe in the opportunities and value of Apsley & Grand more than ever before. The following chapter will continue to highlight the significance this research has had on the researcher, Apsley & Grand and the transformation they both have undertaken.

Chapter 6: Significance of Research

This research explored the supplier selection problem real estate investing organizations, particularly small-scale non-institutional, face when attempting to gain access to financial capital outside of friends and family networks by forming partnerships with potential capital suppliers. It also sought to construct a tool that facilitates communication and supplier selection evaluation processes for Apsley & Grand, the real estate investing organizational context, as a central aspect of the action research element of the research methodology. Within supplier selection multi-criteria decision-making problems, supplier selection criteria are pivotal. And this foundational fact led to the research problem of determining the best approach to evaluating and selecting financial capital supplier partners in a strong, reliable service supply chain for Apsley & Grand. This prompted the research to also explore further questions, namely, how does the identification of individual criteria of potential suppliers impact organizational development and organizational culture?

Given the duality of financial capital suppliers being simultaneously the supplier and customer for real estate investing organizations (Baltacioglu et al., 2007), this contextual supplier selection problem is uniquely a service supply chain management problem. This research provided insight into this limited scope of literature and highlights the need for further research in the service supply chain sector as it continues to account for a growing number of up-and-coming entrepreneurial organizations. Nevertheless, the research proceeded with a frequency count survey that could verify that all appropriate criterion for financial capital supplier selection had been gathered from a review of the pertinent literature and helped determine the six primary criteria that were most relevant within the real estate investing context. This preliminary exercise alone provided helpful organizational knowledge for Apsley & Grand to understand the industry in more depth and clarity around the supplier selection process itself. Using these criterion relevancy findings, the research was able to add significantly to the insight through the application of ANP analysis and additional expert involvement. The expert pairwise comparisons identified that trustworthiness and motivation were most important criterions when determining potential supplier suitability; and yet, this finding is intuitive when remembering the fact that these partnerships between the investing organization and the financial supplier are ultimately relationships between individuals.

The most momentous action following the ANP surveys was the creation and implementation of the AGII that not only allows for innovative supplier onboarding, but also gives Apsley & Grand the opportunity to deliver personalized feedback to the potential supplier in the form of a radar map scorecard. Having a unique tool like the AGII affords the company an introductory talking point, an explicit service for new suppliers, and an internal cultural tool for streamlining communication and promoting consistency in supplier selection and supplier segmentation. This memorable initial interaction is just the starting point for the relationship building process as a major competitive advantage that the organization can offer potential partnerships.

The research continues by adding a supplementary layer of TOPSIS analysis that uses the ANP and AGII results to calculate unique supplier ranking scores. This internal supplier selection analysis supports the organization in identifying the most appropriate and ideal suppliers which is of significant value to the organization in addressing the larger scope problem of service supply chain management. Furthermore, this researching has resulted in not only the tangible output of AGII and TOPSIS but has instigated a greater appreciation for the humanistic aspects of supplier selection, relationship building and organizational growth. Apsley & Grand can cultivate further upon this new foundation and motivation for limitless further organizational action with both internal and external stakeholders which is truly invaluable for a solo-entrepreneurship like Apsley & Grand.

Implications for the Study and Practice

Given the size and complexity of real-life decision-making problems, it is important for organizations to develop decision-making processes to assist in these pivotal activities. This study was able to contribute a much-needed decision-making tool for Apsley & Grand, and this decision-making tool for supplier selection within the real estate investing context, to the researcher’s knowledge, is the first of its kind. With the aforementioned research structure, the proposed supplier selection model differs from present financial capital supplier selection literature and provides new decision-making options for investing organizations facing similar multi-criteria decision-making problems. By following this methodology, this significantly increases the organization’s decision-making consistency and efficiency by calculating comparable values for individual potential suppliers as part of an overall supplier selection process. It permits supplier selection conclusions to be made within a shorter period with less emotional or biased decision-making infiltration. Using computational techniques like ANP and TOPSIS helps organizational employees and practitioners analyse, envision, reason and deliberate through real-life problems (Andrienko et al., 2007). The selection of the ideal financial capital supplier necessitates flexibility given the uniqueness of industry and context which this research methodology allows by adjusting any of the frequency count percentiles, ANP interdependencies or structures, or the closeness coefficient thresholds for supplier selection or rejection. This study also epitomises how academic theory can be practically used in real-world organizational problem solving and helps not only address supply chain strengthening, but also promotes organizational growth and development and ultimately strengthens an organizational culture based on action, reflection and learning.

CONCLUSION

This thesis is a contribution to research in two emerging fields: real estate investing and service supply chain supplier selection. To explore a multi-criteria decision-making problem like supplier selection, it was necessary to define what was important when selecting financial suppliers within a real estate investing context. With such a broad, complex topic, it became imperative to incorporate a preliminary survey with industry experts to ensure appropriate criterions were assimilated in the scope of the subsequent research. The research detected six relevant criteria for financial capital supplier partnerships to emphasize during the evaluation and selection process: trustworthiness, responsiveness, motivation, collateral/capacity, risk tolerance/ risk appetite, and quality of past experiences. Determining these six subjective criteria as important within this financial context, for not only the organization but also the general industrial business context as well, was a major contribution.

It then became possible after the frequency survey to construct a quantitative analytic network process decision-making control hierarchy and its corresponding pairwise comparison survey to gather industry expert opinion on the importance of these criteria when accepting or rejecting potential financial suppliers in real estate investing transactions. The use of ANP in this context has not, to this researcher's knowledge, been previously done. With these results, it was found that motivation and trustworthiness were the most important criteria to emphasize when forming these partnerships between the financial supplier and the real estate investing organization. And with this information, the organization being studied as a core tenant to this research, Apsley & Grand Real Estate Investing and Development, was able to construct and launch an online, introductory service tool called the AGII, which quantitatively assigned the intensity of each of the six criterions for the individual potential financial suppliers. This actionable, tangible output of the study delivered instant value for the organization as a tool with both internal and external purpose. It prompted the researcher to think differently about organizational development and organizational culture with the AGII as a foundational aspect of communication, market segmentation and supply chain management.

With the financial supplier AGII results, nominal outputs are generated with a TOPSIS analysis for each supplier to rank the most ideal suppliers from the least ideal with clear comparable double-digit values. The TOPSIS output permits long-term supplier relationship analysis and generates opportunities for expansive use of the AGII for supply chain growth and reinforcement. The AGII is a great example of organizational researching action in a practitioner setting. By using online surveys to collect a variety of industry expert opinions, new industry-specific knowledge pertaining to the relationships of small-scale real estate investing organizations was gathered. Additionally, using the lens of action research monitoring, the study also introduced more reflective observation into the research process itself and presented the practitioner-scholar-researcher dynamic in a new context of a reflective, learning and action-based representative of the organization within a collaborative market of stakeholders, suppliers/customers, and future employees.

Limitations and Future Research

The research was limited by certain factors which affected its ability to be generalized in other contexts and that are worth recognizing. Unavoidable cognitive and motivational biases from the individual industry experts are likely to be present in the weighting method of the ANP analysis (Sodenkamp, Tavana and Caprio, 2016). By diversifying the set of experts in terms of industry focus, expertise and providing a clear, easy to use pairwise comparison online format, it is expected that the ANP analysis is not over-weighted incorrectly on specific criterion over others and is accurate enough to satisfy the purpose of this research. Nevertheless, what the online format offers in convenience and user-friendliness, it lacked in feedback opportunity to clarify inconsistency and made it nearly impossible to modify responses by limiting access to the respondents after the fact, a similar limitation faced by Gupta and Tiwari (2016).

Harris (2014) instructs that within a quantitative research context, two errors researchers must be cognizant of are sampling and measurement errors. This research may have introduced sampling error bias by both having only ULI member survey participants due to limited industry access and willingness of participants and by potentially not introducing additional participants increasing the sample size to wider audiences. Measurement error, a measurement of the extent to which the results can capture partnership criterion or the construct the quantitative research was concerned with capturing (Harris, 2014), was not considered a large infiltrator given that the research results appear to have logical and defendable conclusions in keeping with practitioner knowledge. Additionally, Kelly et al. (2017) warn of potential bias that can penetrate surveys as participants may protect themselves from feeling negative about their financial habits when reporting on such sensitive and personal variables. There is a chance that this protection mechanism and self-deception perhaps could impact and limit the viability of the AGII results and is something Apsley & Grand and the researcher acknowledges.

The study was limited by time and project scope given the constraints of the thesis program as well as the degree of experience of the researcher in both the industry and the act of researching itself. The scope of the project was certainly controlled and contextually specific, but it does nevertheless constitute valid action research in its design, execution and ability to delivery satisfactory organizational-improving results. It also contributes to more general knowledge in the real estate investing partnership, service supply chain, and supplier selection realms by furthering the application of the quantitative decision-making techniques into more organizational contexts.

The researcher does not therefore argue for the generalization of the findings of this research beyond the thesis process itself but does find that it can contribute to the limited available literature on real estate investing partnerships on the individual, small-scale level and potentially contribute to the service supply chain partnership literature as well. By incorporating features unique to service sectors, like customer-supplier duality, service quality heterogeneity, intangible capacity instead of inventory, and simultaneous production and consumption (Boon-itt, Wong, and Wong, 2017), the action research was applied to a supplier selection context that is still rare in research today.

For future research, the study could be modified by including sink criteria, cost criteria or additional clusters within the ANP control hierarchy. Future research could incorporate a larger number of subjective criteria to see if the trend towards ranking subjective criteria as most influential continues or if this ANP survey happened to pick the most important of the subjective criteria options outright. The

ANP pairwise comparisons could also use a fuzzy linguistic scale, as is frequently done in other MCDM studies (Adebanjo 2013; Afzali, Rafsanjani and Saeid, 2016; Ghorabaee at el., 2016), to help reduce survey result ambiguity and overcome synthetic effects of human perception between criteria (Jeon et al., 2017). Of course, having more collaboration from organizational employees or suppliers or a larger variety of industry experts could provide interesting insights and support more validity in the research in the future as the organization grows past solo-entrepreneurship. The AGII has many options for future expansion as well. It could perhaps incorporate projects or property survey constructs to help identify other parameters about the potential financial supplier that may not necessary be important for the six criteria but would nevertheless be very helpful information for the organization to capture for supplier selection and segmentation. And within the perspective of a solo-entrepreneur, future research to understand the role of the spouse as supporter and trusted discussion partner in a qualitative aspect and its influence on organizational development and organizational culture outside of the sole founder (Belt, Paloniemi and Sinisammai, 2015) could be interesting.

APPENDIX 1 – FREQUENCY COUNT SURVEY QUESTIONS

QUESTIONS PRESENTED ON APSLEYGRAND.COM WEBSITE

As part of a Dissertation Research project with the University of Liverpool Doctorate in Business Administration program, we hope you take a moment to review the Participant Information and Consent PDFs below that explain your rights, your benefits for participating and the contact information for the Research Supervisor and Ethics committees. Thank you for taking your time to help further our knowledge of real estate investing! Let's get started!

First Name?
Last Name?
Email Address?
How many financial partnerships in real estate transactions have you personally participated in (with unique individuals, not the same person in multiple transactions)?
Please answer the following questions as if you were going to select a financial partner for your next real estate investing deal based on the following criteria. (Does not include Institution Lenders (Banks, Credit Unions, etc.), Large or Medium Size Corporations, or REITs. We are specifically discussing individuals, private lenders, equity partners, LLCs, and small business partnerships." If you are unsure on a specific question, please select No.
Is their Credit Score Important?
Is their Monthly Income (Capacity) Important?
Is their Source of Down Payment (Cash Reserves) Important?
Is their Collateral (various types and amounts) important?
Are their Saving, Spending and Borrowing Habits important?
Is their Reliability important?
Is their Flexibility important?
Is their Age important?
Is their Gender Important?

Is their Marriage Status important?
Is their Trustworthiness Important?
Is their Responsiveness Important?
Are their Dependability or Consistency Important?
Are their Risk Appetite or Risk Tolerance Important?
Is their Motivation Important?
Is their Location (Distance) Important?
Are their Communication Expectations (Frequency, Method, Brevity) Important?
Is their Education Level Important?
Is their Job Stability Important?
Is their Career Advancement Potential Important?
Is their Financial Literacy Important?
Are their Technical Capabilities Important?
Is the Quantity of their Past Experience(s) Important?
Is the Quality of their Past Experience(s) Important?
Please list below any criteria, indicators, traits or factors that you consider when selecting a financial partner for a real estate transaction that have not been previously mentioned.
We hope you might be willing to help us with the Final Survey for this doctoral research into real estate investing partnerships - if you are, please select "Count Me In!" and we will be in touch with the final questionnaire when it is ready. BE SURE TO PRESS SUBMIT BELOW! Thank you again for your participation!

APPENDIX 2 – TOPSIS CALCULATIONS

The method of applying TOPSIS is relatively straight forward as it does not need complex calculations or elaborate software assistance. The equations and steps are as follows (Lima Junior, Osiro and Carpinetti, 2014):

First, decision maker weights for criteria and ratings of alternatives are aggregated using the formulas below:

Equation 5 - Weights for Criteria (Lima Junior, Osiro and Carpinetti, 2014)

$$\tilde{w}_j = \frac{1}{k}[\tilde{w}_j^1 + \tilde{w}_j^2 + \cdots + \tilde{w}_j^K]$$

$$\tilde{x}_{ij} = \frac{1}{k}[\tilde{x}_{ij}^1 + \tilde{x}_{ij}^r + \cdots + \tilde{x}_j^k]$$

Then a decision matrix of alternatives and criteria is created using the following structure and formulas.

Equation 6 - Decision Matrix of Alternatives

$$\begin{array}{cc} & \begin{array}{cccc} C_1 & C_2 & C_j & C_m \end{array} \\ \tilde{D} = \begin{array}{c} A_1 \\ A_i \\ A_n \end{array} & \begin{bmatrix} \tilde{x}_{11} & \tilde{x}_{12} & \tilde{x}_{1j} & \tilde{x}_{1m} \\ \vdots & \vdots & \vdots & \vdots \\ \tilde{x}_{n1} & \tilde{x}_{n2} & \tilde{x}_{nj} & \tilde{x}_{nm} \end{bmatrix} \end{array}$$

$$\tilde{W} = [\tilde{w}_1 + \tilde{w}_2 + \cdots + \tilde{w}_m]$$

Once the matrix is completed, it is normalized and weighted to create the weighted normalized decision matrix to complete the TOPSIS calculation.

Equation 7 - Normalization of Decision Matrix

$$\tilde{V} = [\tilde{v}_{ij}]_{m \times n}$$

where $\tilde{v}_{ij}$ is given

$$\tilde{v}_{ij} = \tilde{x}_{ij} \times \tilde{w}_j$$

APPENDIX 3 – ANP SURVEY QUESTIONS

QUESTIONS PRESENTED ON APSLEYGRAND.COM WEBSITE

As part of a Dissertation Research project with the University of Liverpool Doctorate in Business Administration program, we hope you take a moment to review the Participant Information and Consent PDFs below that explain your rights, your benefits for participating and the contact information for the Research Supervisor and Ethics committees.

I accept

I don't accept

First Name?

Last Name?

Email Address?

This research is a bit different from the survey style you may be used to... so here are some hints:

First, the scale is 1 - 9; however, 1 means the two options are EQUAL where 9 means the one you pick is absolutely more important than the other.

Second, the questions are designed in a way to make you feel as if you are answering slightly similar questions repeatedly, this is to allow us to ensure the answers are consistent. Please just answer each question as best you can and you'll do great!

And lastly, this will take around 12 -15 minutes so please lock yourself away, if you need a doctor's note to get out of work or school, we'd be happy to provide one!

Hi X, I want you to imagine you have an opportunity to partner or JV with a new financial capital supplier (money partner, equity partner, private lender, etc.) for your next great real estate investing transaction.

We're not thinking about banks or large organizations, just individuals or small partnerships.

Now keep that potential partner in your mind as you go to answer the following questions.

Which is more important when evaluating the potential financial partner?

Their Motivation

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Collateral/ Capacity ($)

Their Motivation

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Collateral/Capacity ($)

Their Trustworthiness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Trustworthiness

Their Responsiveness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

The Quality of Their Past Experiences

Their Responsiveness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Collateral/Capacity ($)

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Motivation

Their Trustworthiness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Collateral / Capacity ($)

Their Responsiveness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Trustworthiness

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Trustworthiness

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Motivation

Their Responsiveness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

The Quality of their Past Experiences

Their Collateral / Capacity ($)

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Responsiveness

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

Their Motivation

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when evaluating the potential financial partner?

The Quality of their Past Experiences

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Motivation

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Motivation

Their Collateral / Capacity ($)

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Trustworthiness

Their Collateral/ Capacity ($)

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Responsiveness

Their Trustworthiness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Responsiveness

The Quality of Their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Collateral / Capacity ($)

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Motivation

Their Trustworthiness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Collateral / Capacity ($)

Their Responsiveness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Trustworthiness

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Trustworthiness

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Motivation

Their Responsiveness

Which is more important when deciding to accept them as a partner?

Their Collateral / Capacity ($)

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Responsiveness

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Motivation

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to accept them as a partner?

Their Risk Appetite/ Tolerance

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Awesome work! We're on the downhill now, Kaci. Now imagine you are deciding whether or not to REJECT them as a partner.

Which is more important when deciding to reject them as a partner?

Their Motivation

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Motivation

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Motivation

Their Collateral/ Capacity ($)

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Collateral / Capacity ($)

Their Trustworthiness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Trustworthiness

Their Responsiveness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Responsiveness

The Quality of Their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Collateral / Capacity ($)

Their Risk Appetite/Risk Tolerance

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Motivation

Their Trustworthiness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Responsiveness

Their Collateral/ Capacity ($)

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

The Quality of their Past Experiences

Their Trustworthiness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Risk Appetite/ Tolerance

Their Trustworthiness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Motivation

Their Responsiveness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Collateral/ Capacity ($)

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Risk Appetite/Tolerance

Their Responsiveness

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Motivation

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Which is more important when deciding to reject them as a partner?

Their Risk Appetite/ Tolerance

The Quality of their Past Experiences

And how much more important is {PREVIOUS ANSWER}? 1-9

Just a few little questions left. Cross that finish line, X, you winner you.

Is the potential financial partner more likely to be Accepted or Rejected because of their RISK APPETITE/TOLERANCE?

Rejected

Accepted

And how much more likely is it that they will be {PREVIOUS ANSWER}? 1-9

Is the potential financial partner more likely to be Accepted or Rejected because of their COLLATERAL/CAPACITY ($)?

Rejected

Accepted

And how much more likely is it that they will be {PREVIOUS ANSWER}? 1-9

Is the potential financial partner more likely to be Accepted or Rejected because of their TRUSTWORTHINESS?

Rejected

Accepted

And how much more likely is it that they will be {PREVIOUS ANSWER}? 1-9

Is the potential financial partner more likely to be Accepted or Rejected because of their RESPONSIVENESS?

Rejected

Accepted

And how much more likely is it that they will be {PREVIOUS ANSWER}? 1-9

Is the potential financial partner more likely to be Accepted or Rejected because of their QUALITY OF THEIR PAST EXPERIENCES?

Rejected

Accepted

And how much more likely is it that they will be {PREVIOUS ANSWER}? 1-9

Which has more influence upon the potential partner's evaluation?

Your Alternative to Accept or Reject a Potential Partner

The Partner's Criteria (Risk Appetite, Motivation, Collateral/Capacity ($), Trustworthiness, Responsiveness, and the Quality of their Past Experiences)

And how much more influence does {PREVIOUS ANSWER} have on evaluating potential partners? 1-9

Absolute last line of questioning, then you're free, pinkie swear. I just need to clarify a few answers!

Which has more influence on a potential partner's **Risk Appetite/Tolerance**?

Their Motivation

The Quality of their Past Experiences

And how much more influence does {PREVIOUS ANSWER} have? 1-9

Which has more influence on a potential partner's **Motivation**?

Their Risk Appetite/Tolerance

Their Responsiveness

And how much more influence does {PREVIOUS ANSWER} have? 1-9

Which has more influence on a potential partner's **Collateral/Capacity ($)**?

Their Motivation

Their Risk Appetite/Tolerance

And how much more influence does {PREVIOUS ANSWER} have? 1-9

Which has more influence on a potential partner's **Quality of their Past Experiences**?

Their Motivation

Their Risk Appetite/Tolerance

And how much more influence does {PREVIOUS ANSWER} have? 1-9

Which has more influence on a potential partner's **Quality of their Past Experiences**?

Their Responsiveness

Their Risk Appetite/ Tolerance

And how much more influence does {PREVIOUS ANSWER} have? 1-9

Which has more influence on a potential partner's **Trustworthiness**?

Their Responsiveness

The Quality of their Past Experiences

And how much more influence does {PREVIOUS ANSWER} have? 1-9

Which has more influence on a potential partner's **Responsiveness**?

Their Motivation

Their Trustworthiness

And how much more influence does {PREVIOUS ANSWER} have? 1-9

Which has more influence on a potential partner's **Quality of their Past Experiences**?

Their Responsiveness

Their Motivation

And how much more influence does {PREVIOUS ANSWER} have? 1-9

Thank you so much! That's it! You survived.

Words cannot express my gratitude; I appreciate your help and the time it took.

Please let me know if you'd like to be contacted with the final results, I'm happy to share and hope it will help you become even more successful.

PLEASE BE SURE TO HIT SUBMIT AT THE BOTTOM!!!

Please Share!

Was Happy To Help, but No Need to Share.

APPENDIX 4 – REMAINING PAIRWISE COMPARISON TABLES

The remaining pairwise comparisons not included earlier in the research are for the criteria against the alternatives and indicate the priority of the alternatives for the criteria themselves indicates the strength between the clusters and is used for the weighting of the supermatrix in a future step.

Table 27 – Pairwise Comparison Judgements of Risk Appetite/Tolerance against Alternatives

Risk Appetite/Tol	Accepted	Rejected	Weight
Accepted	1	Q48	W19
Rejected		1	W20

Table 28 – Pairwise Comparison Judgements of Motivation against Alternatives

Motivation	Accepted	Rejected	Weight
Accepted	1	Q49	W21
Rejected		1	W22

Table 29 – Pairwise Comparison Judgements of Collateral/Capacity against Alternatives

Collateral / Capac	Accepted	Rejected	Weight
Accepted	1	Q50	W23
Rejected		1	W24

Table 30 – Pairwise Comparison Judgements of Trustworthiness against Alternatives

Trustworthiness	Accepted	Rejected	Weight
Accepted	1	Q51	W25
Rejected		1	W26

Table 31 – Pairwise Comparison Judgements of Responsiveness against Alternatives

Responsiveness	Accepted	Rejected	Weight
Accepted	1	Q52	W27
Rejected		1	W28

Table 32 – Pairwise Comparison Judgements of Quality of Past Experiences against Alternatives

Quality of Past Ex	Accepted	Rejected	Weight
Accepted	1	Q53	W29
Rejected		1	W30

Table 33 – Pairwise Comparison between Clusters

Criteria Cluster	Criteria Cl	Alternativ	Weight
Criteria Cluster	1	Q54	W31
Alternative Cluster		1	W32

The last grouping of pairwise comparisons is done to designate the influence of the criteria within the cluster and their interdependence. The Interdependence shows the direction of the influence and these pairwise comparisons bring out the strength of these interdependencies to allow the strongest of influences between the criteria to be highlighted.

Table 34 – Pairwise Comparison Judgement of Risk Appetite/Tolerance Interdependence

Risk Appetite/Tol	Motivatio	Quality of	Weight
Motivation	1	Q55	W33
Quality of Past Experiences		1	W34

Table 35 – Pairwise Comparison Judgement of Motivation Interdependence

Motivation	Risk Appe	Responsiv	Weight
Risk Appetite/Tol	1	Q56	W35
Responsiveness		1	W36

Table 36 – Pairwise Comparison Judgement of Collateral/Capacity Interdependence

Collateral / Capac	Risk Appe	Motivatio	Weight
Risk Appetite/Tol	1	Q57	W37
Motivation		1	W38

Table 37 – Pairwise Comparison Judgement of Trustworthiness Interdependence

Trustworthiness	Responsiv	Quality of	Weight
Responsiveness	1	Q58	W39
Quality of Past Experiences		1	W40

Table 38 – Pairwise Comparison Judgement of Responsiveness Interdependence

Responsiveness	Trustwort	Motivatio	Weight
Trustworthiness	1	Q59	W41
Motivation		1	W42

Table 39 – Pairwise Comparison Judgement of Quality of Past Experience Interdependence

Quality of Past Ex	Responsiv	Motivatio	Risk Appe	Weight
Responsiveness	1	Q60	Q61	W43
Motivation		1	Q62	W44
Risk Appetite/Tolerance			1	W45

Appendix 5 – Remaining Pairwise Comparison Table Results – Participant Answers

Table 40 – Pairwise Comparison Judgements of Risk Appetite/Tolerance against Alternatives - Participant Answers

Risk Appetite/Tol	Accepted	Rejected	Weight	Priorities	Idealized
Accepted	1.00	1.00	1	0.5	1
Rejected	1.00	1.00	1	0.5	1
SUM	2.00	2.00	2	1	
*PV	1.00	1.00		n=2	

Table 41 – Pairwise Comparison Judgements of Motivation against Alternatives - Participant Answers

Motivation	Accepted	Rejected	Weight	Priorities	Idealized
Accepted	1.00	9.00	3	0.9	1
Rejected	0.11	1.00	0.333333	0.1	0.111111
SUM	1.11	10.00	3.333333	1	
*PV	1.00	1.00		n=2	

Table 42 – Pairwise Comparison Judgements of Collateral/Capacity against Alternatives - Participant Answers

Collateral / Capac	Accepted	Rejected	Weight	Priorities	Idealized
Accepted	1.00	5.00	2.236068	0.833333	1
Rejected	0.20	1.00	0.447214	0.166667	0.2
SUM	1.20	6.00	2.683282	1	
*PV	1.00	1.00		n=2	

Table 43 – Pairwise Comparison Judgements of Trustworthiness against Alternatives - Participant Answers

Trustworthiness	Accepted	Rejected	Weight	Priorities	Idealized
Accepted	1.00	9.00	3	0.9	1
Rejected	0.11	1.00	0.333333	0.1	0.111111
SUM	1.11	10.00	3.333333	1	
*PV	1.00	1.00		n=2	

Table 44 – Pairwise Comparison Judgements of Responsiveness against Alternatives - Participant Answers

Responsiveness	Accepted	Rejected	Weight	Priorities	Idealized
Accepted	1.00	3.00	1.732051	0.75	1
Rejected	0.33	1.00	0.57735	0.25	0.333333
SUM	1.33	4.00	2.309401	1	
*PV	1.00	1.00		n=2	

Table 45 – Pairwise Comparison Judgements of Quality of Past Experiences against Alternatives - Participant Answers

Quality of Past Ex	Accepted	Rejected	Weight	Priorities	Idealized
Accepted	1.00	4.00	2	0.8	1
Rejected	0.25	1.00	0.5	0.2	0.25
SUM	1.25	5.00	2.5	1	
*PV	1.00	1.00		n=2	

Table 46 – Pairwise Comparison between Clusters - Participant Answers

Criteria Cluster	Criteria Cl	Alternativ	Weight	Priorities	Idealized
Criteria Cluster	1.00	0.20	0.447214	0.166667	0.2
Alternative Cluste	5.00	1.00	2.236068	0.833333	1
SUM	6.00	1.20	2.683282	1	
*PV	1.00	1.00		n=2	

Table 47 – Pairwise Comparison Judgement of Risk Appetite/Tolerance Interdependence - Participant Answers

Risk Appetite/Tol	Motivatio	Quality of	Weight	Priorities	Idealized
Motivation	1.00	1.00	1	0.5	1
Quality of Past Ex	1.00	1.00	1	0.5	1
SUM	2.00	2.00	2	1	
*PV	1.00	1.00		n=2	

Table 48 – Pairwise Comparison Judgement of Motivation Interdependence - Participant Answers

Motivation	Risk Appe	Responsiv	Weight	Priorities	Idealized
Risk Appetite/Tol	1.00	0.20	0.447214	0.166667	0.2
Responsiveness	5.00	1.00	2.236068	0.833333	1
SUM	6.00	1.20	2.683282	1	
*PV	1.00	1.00		n=2	

Table 49 – Pairwise Comparison Judgement of Collateral/Capacity Interdependence - Participant Answers

Collateral / Capac	Risk Appe	Motivatio	Weight	Priorities	Idealized
Risk Appetite/Tol	1.00	1.00	1	0.5	1
Motivation	1.00	1.00	1	0.5	1
SUM	2.00	2.00	2	1	
*PV	1.00	1.00		n=2	

Table 50 – Pairwise Comparison Judgement of Trustworthiness Interdependence - Participant Answers

Trustworthiness	Responsiv	Quality of	Weight	Priorities	Idealized
Responsiveness	1.00	0.33	0.57735	0.25	0.333333
Quality of Past Ex	3.00	1.00	1.732051	0.75	1
SUM	4.00	1.33	2.309401	1	
*PV	1.00	1.00		n=2	

Table 51 – Pairwise Comparison Judgement of Responsiveness Interdependence - Participant Answers

Responsiveness	Trustwort	Motivatio	Weight	Priorities	Idealized
Trustworthiness	1.00	0.13	0.353553	0.111111	0.125
Motivation	8.00	1.00	2.828427	0.888889	1
SUM	9.00	1.13	3.181981	1	
*PV	1.00	1.00		n=2	

Table 52 – Pairwise Comparison Judgement of Quality of Past Experience Interdependence - Participant Answers

Quality of Past Ex	Responsiv	Motivatio	Risk Appe	Weight	Priorities	Idealized
Responsiveness	1.00	0.14	1.00	0.522758	0.1315	0.189
Motivation	7.00	1.00	3.00	2.758924	0.6941	1.000
Risk Appetite/Tol	1.00	0.33	1.00	0.693361	0.1744	0.251
SUM	8.00	1.33	4.00	3.975043	1	
*PV	22.07	0.92	5.00		n=3	

Appendix 6 – AGII Survey Questions

Which of these words would people use to describe you?

6 out of 6 people answered this question

1	Trustworthy	6 / 100%
2	Dependable	5 / 83%
3	Kind	5 / 83%
4	Reliable	5 / 83%
5	Sincere	5 / 83%
6	Honest	4 / 67%
7	Pleasant	2 / 33%
8	Admirable	0 / 0%
9	Just	0 / 0%

Which option best describes you?

6 out of 6 people answered this question

1	You do your best to keep promises, but sometimes life happens.	5 / 83%
2	You always keep your promises. No matter what.	1 / 17%
3	No one really holds you to your word, they know you're a free spirit.	0 / 0%

When you receive an important email, how responsive are you on average?

6 out of 6 people answered this question

1	Very responsive, 24 hours max.	5 / 83%
2	Somewhat responsive, may take me a couple days to get back to you.	1 / 17%
3	You better resend, I won't be replying unless harassed.	0 / 0%

Have you ever invested in real estate, besides your primary residence, before?

6 out of 6 people answered this question

1	Yes, All the Time!	3 / 50%
2	Once, Kinda, Maybe, Sorta	2 / 33%
3	Never, but I'm excited to learn more	1 / 17%

Which of the following would you consider an important guiding principle in your life?

3 out of 6 people answered this question

1	Social Justice (correcting injustice, care for the weak)	3 / 100%
2	Influential (having an impact on people and events)	2 / 67%
3	A world at peace (free of war and conflict)	1 / 33%
4	Ambitious (hard working, aspiring)	1 / 33%
5	Authority (the right to lead or command)	1 / 33%
6	Equality (equal opportunity for all)	1 / 33%
7	Helpful (working for the welfare of others)	1 / 33%
8	Preventing pollution (protecting natural resources)U	1 / 33%
9	Protecting the environment (preserving nature)	1 / 33%
10	Respecting the earth (harmony with other species)	1 / 33%
11	Wealth (material possessions, money)	1 / 33%
12	Social power (control over others, dominance)	0 / 0%
13	Unity with nature (fitting into nature)	0 / 0%

What are some financial goals you would like Apsley & Grand to help you achieve?

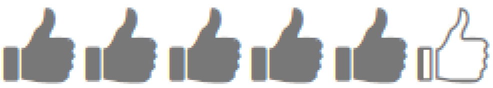
6 out of 6 people answered this question

1	Monthly Income Replacement	4 / 67%
2	Retirement	3 / 50%
3	Education	2 / 33%
4	Vacation	2 / 33%

5	Credit Card Debt Paid Off	1 / **17%**
6	Home Purchase	1 / **17%**
7	Wedding	0 / **0%**

How **motivated** would you say you are to start investing in Real Estate to help build up your financial future and your community?

6 out of 6 people answered this question



5.17 Average rating

1		3 / **50%**
2		2 / **33%**
3		1 / **17%**

Extroverted, Enthusiastic.

6 out of 6 people answered this question

Average: 4.50

1	2	3	4	5	6	7

Disagree Strongly | Neither Agree nor Disagree | Agree Strongly

5	2 / **33%**
6	2 / **33%**
2	1 / **17%**
3	1 / **17%**

Critical, Quarrelsome.

6 out of 6 people answered this question

Average: 3.33

1	2	3	4	5	6	7

2	2 / 33%
4	2 / 33%
3	1 / 17%
5	1 / 17%

Dependable, Self-Disciplined.

6 out of 6 people answered this question

Average: 5.33

1	2	3	4	5	6	7

Disagree Strongly | Neither Agree nor Disagree | Agree Strongly

4	2 / 33%
6	2 / 33%
5	1 / 17%
7	1 / 17%

Anxious, Easily Upset.

6 out of 6 people answered this question

Average: 2.67

1	2	3	4	5	6	7

Disagree Strongly | Neither Agree nor Disagree | Agree Strongly

2	3 / 50%
3	2 / 33%
4	1 / 17%

Open to New Experiences, Complex.

1	2	3	4	5	6	7

Disagree Strongly — Neither Agree nor Disagree — Agree Strongly

6	3 / 50%
3	1 / 17%
5	1 / 17%
7	1 / 17%

Reserved, Quiet.

6 out of 6 people answered this question

Average: 3.67

1	2	3	4	5	6	7

Disagree Strongly — Neither Agree nor Disagree — Agree Strongly

4	2 / 33%
5	2 / 33%
1	1 / 17%
3	1 / 17%

Sympathetic, Warm.

6 out of 6 people answered this question

Average: 5.50

1	2	3	4	5	6	7

Disagree Strongly — Neither Agree nor Disagree — Agree Strongly

5	2 / 33%
6	2 / 33%
4	1 / 17%
7	1 / 17%

Disorganized, Careless.

6 out of 6 people answered this question

Average: 2.33

1	2	3	4	5	6	7

Disagree Strongly | Neither Agree nor Disagree | Agree Strongly

1	2 / 33%
2	2 / 33%
4	2 / 33%

Calm, Emotionally Stable.

6 out of 6 people answered this question

Average: 5.00

1	2	3	4	5	6	7

Disagree Strongly | Neither Agree nor Disagree | Agree Strongly

4	2 / 33%
5	2 / 33%
6	2 / 33%

Conventional, Not Too Creative.

6 out of 6 people answered this question

Average: 2.83

1	2	3	4	5	6	7

Disagree Strongly | Neither Agree nor Disagree | Agree Strongly

2	3 / 50%
1	1 / 17%

4		1 / 17%
6		1 / 17%

In general, how would your best friend describe you as a risk taker?

6 out of 6 people answered this question

1	Willing to take risks after completing adequate research	4 / 67%
2	A real gambler	1 / 17%
3	Cautious	1 / 17%
4	A real risk avoider	0 / 0%

You are on a TV game show and can choose one of the following, which would you take?

6 out of 6 people answered this question

1	A 25% chance at winning $10,000	4 / 67%
2	$1,000 in cash	1 / 17%
3	A 50% chance at winning $5,000	1 / 17%
4	A 5% chance at winning $100,000	0 / 0%

You have just finished saving for a "once-in-a-lifetime" vacation. Three weeks before you plan to leave, you lose your job. You would:

6 out of 6 people answered this question

1	Go as scheduled, reasoning that you need the time to prepare for a job search	3 / 50%
2	Take a much more modest vacation	2 / 33%
3	Cancel the vacation	1 / 17%
4	Extend your vacation, because this might be your last chance to go first-class	0 / 0%

If you unexpectedly receive $20,000 to *invest*, what would you do?

6 out of 6 people answered this question

1	Invest it in stocks or stock mutual funds	3 / 50%
2	Invest it in safe high quality bonds or bond mutual funds	2 / 33%
3	Deposit it in a bank account, money market account, or an insured CD	1 / 17%

In terms of experience, how comfortable are you investing in stocks or stock mutual funds?

6 out of 6 people answered this question

1	Somewhat comfortable	3 / 50%
2	Not at all comfortable	2 / 33%
3	Very comfortable	1 / 17%

When you think of the word "risk," which of the following words comes to mind first?

6 out of 6 people answered this question

1	Opportunity	5 / 83%
2	Uncertainty	1 / 17%
3	Loss	0 / 0%
4	Thrill	0 / 0%

Some experts are predicting price of assets such as gold, jewels, collectibles, and real estate (hard assets) to increase in value; bond prices may fall, however, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high-interest government bonds. What would you do?

6 out of 6 people answered this question

1	Sell the bonds, put half the proceeds into money market accounts, and the other half into hard assets	3 / 50%
2	Sell the bonds, put all the money into hard assets, and borrow additional money to buy more	2 / 33%
3	Sell the bonds and put the total proceeds into hard assets	1 / 17%
4	Hold the bonds	0 / 0%

Given the best and worst case returns of the four investment choices below, which would you prefer?

6 out of 6 people answered this question

1	$2,600 gain best case; $800 loss worst case	3 / 50%
2	$800 gain best case; $200 loss worst case	3 / 50%
3	$200 gain best case; $0 gain/loss worst case	0 / 0%
4	$4,800 gain best case; $2,400 loss worst case	0 / 0%

In addition to whatever you own, you have been given $1,000. You are now asked to choose between:

6 out of 6 people answered this question

1	A 50% chance to gain $1,000 and a 50% chance to gain nothing	3 / 50%
2	A sure gain of $500	3 / 50%

In addition to whatever you own, you have been given $2,000. You are now asked to choose between:

6 out of 6 people answered this question

1	A 50% chance to lose $1,000 and a 50% chance to lose nothing	3 / 50%
2	A sure loss of $500	3 / 50%

Suppose a relative left you an inheritance of $100,000, stipulating in the will that you invest ALL the money in ONE of the following choices. Which one would you select?

6 out of 6 people answered this question

1	A portfolio of 15 common stocks	4 / 67%
2	A mutual fund that owns stocks and bonds	1 / 17%
3	A savings account or money market mutual fund	1 / 17%
4	Commodities like gold, silver, and oil	0 / 0%

If you had to invest $20,000, which of the following investment choices would you find most appealing?

6 out of 6 people answered this question

1	30% in low-risk investments, 40% in medium-risk investments, 30% in high-risk investments	3 / 50%
2	60% in low-risk investments, 30% in medium-risk investments, 10% in high-risk investments	2 / 33%
3	10% in low-risk investments, 40% in medium-risk investments, 50% in high-risk investments	1 / 17%

Your trusted friend and neighbor, an experienced geologist, is putting together a group of investors to fund an exploratory gold mining venture. The venture could pay back 50 to 100 times the investment if successful. If the mine is a bust, the entire investment is worthless. Your friend estimates the chances of success is only 20%. If you had the money, how much would you invest?

6 out of 6 people answered this question

1	One month's salary	5 / 83%
2	Nothing	1 / 17%
3	Six month's salary	0 / 0%
4	Three month's salary	0 / 0%

It is hard to stick to my spending when unexpected expenses arise.

6 out of 6 people answered this question

Average: 2.83

1	2	3	4	5
Not True at All		Moderately True		Exactly True

3	4 / 67%
1	1 / 17%
4	1 / 17%

It is challenging to make progress towards my financial goals.

6 out of 6 people answered this question

Average: 2.33

1	2	3	4	5
Not True at All		Moderately True		Exactly True

2	3 / 50%
1	1 / 17%
3	1 / 17%
4	1 / 17%

When unexpected expenses occur, I usually have to use credit.

6 out of 6 people answered this question

Average: 2.33

1	2	3	4	5

Not True at All — Moderately True — Exactly True

3	3 / 50%
2	2 / 33%
1	1 / 17%

When faced with a financial challenge, I have a hard time figuring out a solution.

6 out of 6 people answered this question

Average: 1.67

1	2	3	4	5

Not True at All — Moderately True — Exactly True

2	4 / 67%
1	2 / 33%

I lack confidence in my ability to manage my finances.

6 out of 6 people answered this question

Average: 1.33

1	2	3	4	5

Not True at All — Moderately True — Exactly True

1	4 / 67%
2	2 / 33%

I worry about running out of money in retirement.

6 out of 6 people answered this question

Average: 1.17

1	2	3	4	5
Not True at All		Moderately True		Exactly True

1	5 / **83%**
2	1 / **17%**

Your household income?

6 out of 6 people answered this question

Average: 3.33

1	2	3	4	5	6	7
Very Dissatisfied			Neither Satisfied nor Dissatisfied			Very Satisfied

3	3 / **50%**
1	1 / **17%**
4	1 / **17%**
6	1 / **17%**

Your ability to pay monthly expenses?

6 out of 6 people answered this question

Average: 5.00

1	2	3	4	5	6	7
Very Dissatisfied			Neither Satisfied nor Dissatisfied			Very Satisfied

6	2 / **33%**
2	1 / **17%**
4	1 / **17%**
5	1 / **17%**
7	1 / **17%**

The amount of money you have in savings?

6 out of 6 people answered this question

Average: 2.17

1	2	3	4	5	6	7

Very Dissatisfied — Neither Satisfied nor Dissatisfied — Very Satisfied

2	3 / 50%
3	2 / 33%
1	1 / 17%

Your financial security?

6 out of 6 people answered this question

Average: 3.00

1	2	3	4	5	6	7

Very Dissatisfied — Neither Satisfied nor Dissatisfied — Very Satisfied

2	3 / 50%
3	2 / 33%
6	1 / 17%

What types of financial investment methods are you currently using today?

6 out of 6 people answered this question

1	Real Estate Investments	5 / 83%
2	IRAs	4 / 67%
3	Stocks	4 / 67%
4	Savings Account	3 / 50%
5	Mutual Funds	2 / 33%
6	Retirement Accounts	2 / 33%

7	Bonds	1 / 17%
8	Certificate of Deposit (CDs)	0 / 0%

Are you currently renting or do you own your own home?

6 out of 6 people answered this question

1	Own my Home with a Mortgage	6 / 100%
2	Own my Home Outright	0 / 0%
3	Renting	0 / 0%

APPENDIX 7 – TOPSIS FEASIBILITY EXERCISES RESULTS

The participant results are transposed and plotted against the weights of the corresponding criterions as the first step of the TOPSIS analysis. The normalized results are calculated in the last row for the six criteria and are used in the next step.

	0.37654	**0.07788**	**0.13615**	**0.25792**	**0.05597**	**0.09556**
Alternatives	**TR**	**RE**	**QP**	**MO**	**RI**	**CC**
S1	5	4	6	4	4	3
S2	6	6	6	5	5	5
S3	5	6	4	4	7	5
	86	88	88	57	90	59
	9.27	9.38	9.38	7.55	9.49	7.68

Figure 22 – TOPSIS Results of Feasibility Exercise Participants

Using the normalized criterions, the unweighted individual participant results are normalized allowing all the criterion to be compared equally across the different supplier alternatives.

	0.37654	**0.07788**	**0.13615**	**0.25792**	**0.05597**	**0.09556**
Alternatives	**TR**	**RE**	**QP**	**MO**	**RI**	**CC**
S1	0.54	0.43	0.64	0.53	0.42	0.39
S2	0.65	0.64	0.64	0.66	0.53	0.65
S3	0.54	0.64	0.43	0.53	0.74	0.65

Figure 23 – Unweighted Normalized Feasibility Exercise Results

Then, the decision matrix results for the feasibility exercises are weighted against the weights of the criterions. As each criterion are benefits, meaning they all are more desirable as they increase, the positive ideal solution (PIS) is the maximum from each column and the negative ideal solution (NIS) is the minimum from each column.

	0.37654	0.07788	0.13615	0.25792	0.05597	0.09556
Alternatives	**TR**	**RE**	**QP**	**MO**	**RI**	**CC**
S1	0.20	0.03	0.09	0.14	0.02	0.04
S2	0.24	0.05	0.09	0.17	0.03	0.06
S3	0.20	0.05	0.06	0.14	0.04	0.06
	BENEFIT	BENEFIT	BENEFIT	BENEFIT	BENEFIT	BENEFIT

Figure 24 – Weighted Normalized Feasibility Exercise Results

PIS	0.24	0.05	0.09	0.17	0.04	0.06
NIS	0.20	0.03	0.06	0.14	0.02	0.04

Figure 25 – Ideal Solutions

With the ideal solutions both determined, it is then possible to plot the separation each supplier alternative from the feasibility exercises has in relation to both ideals. The positive separation (Si*) and negative separation (Si-) are found below.

Si*	0.0016	0.0003	0.0000	0.0012	0.0003	0.0006
	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
	0.0016	0.0000	0.0008	0.0012	0.0000	0.0000

Figure 26 – Positive Separation of Feasibility Exercises

Si-	0.0000	0.0000	0.0008	0.0000	0.0000	0.0000
	0.0016	0.0003	0.0008	0.0012	0.0000	0.0006
	0.0000	0.0003	0.0000	0.0000	0.0003	0.0006

Figure 27 – Negative Separation of Feasibility Exercises

Now, as all the necessary values are calculated, each of the potential financial capital supplier's rows for both the positive and negative separation and the closeness coefficient is determined. From the results of the feasibility exercises, Participant 2 is found to be the most likely for successful partnership for future Apsley & Grand investing projects with the highest value closeness coefficient result.

`								SUM	Ci*
Si*	0.0016	0.0003	0.0000	0.0012	0.0003	0.0006	0.063		
	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.012		
	0.0016	0.0000	0.0008	0.0012	0.0000	0.0000	0.060		
Si-	0.0000	0.0000	0.0008	0.0000	0.0000	0.0000	0.029	0.092	0.314
	0.0016	0.0003	0.0008	0.0012	0.0000	0.0006	0.068	0.080	0.852
	0.0000	0.0003	0.0000	0.0000	0.0003	0.0006	0.035	0.095	0.365

Figure 28 – TOPSIS Closeness Coefficient Feasibility Exercises Results

BIBLIOGRAPHY

Abrahamse, J., & Lotriet, H. (2012). Towards an Understanding, Through Action Research, of the Socio-Organizational Issues Impacting on Mobile Technology Adoption and Diffusion Within a Small-to-Medium South African Construction Company. *Systemic Practice and Action Research*, *25*(1), 57–79.

Achtenhagen, L., Ekberg, S., & Melander, A. (2017). Fostering growth through business development: Core activities and challenges for micro-firm entrepreneurs. *Journal of Management & Organization*, *23*(02), 167–185.

Adebanjo, D., Ojadi, F., Laosirihongthong, T., & Tickle, M. (2013). A case study of supplier selection in developing economies: a perspective on institutional theory and corporate social responsibility. *Supply Chain Management: An International Journal*, *18*(5), 553–566.

Afzali, A., Rafsanjani, M. K., & Saeid, A. B. (2016). A Fuzzy Multi-objective Linear Programming Model Based on Interval-valued Intuitionistic Fuzzy Sets for Supplier Selection. *International Journal of Fuzzy Systems*, *18*(5), 864–874.

Agarwal, S., Ben-David, I., & Yao, V. (2015). Collateral Valuation and Borrower Financial Constraints: Evidence from the Residential Real Estate Market. *Management Science*, *61*(9), 2220–2240.

Allvin, R., Ehnfors, M., Rawal, N., Svensson, E., & Idvall, E. (2009). Development of a questionnaire to measure patient-reported postoperative recovery: content validity and intra-patient reliability. *Journal of Evaluation in Clinical Practice*, *15*(3), 411–419.

Altuzarra, A., Moreno-Jiménez, J. M., & Salvador, M. (2007). A Bayesian priorization procedure for AHP-group decision making. *European Journal of Operational Research*, *182*(1), 367–382.

Andrienko, G., Andrienko, N., Jankowski, P., Keim, D., Kraak, M. J., Maceachren, A., & Wrobel, S. (2007). Geovisual analytics for spatial decision support: Setting the research agenda. *International Journal of Geographical Information Science*, *21*(8), 839–857.

Annamalai, T. R., Gemson, J., & Bansal, B. (2014). Private equity investment and real estate development: Evidence from residential projects in India. *Journal of Financial Management of Property and Construction*, *19*(3), 202–225.

Aragonés-Beltrán, P., García-Melón, M., & Montesinos-Valera, J. (2017). How to assess stakeholders influence in project management? A proposal based on the Analytic Network Process. *International Journal of Project Management*, *35*(3), 451–462.

Arrow, K. J. (1972). Gifts and Exchanges. *Philosophy & Public Affairs*, *1*(4), 343–362.

Ashby, A., Leat, M., & Hudson-Smith, M. (2012). Making connections: a review of supply chain management and sustainability literature. *Supply Chain Management: An International Journal*, *17*(5), 497–516.

Atienza, C. M. R. (2017). Building Organizational Identity: an Insider Action Research from a Founder's Viewpoint. *Systemic Practice and Action Research*, *30*(6), 569–592.

Aven, T. (2013). On the Meaning and Use of the Risk Appetite Concept. *Risk Analysis: An International Journal*, *33*(3), 462–468.

Avis, N. E., Smith, K. W., Hambleton, R. K., Feldman, H. A., Selwyn, A., & Jacobs, A. (1996). Development of the Multidimensional Index of Life Quality. *Medical Care*, *34*(11), 1102–1120.

Azadnia, A. H., Saman, M. Z. M., & Wong, K. Y. (2015). Sustainable supplier selection and order lot-sizing: an integrated multi-objective decision-making process. *International Journal of Production Research*, *53*(2), 383–408.

Badenhorst, C. (2018). Citation Practices of Postgraduate Students Writing Literature Reviews. *London Review of Education,* 16(1), 121-135.

Baker, H. K., & Chinloy, P. (2014). *Private real estate markets and investments*. Oxford: Oxford University Press.

Baldan, C., Geretto, E., & Zen, F. (2016). Managing Banking Risk with the Risk Appetite Framework: A Quantitative Model for the Italian Banking System. *Journal of Risk Management in Financial Institutions*, *9*(2), 175–196.

Baltacioglu, T., Ada, E., Kaplan, M. D., Yurt, O., & Kaplan, Y. C. (2007). A New Framework for Service Supply Chains. *The Service Industries Journal*, *27*(2), 105–124.

Baluku, M., Kikooma, J., Bantu, E., & Otto, K. (2018). Psychological capital and entrepreneurial outcomes: the moderating role of social competences of owners of micro-enterprises in East Africa. *Journal of Global Entrepreneurship Research,* 8(1), 1-23.

Bauwens, T. (2016). Explaining the diversity of motivations behind community renewable energy. *Energy Policy*, *93*, 278–290.

Belej, M., Cellmer, R., Zróbek, S., & Kovac, M. (2016). Factor Analysis in Determining the Similarity of Local Real Estate Markets' Conditions. *Acta Scientiarum Polonorum. Oeconomia*, *15*(4), 27–39.

Belt, P., Paloniemi, K., & Sinisammal, J. (2015). One-Person Enterprises and Business Growth. *Journal of Enterprising Culture*, *23*(03), 381–404.

Bentick, B. L., & Lewis, M. K. (2004). Real Estate Speculation as a Source of Banking and Currency Instability: Some Different Lessons from the Asian Crisis. *The Economic and Labour Relations Review*, *14*(2), 256–275.

Berlinger, E., & Váradi, K. (2015). Risk Appetite. *Public Finance Quarterly*, *60*(1), 49–62.

Bergman, M. (2008). *Advances in Mixed Methods Research: Theories and Applications*. SAGE.

Berman, J. Z., Tran, A. T. K., Lynch, J. G., & Zauberman, G. (2016). Expense Neglect Bias in Forecasting Personal Finances. *Journal of Marketing Research*, *53*(4), 535–550.

Boardman, M. (2012). *Fixing and Flipping Real Estate: Strategies for the Post-Boom Era*. Apress.

Boon-itt, S., & Pongpanarat, C. (2011). Measuring Supply Chain Integration — Using the Q-Sort Technique. *International Journal of Innovation, Management and Technology*, *2*(3), 217–221.

Boon-itt, S., Wong, C. Y., & Wong, C. W. Y. (2017). Service supply chain management process capabilities: Measurement development. *International Journal of Production Economics*, *193*, 1–11.

Brown, R., Duck, J., & Jimmieson, N. (2014). E-mail in the workplace: The role of stress appraisals and normative response pressure in the relationship between e-mail stressors and employee strain. *International Journal of Stress Management*, *21*(4), 325–347.

Burke, W. W. (2004). Internal Organization Development Practitioners. *The Journal of Applied Behavioral Science*, *40*(4), 423–431.

Burns, R. B. (2000). *Introduction to research methods*. Thousand Oaks, CA: Sage.

Cabanas-Sánchez, V., Martínez-Gómez, D., Esteban-Cornejo, I., Castro-Piñero, J., Conde-Caveda, J., & Veiga, Ó. L. (2017). Reliability and validity of the Youth Leisure-time Sedentary Behavior Questionnaire (YLSBQ). *Journal of Science and Medicine in Sport*, *21*(1), 69–74.

Cai, Y., & Yang, Y. (2010). The Effect of Financial Goal and Wealth Change on Risk Tolerance: An Experimental Investigation. *Journal of Personal Finance*, *9*, 148–169.

Cai, Z., Huang, Q., Liu, H., & Liang, L. (2016). The moderating role of information technology capability in the relationship between supply chain collaboration and organizational responsiveness. *International Journal of Operations & Production Management*, *36*(10), 1247–1271.

Cao, M., & Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance. *Journal of Operations Management*, *29*(3), 163–180.

Carr, J. & Anacker, K. (2013). Microbusinesses in the United States: Characteristics and Sector Participation. *Association for Enterprise Opportunity, 1, 1-88.*

Caruso, S. J. (2017). A Foundation For Understanding Knowledge Sharing: Organizational Culture, Informal Workplace Learning, Performance Support, And Knowledge Management. *Contemporary Issues in Education Research (CIER)*, *10*(1), 45–52.

Cha, M., & Bae, Z. (2010) The entrepreneurial journey: From entrepreneurial intent to opportunity realization. *Journal of High Technology Management Research,* 21, 31-42.

Chan, W. W., Li, D., Mak, B., & Liu, L. (2013). Evaluating the application of solar energy for hot water provision: An action research of independent hotel. *International Journal of Hospitality Management*, *33*, 76–84.

Chancellor, E. (1999). *Devil take the hindmost: a history of financial speculation*. Plume.

Chandler, D., & Torbert, B. (2003). Transforming Inquiry and Action. *Action Research*, *1*(2), 133–152.

Chang, K.-L., Liao, S.-K., Tseng, T.-W., & Liao, C.-Y. (2015). An ANP based TOPSIS approach for Taiwanese service apartment location selection. *Asia Pacific Management Review*, *20*(2), 49–55.

Chemweno, P., Pintelon, L., Horenbeek, A. V., & Muchiri, P. (2015). Development of a risk assessment selection methodology for asset maintenance decision making: An analytic network process (ANP) approach. *International Journal of Production Economics*, *170*, 663–676.

Chen, W., & Zou, Y. (2017). An integrated method for supplier selection from the perspective of risk aversion. *Applied Soft Computing*, *54*, 449–455.

Cho, D. W., Lee, Y. H., Ahn, S. H., & Hwang, M. K. (2012). A framework for measuring the performance of service supply chain management. *Computers & Industrial Engineering*, *62*(3), 801–818.

Church, A. H., Fleck, C. R., Foster, G. C., Levine, R. C., Lopez, F. J., & Rotolo, C. T. (2016). Does Purpose Matter? The Stability of Personality Assessments in Organization Development and Talent Management Applications Over Time. *The Journal of Applied Behavioral Science*, *52*(4), 450–481.

Coghlan, D., & Shani, A. B. (2014). Creating Action Research Quality in Organization Development: Rigorous, Reflective and Relevant. *Systemic Practice and Action Research*, *27*(6), 523–536.

Coad, A., Nielsen, K., & Timmermans, B. (2017) My first employee: an empirical investigation. *Small Business Economics,* 48(1), 25-45.

Cook, R., Beeliveau, P., and Sandberg, M. (2004) Training and learning as drivers of US microenterprise business plan quality. *Education + Training,* 46(8/9), 398-405.

Cooper, D. (2013). House Price Fluctuations: The Role of Housing Wealth as Borrowing Collateral. *Review of Economics and Statistics*, *95*(4), 1183–1197.

Cooper, O., & Yavuz, I. (2016). Linking validation: A search for coherency within the Supermatrix. *European Journal of Operational Research*, *252*(1), 232–245.

Cummings, J. (2010). *The McGraw-Hill 36-hour real estate investing course*. McGraw-Hill.

Cunha, M. R., Lambrecht, B. M., & Pawlina, G. (2011). Household Liquidity and Incremental Financing Decisions: Theory and Evidence. *Journal of Business Finance & Accounting*, *38*(7-8), 1016–1052.

Dargi, A., Anjomshoae, A., Galankashi, M. R., Memari, A., & Tap, M. B. M. (2014). Supplier Selection: A Fuzzy-ANP Approach. *Procedia Computer Science*, *31*, 691–700.

Davis, J. M. (2007). Rethinking the architecture: an action researcher's resolution to writing and presenting their thesis. *Action Research*, *5*(2), 181–198.

Dağdeviren, M. (2008). Decision making in equipment selection: an integrated approach with AHP and PROMETHEE. *Journal of Intelligent Manufacturing*, *19*(4), 397–406.

de Boer, L., Labro, E., & Morlacchi, P. (2001). A review of methods supporting supplier selection. *European Journal of Purchasing & Supply Management*, *7*(2), 75–89.

Dell, M. (2017). Final Regulations Clarify Definition of Real Property for REITs. *Tax Adviser*, *48*(2), 1–5.

DeSteno, D., Breazeal, C., Frank, R. H., Pizarro, D., Baumann, J., Dickens, L., & Lee, J. J. (2012). Detecting the Trustworthiness of Novel Partners in Economic Exchange. *Psychological Science*, *23*(12), 1549–1556.

Dewasiri, N., Weerakoon, Y., & Azeez, A. (2018). Mixed Methods in Finance Research: The Rationale and Research Designs. *International Journal of Qualitative Methods*, 17(1), 1-13.

Dewitt, K. N., Milbrath, C., & Simon, N. M. (2018). Wallerstein’s Scales of Psychological Capacities: A clinically useful measure of character change. *Psychoanalytic Psychology*, *35*(1), 115–126.

Dick, B. (1997). Approaching an action research thesis: an overview. Retrieved April 4, 2018, from http://www.aral.com.au/resources/phd.html

Duarte, F. D., Gama, A. P. M., & Esperança, J. P. (2017). Collateral-based in SME lending: The role of business collateral and personal collateral in less-developed countries. *Research in International Business and Finance*, *39*, 406–422.

Duobienė, J., & Pundzienė, A. (2007). Development of Entrepreneurial Culture. *Economics & Management*, *12*, 507–515.

Dupuy, P. (2009). Pure Indicator Of Risk Appetite. *Australian Economic Papers*, *48*(1), 18–33.

Durak, G., Yünkül, E., Cankaya, S., Akpınar, Ş., Erten, E., Inam, N., … Tastekin, E. (2016). Content Analysis of Master Theses and Dissertations Based on Action Research. *Journal of Education and Training Studies*, *4*(12), 71–80.

Easterby-Smith, M., & Thorpe, R. (2012). *Management Research*. Los Angeles: SAGE.

Ekici, T., & Dunn, L. (2010). Credit card debt and consumption: evidence from household-level data. *Applied Economics*, *42*(4), 455–462.

Eldred, G. W. (2012). *Investing in Real Estate*. Hoboken, NJ: John Wiley & Sons, Inc.

Elsey, B., & Kit Suek, C. C. (2007). Managing organizational innovation for sustaining the product life span using action research: A case study of a karaoke box in Hong Kong. *Action Learning and Action Research Journal*, *12*(2), 3–29.

Entrepreneurship And Family Business: Does The Organization Culture Affect To Firm Performance? (2015). Essay.

Ergu, D., Kou, G., Peng, Y., & Shi, Y. (2011). A simple method to improve the consistency ratio of the pair-wise comparison matrix in ANP. *European Journal of Operational Research*, *213*(1), 246–259.

Farrell, L., Fry, T. R., & Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behaviour. *Journal of Economic Psychology*, *54*, 85–99.

Fisher, L. M., & Hartzell, D. J. (2016). Class Differences in Real Estate Private Equity Fund Performance. *The Journal of Real Estate Finance and Economics*, *52*(4), 327–346.

Florez-Lopez, R. (2007). Strategic supplier selection in the added-value perspective: A CI approach. *Information Sciences*, *177*(5), 1169–1179.

Friedline, T., & West, S. (2016). Financial Education is not Enough: Millennials May Need Financial Capability to Demonstrate Healthier Financial Behaviors. *Journal of Family and Economic Issues*, *37*(4), 649–671.

Ganesan, S., & Hess, R. (1997). Dimensions and Levels of Trust: Implications for Commitment to a Relationship. *Marketing Letters*, *8*(4), 439–448.

Garrett, R. P., Covin, J. G., & Slevin, D. P. (2009). Market responsiveness, top management risk taking, and the role of strategic learning as determinants of market pioneering. *Journal of Business Research*, *62*(8), 782–788.

Gerstenecker, A., Triebel, K., Eakin, A., Martin, R., & Marson, D. (2018). Exploring the Factor Structure of Financial Capacity in Cognitively Normal and Impaired Older Adults. *Clinical Gerontologist*, *41*(1), 33–41.

Ghorabaee, M. K., Zavadskas, E. K., Amiri, M., & Turskis, Z. (2016). Extended EDAS Method for Fuzzy Multi-criteria Decision-making: An Application to Supplier Selection. *International Journal of Computers Communications & Control*, *11*(3), 358–371.

Giuffrida, S. (2012). When possibility dominates probability. Global pressures on a local border town: the real estate market of Ortigia. *Aestimum*, *61*, 145–166.

Giunipero, L., & Brand, R. (1996). Purchasing's Role in Supply Chain Management. *International Journal of Logistics Management*, *7*(1), 29–38.

Glaeser, E. L. (2013). A Nation Of Gamblers: Real Estate Speculation And American History. *American Economic Review*, *103*(3), 1–42.

Glascock, J. L., Prombutr, W., Zhang, Y., & Zhou, T. (2017). Can Investors Hold More Real Estate? Evidence from Statistical Properties of Listed REIT versus Non-REIT Property Companies in the U.S. *The Journal of Real Estate Finance and Economics*, *56*(2), 274–302.

Goddard, J. G., & Marcum, B. (2012). *Real estate investment: a value based approach*. New York: Springer.

Gontarek, W. (2016). Risk governance of financial institutions: The growing importance of risk appetite and culture. *Journal of Risk Management in Financial Institutions*, *9*(2), 120–129.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*(6), 504–528.

Grable, J., & Lytton, R. (1999). Financial risk tolerance revisited: the development of a risk assessment instrument. *Financial Services Review*, *8*(3), 163–181.

Grable, J. (2000). Financial risk tolerance and additional factors that affect risk taking in everyday money matters. *Journal of Business and Psychology*, *14*(4), 625–630.

Greene, J., Caracelli, V., & Graham, W. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis,* 11(3), 255-274.

Greenwood, D. J., & Levin, M. (2013). *Introduction to action research social research for social change*. Johanneshov: MTM.

Greenwood, D. J. (2015). Completing the Cycle in Entrepreneurial Research: Action Research to Link Entrepreneurs and Researchers and Reform the University. *Entrepreneurship Research Journal*, *5*(4), 269–292.

Grosso, A. (2016). *Value Added Real Estate*. CreateSpace Independent Publishing Platform.

Grošelj, P., & Stirn, L. Z. (2015). The environmental management problem of Pohorje, Slovenia: A new group approach within ANP – SWOT framework. *Journal of Environmental Management*, *161*, 106–112.

Grum, B., & Grum, D. K. (2015). A model of real estate and psychological factors in decision-making to buy real estate. *Urbani Izziv*, *26*(1), 82–91.

Guidice, M. del, Carayannis, E. G., & Della Peruta, M. R. (2012). Solo entrepreneur vs. entrepreneurial teams: structural. In *Cross-Cultural Knowledge Management* (pp. 25–35). essay, Springer.

Gupta, A., & Tiwari, P. (2016). Investment risk scoring model for commercial properties in India. *Journal of Property Investment & Finance*, *34*(2), 156–171.

Gutiérrez-Nieto, B., Serrano-Cinca, C., & Camón-Cala, J. (2016). A Credit Score System for Socially Responsible Lending. *Journal of Business Ethics*, *133*(4), 691–701.

Han, C. (2018). Mixed-methods research in interpreting studies. *Interpreting: International Journal of Research and Practice in Interpreting,* 20(2), 155-187.

Han, S. H. (2014). Joint 7th International Conference on Soft Computing and Intelligent Systems (SCIS) and 15th International Symposium on Advanced Intelligent Systems (ISIS) Soft Computing and Intelligent Systems (SCIS). In *IEEE* (pp. 867–872). Kita-Kyushu.

Hanley, J. (2009). More Important than Ever - The Real Estate Joint Venture. *Probate and Property*, *23*(5), 12–16.

Harris, D. F. (2014). *The Completed Guide to Writing Questionnaires: How to Get Better Information for Better Decisions*. I&M Press.

Hedman, E. (2016). Leadership Team Tool for better meaning making. *Journal of Management Development*, *35*(5), 592–605.

Henderson, L., Herring, C., Horton, H. D., & Thomas, M. (2015). Credit Where Credit is Due?: Race, Gender, and Discrimination in the Credit Scores of Business Startups. *The Review of Black Political Economy*, *42*(4), 459–479.

Hesse-Biber, S. (2010). *Mixed Methods Research: Merging Theory with Practice.* Guilford Press.

Ho, W., Xu, X., & Dey, P. K. (2010). Multi-criteria decision making approaches for supplier evaluation and selection: A literature review. *European Journal of Operational Research*, *202*(1), 16–24.

Honig, B., Liao, J., & Gartner, W. B. (2009). Institutional Isomorphism, Business Planning, and Business Plan Revision: The Differential Impact on Teams Versus Solo Entrepreneurs. *International Studies in Entrepreneurship*, *23*, 137–155.

Howell, R., & Allen, S. (2017). People and Planet: Values, Motivations and Formative Influences of Individuals Acting to Mitigate Climate Change. *Environmental Values*, *26*(2), 131–155.

Hoy, W. (2010) *Quantitative Research in Education.* Sage.

Hum, S.-H., & Parlar, M. (2014). Measurement and optimization of supply chain responsiveness. *Institute of Industrial Engineers (IIE) Transactions*, *46*(1), 1–22.

Hussin, M. R. A., Alias, R. A., & Ismail, K. (2013). An Action Research Approach for the Development of Cost Management Skills Training Programme among the Owners of Small and Medium Enterprises (SMEs) in Malaysia. *Procedia - Social and Behavioral Sciences*, *91*, 515–521.

Imeri, S., Shahzad, K., Takala, J., Liu, Y., Sillanpää, I., & Ali, T. (2015). Evaluation And Selection Process of Suppliers Through Analytical Framework: An Empirical Evidence of Evaluation Tool. *Management and Production Engineering Review*, *6*(3), 10–20.

Ishizaka, A., & Nemery, P. (2013). *Multi-criteria decision analysis methods and software*. Chichester: Wiley.

Isoherranen, V. & Ratnayake, R. (2018). Performance assessment of microenterprises operating in the Nordic Artic region. *Journal of Small Business and Entrepreneurship,* 30(5), 431-449.

Jeon, J., Kim, J., Park, Y., & Lee, H. (2017). An analytic network process approach to partner selection for acquisition and development. *Technology Analysis & Strategic Management*, *29*(7), 790–803.

Ji, C., Li, J., & Nie, Y. (2017). Effect of Past Experience on Perceived Service Quality and Customer Satisfaction: The Case of Chinese Casino Visitors. *Journal of China Tourism Research*, *13*(1), 65–82.

Jones, S. L., Fawcett, S. E., Wallin, C., Fawcett, A. M., & Brewer, B. L. (2014). Can small firms gain relational advantage? Exploring strategic choice and trustworthiness signals in supply chain relationships. *International Journal of Production Research*, *52*(18), 5451–5466.

Kahraman, C., Cebeci, U., & Ulukan, Z. (2003). Multi-criteria supplier selection using fuzzy AHP. *Logistics Information Management*, *16*(6), 382–394.

Kahraman, C., Öztayşi, B., & Onar, S. Ç. (2016). A Multicriteria Supplier Selection Model Using Hesitant Fuzzy Linguistic Term Sets. *Journal of Multiple-Valued Logic & Soft Computing*, *26*, 315–333.

Kannan, D., Khodaverdi, R., Olfat, L., Jafarian, A., & Diabat, A. (2013). Integrated fuzzy multi criteria decision making method and multi-objective programming approach for supplier selection and order allocation in a green supply chain. *Journal of Cleaner Production*, *47*, 355–367.

Kawa, A., & Koczkodaj, W. W. (2015). Supplier Evaluation Process by Pairwise Comparisons. *Mathematical Problems in Engineering*, 1–9.

Kelly, N., Hareel, T., Fontes, A., Walters, C., & Murphy, J. (2017). An Examination of Social Desirability Bias in Measures of College Students' Financial Behavior. *College Student Journal*, *51*(1), 115–128.

Kemmis, S. (2010). What is to be done? The place of action research. *Educational Action Research*, *18*(4), 417–427.

Kim, W., & Mauborgne, R. (2015). *How to Create Uncontested Market Space and Make the Competition Irrelevant.* Harvard Business Review Press.

Ko, D. G. (2010). Consultant competence trust doesnt pay off, but benevolent trust does! Managing knowledge with care. *Journal of Knowledge Management*, *14*(2), 202–213.

Kotler, P., Bowen, J. T., & Makens, J. C. (2014). *Marketing for hospitality and tourism*. Boston: Pearson.

Krohling, R. A., Lourenzutti, R., & Campos, M. (2015). Ranking and comparing evolutionary algorithms with Hellinger-TOPSIS. *Applied Soft Computing*, *37*, 217–226.

Kusari, S., Hoeffler, S., & Iacobucci, D. (2013). Trusting and Monitoring Business Partners throughout the Relationship Life Cycle. *Journal of Business-to-Business Marketing*, *20*(3), 119–138.

Kuzniak, S., Rabbani, A., Heo, W., Ruiz-Menjivar, J., & Grable, J. (2015). The Grable and Lytton risk-tolerance scale: A 15-year retrospective. *Financial Services Review*, *24*(2), 177–192.

Langely, P. (2014). Equipping entrepreneurs: consuming credit and credit scores. *Consumption Markets & Culture*, *17*(5), 448–467.

Larson, W. (2015). New Estimates of Value of Land of the United States. *Bureau of Economic Analysis*, 1–30.

Lazear, E. P. (2004). Balanced Skills and Entrepreneurship. *American Economic Review*, *94*(2), 208–211.

Lee, S., & Persson, P. (2016). Financing from Friends and Family. *Review of Financial Studies*, *29*(9), 2341–2386.

Lehavi, D. (2014). *Business Partnership Essentials*. De|G Press.

Leitch, M. (2010, March 8). Results of a survey of alternative risk phrases. Retrieved April 4, 2018, from http://www.internalcontrolsdesign.co.uk/

Liao, C.-N., Lin, C.-H., & Fu, Y.-K. (2016). Integrative model for the selection of a new product launch strategy, based on ANP, TOPSIS and MCGP: a case study. *Technological and Economic Development of Economy*, *22*(5), 715–737.

Lima Junior, F. R., Osiro, L., & Carpinetti, L. C. R. (2014). A comparison between Fuzzy AHP and Fuzzy TOPSIS methods to supplier selection. *Applied Soft Computing*, *21*, 194–209.

Lo, S.-C., & Sudjatmika, F. V. (2016). Solving multi-criteria supplier segmentation based on the modified FAHP for supply chain management: a case study. *Soft Computing*, *20*(12), 4981–4990.

Lown, J. M. (2011). 2011 Oustanding AFCPE® Conference Paper: Development and Validation of a Financial Self-Efficacy Scale. *Journal of Financial Counseling and Planning*, *22*(2), 54–63.

Luko, S. N. (2013). Risk Management Terminology. *Quality Engineering*, *25*(3), 292–297.

Lummus, R. R., Krumwiede, D. W., & Vokurka, R. J. (2001). The relationship of logistics to supply chain management: developing a common industry definition. *Industrial Management & Data Systems*, *101*(8), 426–432.

Lusardi, A., Schneider, D., Tufano, P., Morse, A., & Pence, K. (2011). Financially Fragile Households: Evidence and Implications. *Brookings Papers on Economic Activity*, 83–150.

Lusardi, A., & Tufano, P. (2015). Debt Literacy, Financial Experiences, and Overindebtedness. *Journal of Pension Economics & Finance*, *14*(4), 332–368.

Making Sense of Risk Appetite. (2018). Retrieved April 4, 2018, from https://courses.independent.co.uk/training/incisive-training/making-sense-of-risk-appetite-320610

Manganelli, B. (2015). *Real Estate Investing: market analysis, valuation techniques, and risk management*. Switzerland: Springer.

Manhas, P. S., & Tukamushaba, E. K. (2015). Understanding service experience and its impact on brand image in hospitality sector. *International Journal of Hospitality Management*, *45*, 77–87.

Marinelli, N., Mazzoli, C., & Palmucci, F. (2017). Mind the Gap: Inconsistencies between Subjective and Objective Financial Risk Tolerance. *Journal of Behavioral Finance*, *18*(2), 219–230.

Mathieu, A. (2016). *Essays on the Impact of Sentiment on Real Estate Investments*. Wiesbaden: Springer Fachmedien Wiesbaden GmbH.

McGrath, H., & O'Toole, T. (2016). Using Action Research and Action Learning for Entrepreneurial Network Capability Development. *Action Learning: Research and Practice*, 13(2), 118-138.

McMullen, J., & Dimov, D. (2013). Time and the Entrepreneurial Journey: The Problems and Promise of Studying Entrepreneurship as a Process. *Journal of Management Studies,* 50(8), 1481-1512.

McNellis, J. (2016). *Making it in real estate: starting out as a developer*. Urban Land Institute.

Merriam, S. & Tisdell, E. (2016) *Qualitative Research: A Guide to Design and Implementation.* Jossey-Bass.

Miemczyk, J., Johnsen, T. E., & Macquet, M. (2012). Sustainable purchasing and supply management: a structured literature review of definitions and measures at the dyad, chain and network levels. *Supply Chain Management: An International Journal*, *17*(5), 478–496.

Miguel, J., Caballé, S., Xhafa, F., Prieto, J., & Barolli, L. (2016). A Methodological Approach to Modelling Trustworthiness in Online Collaborative Learning. *Computer Standards & Interfaces*, *44*, 122–136.

Mills, G. R., Austin, S. A., Thomson, D. S., & Devine-Wright, H. (2009). Applying a Universal Content and Structure of Values in Construction Management. *Journal of Business Ethics*, *90*(4), 473–501.

Mishra, M., & Mishra, S. (2016). Financial Risk Tolerance among Indian Investors: A Multiple Discriminant Modeling of Determinants. *Strategic Change*, *25*(5), 485–500.

Mishra, R., Pundir, A. K., & Ganapathy, L. (2017). Evaluation and prioritisation of manufacturing flexibility alternatives using integrated AHP and TOPSIS method. *Benchmarking: An International Journal*, *24*(5), 1437–1465.

Moalagh, M., & Ravasan, A. Z. (2013). Developing a practical framework for assessing ERP post-implementation success using fuzzy analytic network process. *International Journal of Production Research*, *51*(4), 1236–1257.

Morgan, D. (2018). Living within Blurry Boundaries: The Value of Distinguishing between Qualitative and Quantitative Research. *Journal of Mixed Methods Research,* 12(3), 268-279.

Morteza, Z., Reza, F. M., Seddiq, M. M., Sharareh, P., & Jamal, G. (2016). Selection of the optimal tourism site using the ANP and fuzzy TOPSIS in the framework of Integrated Coastal Zone Management: A case of Qeshm Island. *Ocean & Coastal Management*, *130*, 179–187.

Mukherjee, K. (2017). *Supplier Selection: An MCDA-Based Approach* (Vol. 88). New Delhi: Springer India.

Muralidhar, S., & Berlik, E. (2017). What's Your Risk Appetite? Helping Financial Advisors Better Serve Clients (by Quantifying Kahneman-Tversky's Value Function). *Journal of Personal Finance*, *16*(2), 20–36.

Mustaffa, W. S. W., Bing, K. W., Rahman, R. A., & Wahid, H. A. (2016). Examining the Effect of Service Personal Values on Emotional Satisfaction with Service Experience among International Students in Malaysian Public Universities. *Procedia Economics and Finance*, *35*, 713–721.

Nachem, I. W. (2007). *The complete guide to financing real estate developments*. New York, NY: McGraw-Hill.

Nair, A., Jayaram, J., & Das, A. (2015). Strategic purchasing participation, supplier selection, supplier evaluation and purchasing performance. *International Journal of Production Research*, *53*(20), 6263–6278.

Nandram, S. & Samsom, K. (2006) *The Spirit of Entrepreneurship: Exploring the essence of entrepreneurship through personal stories.* Springer.

Nau, M., Dwyer, R. E., & Hodson, R. (2015). Can't afford a baby? Debt and young Americans. *Research in Social Stratification and Mobility*, *42*, 114–122.

Newbery, R. (2018) Entrepreneurial identity formation during the initial entrepreneurial experience: The influence of simulation feedback and existing identity. *Journal of Business Research,* 85, 51-59.

Nobre, L. H., & Grable, J. (2015). The Role of Risk Profiles and Risk Tolerance in Shaping Client Investment Decisions. *Journal of Financial Service Professionals*, *69*(3), 18–21.

Ohanian, R. (1990). Construction and Validation of a Scale to Measure Celebrity Endorsers Perceived Expertise, Trustworthiness, and Attractiveness. *Journal of Advertising*, *19*(3), 39–52.

Oksanen, A., Aaltonen, M., & Rantala, K. (2015). Social Determinants of Debt Problems in a Nordic Welfare State: a Finnish Register-Based Study. *Journal of Consumer Policy*, *38*(3), 229–246.

Ono, A., & Uesugi, I. (2009). Role of Collateral and Personal Guarantees in Relationship Lending: Evidence from Japans SME Loan Market. *Journal of Money, Credit and Banking*, *41*(5), 935–960.

Onwuegbuzie, A. (2018). Communication Vagueness in the Literature Review Section of Journal Article Submissions. *Journal of Educational Issues,* 4(1), 174-190.

Ortega-Parra, A., & Sastre-Castillo, Á. (2013). 'Impact of perceived corporate culture on organizational commitment. *Management Decision*, *51*(5), 1071–1083.

Oztaysi, B., Gurbuz, T., Albayrak, E., & Kahraman, C. (2016). Target marketing strategy determination for shopping malls using fuzzy ANP. *Journal of Multiple-Valued Logic & Soft Computing*, *27*(5-6), 595–623.

Peca, S. P. (2009). *Real estate development and investment: a comprehensive approach*. Hoboken, NJ: Wiley.

Pilbeam, C., Alvarez, G., & Wilson, H. (2012). The governance of supply networks: a systematic literature review. *Supply Chain Management: An International Journal*, *17*(4), 358–376.

Poorvu, W., & Cruikshank, J. (1999). *The Real Estate Game: The Intelligent Guide to Decisionmaking and Investment*.

Powell, W. W., Koput, K. W., & Smith-Doerr, L. (1996). Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology. *Administrative Science Quarterly*, *41*(1), 116–145.

Pyhrr, S. A., Cooper, J. R., Wofford, L. E., Kapplin, S. D., & Lapides, P. D. (1989). *Real estate investment: strategy, analysis, decisions* (2nd ed.). New York: Wiley.

Pyhrr, S. A., Roulac, S. E., & Born, W. L. (1999). Real Estate Cycles and Their Strategic Implications for Investors and Portfolio Managers in the Global Economy. *Journal of Real Estate Research*, *18*(1), 7–68.

Quarterly Residential Vacancies and Homeownership. (2018, April 26). Retrieved from https://www.census.gov/housing/hvs/files/currenthvspress.pdf

Raharjo, H., & Endah, D. (2006). Evaluating Relationship of Consistency Ratio and Number of Alternatives on Rank Reversal in the AHP. *Quality Engineering*, *18*(1), 39–46.

Rahman, A., Rahman, M. T., & Ključnikov, A. (2016). Collateral and SME financing in Bangladesh: an analysis across bank size and bank ownership types. *Journal of International Studies*, *9*(2), 112–126.

Ramsey, C. (2014). Management learning: A scholarship of practice centred on attention? *Management Learning*, 45(1), 6-20.

Reddy, K. S., & Mahapatra, M. S. (2017). Risk tolerance, personal financial knowledge and demographic characteristics evidence from India. *The Journal of Developing Areas*, *51*(3), 51–62.

Reid, R. A., & Koljonen, E. L. (2000). Operations Management Audit: Service Customer Assessment Technique for Managerially-Initiated Improvements. *Journal of Professional Services Marketing*, *21*(2), 125–148.

Robb, C. A., & Sharpe, D. L. (2009). Effect of Personal Financial Knowledge on College Students' Credit Card Behavior. *Journal of Financial Counseling and Planning*, *20*(1), 25–43.

Robertson, J. (2000). The Three Rs of Action Research Methodology: Reciprocity, Reflexivity, and Reflection-on-Reality. *Educational Action Research,* 8(2), 307-326.

Rosenthal, J., & Masarech, M. A. (2003). High-performance cultures: How values can drive business results. *Journal of Organizational Excellence*, *22*(2), 3–18.

Rothwell, W. J., & Sullivan, R. L. (2005). *Practicing organization development: a guide for consultants* (2nd ed.). San Francisco: Pfeiffer.

Roundy, P., Holzhauer, H., & Dai, Y. (2017). Finance or philanthropy? Exploring the motivations and criteria of impact investors. *Social Responsibility Journal*, *13*(3), 491–512.

Rowan, S. (2013, January 28). Will The Multi-Tiered Capital Stack Reemerge. *Real Estate Finance & Investment*, 25.

Ryack, K., Kraten, M., & Sheikh, A. (2016). Incorporating Financial Risk Tolerance Research into the Financial Planning Process. *Journal of Financial Planning*, *29*(10), 54–61.

Rydenfält, C., Larsson, P.-A., & Odenrick, P. (2017). An action-oriented method for interprofessional organization development at a hospital operating unit. *Action Research*, *15*(2), 177–197.

Saaty, T. L. (1994). How to Make a Decision: The Analytic Hierarchy Process. *Interfaces*, *24*(6), 19–43.

Saaty, T. L., & Vargas, L. G. (2013). *Decision Making with the Analytic Network Process: Economic, Political, Social and Technological Applications with Benefits, Opportunities, Costs and Risks*. Dordrecht: Springer US.

Saaty, T. L., (2016). Tutorial on Complex Decision Models (ANP).

Sahay, B. S. (2003). Understanding trust in supply chain relationships. *Industrial Management & Data Systems*, *103*(8), 553–563.

Salam, M. A. (2017). The mediating role of supply chain collaboration on the relationship between technology, trust and operational performance. *Benchmarking: An International Journal*, *24*(2), 298–317.

Sappleton, N., & Lourenço, F. (2016). Email subject lines and response rates to invitations to participate in a web survey and a face-to-face interview: the sound of silence. *International Journal of Social Research Methodology*, *19*(5), 611–622.

Sarason, Y., Dean, T., and Dillard, J. (2006). Entrepreneurship as the nexus of individual and opportunity: A structuration view. *Journal of Business Venturing,* 21, 286-305.

Sarkar, A., & Mohapatra, P. K. J. (2006). Evaluation of supplier capability and performance: A method for supply base reduction. *Journal of Purchasing and Supply Management*, *12*(3), 148–163.

Sarkis, J., & Talluri, S. (2002). A Model for Strategic Supplier Selection. *Journal of Supply Chain Management*, *38*(4), 18–28.

Schmalz, M. C., Sraer, D. A., & Thesmar, D. (2017). Housing Collateral and Entrepreneurship. *The Journal of Finance*, *72*(1), 99–132.

Secundo, G., Magarielli, D., Esposito, E., & Passiante, G. (2017). Supporting decision-making in service supplier selection using a hybrid fuzzy extended AHP approach. *Business Process Management Journal*, *23*(1), 196–222.

Segura, M., & Maroto, C. (2017). A multiple criteria supplier segmentation using outranking and value function methods. *Expert Systems with Applications*, *69*, 87–100.

Selden, P., & Fletcher, D. (2015) The entrepreneurial journey as an emergent hierarchical system of artifact-creating processes. *Journal of Business Venturing*, 30, 603-615.

Shilling, J. D. (2003). Is There a Risk Premium Puzzle in Real Estate? *Real Estate Economics*, *31*(4), 501–525.

Shilling, J. D., & Wurtzebach, C. H. (2012). Is Value-Added and Opportunistic Real Estate Investing Beneficial? If So, Why? *Journal of Real Estate Research*, *34*(4), 429–461.

Shilling, J. D., & Wurtzebach, C. H. (2015). The Relative Performance of Private Equity Real Estate Joint Ventures. *International Real Estate Review*, *18*(2), 241–276.

Sipahi, S., & Timor, M. (2010). The analytic hierarchy process and analytic network process: an overview of applications. *Management Decision*, *48*(5), 775–808.

Smith, J. S., Karwan, K. R., & Markland, R. E. (2007). A Note on the Growth of Research in Service Operations Management. *Production and Operations Management*, *16*(6), 780–790.

Smith, S. (2017). 'Reflections for postgraduate students on writing an action research thesis. *Action Learning and Action Research Journal*, *23*(1), 61–76.

Sodenkamp, M. A., Tavana, M., & Caprio, D. D. (2016). Modeling synergies in multi-criteria supplier selection and order allocation: An application to commodity trading. *European Journal of Operational Research*, *254*(3), 859–874.

Somekh, B., & Zeichner, K. (2009). Action research for educational reform: remodelling action research theories and practices in local contexts. *Educational Action Research*, *17*(1), 5–21.

Sorensen, P. F., Yaeger, T., & Narel, R. (2017). The new golden age of organization development research and knowledge. *Organization Development*, *31*(1), 47–56.

Stake, R. & Usigner, J. (2010) *Qualitative Research: Studying How Things Work.* Guilford Publications.

Stern, J. (2015). Soul-searching and re-searching: action philosophy alone. *Educational Action Research*, *23*(1), 104–115.

Storme, M., Tavani, J.-L., & Myszkowski, N. (2016). Psychometric Properties of the French Ten-Item Personality Inventory (TIPI). *Journal of Individual Differences*, *37*(2), 81–87.

Straube, F., Durach, C. F., & Phung, J. (2016). Developing and applying a supplier selection model to account for supplier risk impacts. *Supply Chain Forum: An International Journal*, *17*(2), 68–77.

Sullivan, R. L., Rothwell, W. J., & Balasi, M. J. B. (2013). Organization development (OD) and change management (CM): whole system transformation. *Development and Learning in Organizations: An International Journal*, *27*(6), 18–23.

Sultan, P., & Wong, H. Y. (2013). Antecedents and consequences of service quality in a higher education context. *Quality Assurance in Education*, *21*(1), 70–95.

Sánchez-Martínez, M. T., Sanchez-Campillo, J., & Moreno-Herrero, D. (2016). Mortgage debt and household vulnerability. *International Journal of Housing Markets and Analysis*, *9*(3), 400–420.

Sánchez-Marín, G., Danvila-del Valle, I., & Sastre-Castillo, Á. (2015). Entrepreneurship and Family Business: Does the Organization Culture Affect to Firm Performance? In *New Challenges in Entrepreneurship and Finance* (pp. 169–179). essay, Springer International Publishing.

Tang, T. L.-P. (2016). Theory of Monetary Intelligence: Money Attitudes—Religious Values, Making Money, Making Ethical Decisions, and Making the Grade. *Journal of Business Ethics*, *133*(3), 583–603.

Tavana, M., Zandi, F., & Katehakis, M. N. (2013). A hybrid fuzzy group ANP–TOPSIS framework for assessment of e-government readiness from a CiRM perspective. *Information & Management*, *50*(7), 383–397.

Telyukova, I. A. (2013). Household Need for Liquidity and the Credit Card Debt Puzzle. *The Review of Economic Studies*, *80*(3), 1148–1177.

Tosun, C., Dedeoğlu, B. B., & Fyall, A. (2015). Destination service quality, affective image and revisit intention: The moderating role of past experience. *Journal of Destination Marketing & Management*, *4*(4), 222–234.

Tramarico, C. L., Salomon, V. A. P., & Marins, F. A. S. (2017). Multi-criteria assessment of the benefits of a supply chain management training considering green issues. *Journal of Cleaner Production*, *142*, 249–256.

Tse, E., Palumbo, L., & Ziering, B. (2011). Timing Matters: Getting in on the Ground Floor. *Cornell Real Estate Review*, *9*, 18–31.

Tummala, R. V. M., & Ling, H. (1998). A note on the computation of the mean random consistency index of the analytic hierarchy process (AHP). *Theory and Decision*, *44*(3), 221–230.

Ushioda, E. (2011). Why autonomy? Insights from motivation theory and research. *Innovation in Language Learning and Teaching*, *5*(2), 221–232.

van der Rhee, B., Verma, R., & Plaschka, G. (2009). Understanding trade-offs in the supplier selection process: The role of flexibility, delivery, and value-added services/support. *International Journal of Production Economics*, *120*(1), 30–41.

van Ooijen, R., & van Rooij, M. C. J. (2016). Mortgage Risks, Debt Literacy and Financial Advice. *Journal of Banking and Finance*, *72*, 201–217.

Vasconcelos, A. M. D., Barichello, R., Lezana, Á., Forcellini, F. A., Ferreira, M. G. G., & Miguel, P. A. C. (2015). Conceptualisation of the service experience by means of a literature review. *Benchmarking: An International Journal*, *22*(7), 1301–1314.

Voigt, G., & Inderfurth, K. (2012). Supply chain coordination with information sharing in the presence of trust and trustworthiness. *Institute of Industrial Engineers (IIE) Transactions*, *44*(8), 637–654.

Voordeckers, W., & Steijvers, T. (2006). Business collateral and personal commitments in SME lending. *Journal of Banking & Finance*, *30*(11), 3067–3086.

Wang, C., Harris, J., & Patterson, P. G. (2012). Customer choice of self-service technology: the roles of situational influences and past experience. *Journal of Service Management*, *23*(1), 54–78.

Wang, Y., Wallace, S. W., Shen, B., & Choi, T.-M. (2015). Service supply chain management: A review of operational models. *European Journal of Operational Research*, *247*(3), 685–698.

Weise, S., & Sepinuck, S. (2017). Personal Property Secured Transactions. *Business Lawyer*, *72*(4), 1143–1164.

Wookjae, H., Nobre, L. H., Grable, J., & Ruiz-Menjivar, J. (2016). What Role Does Financial Risk Tolerance Play in Mediating Investing Behavior? *Journal of Financial Service Professionals*, *70*(5), 42–52.

Wu, K.-J., Tseng, M.-L., & Chiu, A. S. F. (2012). Using the Analytical Network Process in Porters Five Forces Analysis – Case Study in Philippines. *Procedia - Social and Behavioral Sciences*, *57*, 1–9.

Yamaguchi, S., Akiyoshi, R., Yamaguchi, Y., & Nogawa, H. (2015). Assessing the Effects of Service Quality, Past Experience, and Destination Image on Behavioral Intentions in the Spring Training Camp of a Japanese Professional Baseball Team. *Journal of Convention & Event Tourism*, *16*(3), 228–252.

Yang, B., & Lester, D. (2016). Validating the Executive Personal Finance Scale with Financial Investments and Expectations in University Students. *Psychological Reports*, *118*(3), 804–809.

Yates, D., & Ward, C. (2014). The Integration Of Personal Financial Knowledge Into Multi-Disciplines: The First Step Of Reinforcement. *American Journal of Business Education (AJBE)*, *7*(2), 121–130.

Yeowart, G., Parsons, R., Murray, E., & Patrick, H. (2016). *Yeowart and Parsons on the law of financial collateral*. Cheltenham: E. Elgar.

Yu, C., & Wong, T. N. (2014). A supplier pre-selection model for multiple products with synergy effect. *International Journal of Production Research*, *52*(17), 5206–5222.

Zalewski, A. (2017). 2017 IEEE International Conference on Software Architecture Workshops (ICSAW) (pp. 149–152). Gothenburg: IEEE.

Zhang, W., Levenson, A., & Crossley, C. (2015). Move Your Research From The Ivy Tower To The Board Room: A Primer On Action Research For Academics, Consultants, And Business Executives. *Human Resource Management*, *54*(1), 151–174.

Zyphur, M. & Pierides, D. (2017) Is Quantitative Research Ethical? Tools for Ethically Practicing, Evaluating, and Using Quantitative Research. *Journal of Business Ethics,* 143(1), 1-16.

About the Author

Katherine Gunderson is a Doctorate of Business Administration (DBA) student with the University of Liverpool and her research is on real estate partnerships, with an emphasis on entrepreneurial relationships. She is particularly interested in how real estate professionals in investing and development began their careers to help foster future generations of professionals that can support real estate preservation, conservation and sustainability efforts.

Professionally, Mrs. Gunderson currently works as an International Business Development Consultant within the manufacturing sector helping promote growth and operational efficiency in a variety of manufacturing organizations across the world. She has founded a real estate investing and development company, Apsley & Grand, concentrating on historic in-fill real estate projects to promote the preservation and restoration of historical properties in urban environments. She currently lives in Fort Lauderdale, Florida with her husband. For more information about her real estate business, please visit ApsleyGrand.com or reach out to her directly at KGunderson@ApsleyGrand.com.