Personal Futures:
A Pathway for a New Generation of Investors

by

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ABSTRACT

The world of investing can be overwhelming and even intimidating, for the new investor. Uncertainties abound in speculating pundits, media given to hyperbole, multiple sources of advice, and even one's own knowledge the markets or rather, lack thereof. Considering this current state, methods to increase investor confidence in both themselves and in their understanding of the markets are sought-after and desired, by new investors and experienced alike, to potentially provide the impetus to invest, and the resiliency to continue. Whereas investing is inherently concerned with the future, personal and strategic foresight are similarly applied with a future-focused lens. This paper explores the intersections of financial planning, market futures, and foresight (both personal and strategic) to answer the questions: How can non-professional investors employ personal and strategic foresight to sustain confidence in an uncertain future? Expert interviews and an exploratory workshop were conducted, informed by a review of key aspects of the investing world, investors themselves, and personal and strategic foresight methods, to propose avenues for foresight in investing, and a personal foresight investing model.

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DEDICATION

To all of the "not yet" investors out there looking for encouragement and motivation,

may you honor the value of your futures by starting early.

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1. Introduction

In my role as a design researcher at one of the Big Six banks in Canada, I have spent my time speaking with investors on their perspectives on money and investing, and their motivation to invest. I work on the design teams for two online platforms geared towards different types of investors – those with limited to no knowledge of investing, and those that would like to buy and sell their own investments such as stocks, bonds, and ETFs, on the stock market. Through numerous usability studies and in-depth interviews related to investor behaviors and perceptions, one question that remains in every study, is what pushes and what stops people from making the decision to invest.

When contemplating my MRP, the intersection of foresight and investing came to mind as an area of investigation because of the synergies I saw between them. Foresight is naturally focused on the futures – what may or may not happen in the future, and how to ensure success by taking steps today that prepare you for those futures. Investing is also naturally focused on the future. Investing is oftentimes carried out with a long-term perspective, hoping that decisions made today will create a benefit positioned in the future. Choosing what to invest in, especially for long-term investments, is based on the expectation that it will appreciate in value and see success over time, bringing profit to the investor by some future date. Finally, the decision to invest (long-term) and weigh today's needs with the benefit to their future self is one that assumes the investor has at the very least, a vague picture of their future life, and what the profits will be used for/ needed for at some future time.

Due to the nature of investing, it seems that foresight may have a lot to offer in this space, one where it has not yet been applied. Generally, foresight has been reserved for organizations, or even towards ideas and concepts, investigating what their prominence could be in multiple futures, fortifying organizations or mobilizing actions today, to ensure success in the future.

Personal Foresight is a lesser known method, applied to one's own life, rather than to an organization. By exploring multiple possible and plausible futures of the outcomes of one's own life, one can incorporate actions and plans that will enable them to see success in that future.

Therefore, this MRP can be split into two parts. The first is:

1. How might foresight be used to inform the practice of investing? Theories on investing abound, "predicting" the future by tracking historical and present activity as the indicators of future market behaviors. **How might foresight be used in this space as a way to increase confidence in investing decisions?**
2. How might foresight be used to plan to invest for the new investor? Significant research has been done on the behavior of investors, but there are still investors that, given the opportunity, may not invest. As the common saying goes, you miss 100% of the shots you don't take. How might foresight help people to take those shots? What happens in the periods when a person is interested in investing, but not sure whether to go forward, that might assist in them pushing forward? **How might personal foresight be used in this space to increase confidence in personal investing decisions?**

FIGURE 1: AT THE INTERSECTIONS OF MARKET FUTURES + FORESIGHT (PERSONAL & STRATEGIC) + FINANCIAL PLANNING

My research question therefore is: How can non-professional investors **employ personal and strategic foresight to sustain confidence** in an uncertain future?

This MRP seeks to target the new investor. The new investor refers to anyone that:

- Has an interest in investing,
- Has limited to no knowledge of investing, and/ or;
- Has limited to no investments, and very little involvement in the management of their own investments.

A recent survey of 1,585 Ontarians age 18 to 36 (known as the millennial generation) completed by the Ontario Securities Commission, (OSC, 2017) found that although 4 in 5 Ontario millennials have savings, only half are investing. According to the research, 7 in 10 have other financial priorities that stop them from investing. Their top three financial priorities are paying off debts, buying a home, and retirement. Retirement is therefore a top long-term goal for most millennials. More often than not, investing is employed as a strategy over the long-term, retirement is an expected and well-suited goal to invest for. With a better sense of their future life in retirement, it is possible that potential investors will have a:

- Prioritized view of investing
- Sense of ownership over their future
- (An) impetus to act, and invest today

2. Background

Before delving further into the intersection of foresight and investing, it is necessary to describe key aspects of the investing world, and of investors themselves.

The Investing Landscape

Determining the type of method a person will choose depends on their approach to investing. In a study done by Forrester Research in which more than 33,000 US consumers were surveyed in April and May of 2014, investors were segmented into three areas (Doyle, 2015):

Soloists: More likely to be do-it-yourself investors with the confidence to choose their own investments. They don't seek the help of others, and they collect their own information to make their investment decisions.

Validators: Seek validation from experts. They still want to collect their own information but they rely on the advice of experts to guide their decisions and feel more comfortable having someone to talk to about the investment decisions they want to make.

Delegators: Prefer to defer all decision-making to the experts, which could be family members or financial advisors – or even algorithms developed by experts. They would also be happy to listen to others' advice on investing rather than doing their own research to find out what they'd like to do.

These segmentations provide insight into the choice new investors may may make when choosing an investing method. The investing methods can be generally described as follows:

Do-it-yourself: Investor will buy and sell their own securities (stocks, bonds, ETFs, etc.) using an online platform, without the need to go through an intermediary (for example, a financial advisor.) It is up to the investor to determine which investments are best for her, through her own methods. The investor herself determines when, what, and how to invest, whether a theory is applied, or analysis is done – it is up to her to decide.

Financial advisors/ financial planners: Generally, who one finds to help them with their finances is dependent on the amount of assets they have. Those with lower incomes are more likely to find financial advisors as they will accept clients at any income/ asset level, but may not necessarily have access to all financial trading possibilities (such as being able to buy securities other than actively managed funds.) Financial planners on the other hand, generally take on those with higher incomes, who may have advanced financial responsibilities such as a business, an estate to plan for, multiple income properties, etc. In both cases, the investor receives advice and direction on what to do with their investments, and through a discussion with the advisor/ planner, the planner/ advisor recommends, buys, and manages the agreed upon securities on an ongoing basis.

Robo-advisors: Found online, robo-advisors sit in between do-it-yourself, and advisors. This approach requires the investor to answer a few questions to get a better understanding of their investing needs and habits, and then through the choices the investor makes on an online platform, the investor's money is invested in predetermined securities. The investor is not given the choice of what actual securities to invest in, and there is minimal need for "advising" to occur as it is meant more as a "set it and forget it" type of relationship.

Millennials and Investing

According to a study by the Ontario Securities Commission, half of all millennials (born 1981-1999) do not invest (OSC, 2017). In a study by Yao and Cheng (2017), it was found that only 37.2% of working millennials had a retirement account. According to a study by Larson, Eastman, and Bocket (2016), millennials have been impacted by the Great Recession of 2008, showing greater conservatism in their retirement investment choices. They state that:

> *"…this cohort has seen tech bubbles, housing bubbles, stock market crashes, Wall Street scandals, and the Great Recession, as well as notable periods of high unemployment and declining salaries (Davis 2012; Morton 2002)."*

They also state that millennials with low financial literacy take on less financial risk, and stocks in general are seen as "risky," denoting a lack of knowledge of the varying characteristics that stocks can exhibit.

Although it may seem that investing is not important to millennials, a study by LeBaron, Rosa-Holyoak, Bryce, Hill, and Marks (2018) concluded that "the 'Process of Saving' which included elements such as budgeting, being thrifty, and investing" was the perceived to be the most critical to millennials, in terms of what they would teach to their future children. It can be interpreted that whether or not millennials themselves save or invest currently, they still feel it is an important endeavour to pursue.

Therefore, perhaps more than generations past, millennials are well-positioned to try new forms of investing. According to a recent Angus Reid study, "Personal Finance: Canadian Millennials," (2019) 51% would use a robo-advisor. Of non-investors, this age group was also the most likely to decide to try a robo-advisor.

Do it yourself and Choices of Investments

Much of the investing realm exists mainly online, where investors or wannabe investors learn about the markets through online blogs, websites, and forums – such is the world of investing – still an unknown to many and without a guaranteed "right way" to invest, this leaves a lot of room for interpretation, and it is up to the reader to use their own heuristics to determine what to believe, and who to listen to, when it comes to attaching meaning to market activity.

Those with low financial literacy are much less likely to invest in stocks (van Rooij, Lusardi, & Alessie, 2011). In addition, underconfident investors are unlikely to participate in the stock market (Xia, Wang, & Li, 2014). Therefore, this MRP does not focus on this group of potential investors as its main target audience, as those attracted to this way of investing are most likely not new investors.

However, there is a space to explore how looking to the future is currently used to assist those that employ their own investing strategies to engage in investing activities. This is not a comprehensive view of all theories that apply to “predicting the future” but is provided here as an overview of the general landscape of how a future-focused perspective exists in the markets today.

As a do-it-yourself investor (a person who decides to buy and sell their own securities such as stocks, bonds, mutual funds, or ETFs,) there are generally two accepted investment strategies to apply: Technical Analysis or Fundamental Analysis.

Technical Analysis focuses on patterns of price movements and volume (generally using statistical trends.) Two examples of ratios are provided here:

1. **The debt/ equity ratio** is a value that is determined by dividing the amount of debt a company has, by the amount of funds it has. The higher the number, the riskier the stock is.
2. **Market Value per Share/ Earnings per share** equates to how much you need to invest to receive one dollar of the company’s earnings. A high Price/Earnings or P/E ratio means that investors are anticipating high growth in the future.

Fundamental analysis measures the actual value of a stock, considering the overall economy and industry conditions to the financial condition and management of the company. For example, an investor might look at the company’s/ stock’s performance over time or the company’s turnover and profits. Fundamental analysis also assumes that investors will act rationally based on this information.

Where fundamental analysis is concerned with the activities of a particular company, technical analysis looks at trends across the market, or across multiple stocks, in an attempt to make a prediction as to which stock will rise in price and create profit for the investor. The following is a short summary of the differences between technical and fundamental analysis in investing (modified from “Fundamental Analysis vs.”, n.d.):

	Fundamental Analysis	**Technical Analysis**
Definition	Value calculated using various economic factors	Uses price movements and patterns to predict future price movements
Data From	Economic reports, news, events, industry statistics	Chart analysis
Asset Bought (sold)	When price falls below (above) intrinsic value	When a trade sees a price formation that has a high probability of moving into profit in the near future

Time Horizon	Often holding for days, weeks, or even months	Can be long term, but most take positions (hold a stock) for days, minutes or even seconds

TABLE 1: TECHNICAL ANALYSIS VS. FUNDAMENTAL ANALYSIS

One form of technical analysis is the Elliott Wave Theory. Established in 1939 by Ralph Nelson Elliott, essentially it proposes that the market is driven by human psychology and waves of optimism and pessimism. The waves follow a predictable wave pattern of 5 waves that trend upward followed by 3 waves that trend downward. Once an investor is able to recognize these patterns in market behavior, they can make investing decisions based on these trends. Prechter ("How Does Elliott Wave", n.d.) considers that this theory,

> *"…is a description of the steps human beings go through when they are part of the investment crowd, to change their psychological orientation from bullish to bearish. Since people don't change much, the path they follow in moving from extreme pessimism to extreme optimism and back again tends to be the same over and over, regardless of news and extraneous events."*

The Elliott Wave Theory applies a predictable pattern to the irrational behaviors of investors in the market. This view of investor behavior is in contradiction to the Efficient Market Hypothesis, which states that prices of stocks are rationally determined, assuming risk neutrality. People have a capacity for non-rational financial behavior because of their "ignorance of the odds" Prechter and Parker (2007):

> *"In utilitarian economic settings, where certainty is the norm, people reason; in financial settings, where uncertainty is pervasive, they herd...Herding is an unconscious, impulsive behavior developed and maintained through evolution. Its purpose is to increase the chance of survival. When humans do not know what to do, they are impelled to act as if others actually do know, herding increases the overall probability of survival. Unfortunately, when investors in a modern financial setting look to the herd for guidance, they do not realize that most others in the herd are just as uninformed, ignorant, and uncertain as they are…"*

The following table from Prechter and Parker (2007) describes the differences between Efficient Market Hypothesis and the Socionomic Theory of Finance.

Efficient Market Hypothesis (EMH)	Socionomic Theory of Finance (STF)
1. Objective, conscious, rational decisions to maximize utility determine financial values.	1. Subjective, unconscious, prerational impulses to herd determine financial values.
2. Financial markets tend toward equilibrium and revert to the mean.	2. Financial markets are dynamic and do not revert to anything.
3. Investors in financial markets typically use information to reason.	3. Investors in financial markets typically use information to rationalize mood–induced imperatives.
4. Investor decisions are based on knowledge and certainty.	4. Investor decisions are fraught with ignorance and uncertainty.
5. Exogenous variables determine most financial decisions.	5. Endogenous social processes determine most financial decisions.
6. Financial prices derive from individual decisions about value.	6. Financial prices derive from trends in social mood.
7. Financial prices are random.	7. Financial prices adhere to an organizing principle at the aggregate level.
8. Financial prices are unpredictable.	8. Financial prices are probabilistically predictable.
9. Changing events presage changes in the values of associated financial instruments.	9. Changing values of financial instruments presage changes in associated events.
10. Economic principles govern finance.	10. Socionomic principles govern finance.

TABLE 2: CONTRASTING MODELS OF FINANCE

Another way in which the future is "predicted" in the stock market is through cyclical investing. This method identifies the cycles that exist across industries, as a result of the ebbs and flows of the economy. With a downturn or an upswing in the economy, securities in technology, healthcare, real estate, banking, and manufacturing (to name a few) generally follow suit (Williams, 2014). However, the key to this approach is knowing when the economy is *actually* in a downturn, and when it is *actually* in an upswing. This requires "timing" the market, a difficult endeavour to accomplish with any consistency.

Regardless of the approach an investor takes, they are subject to well-documented behavioural biases. These biases are based on the premise that "Investors suffer from cognitive biases and cannot process available information rationally" (Thaler, 1993). In their systematic literature review of behavioral finance, Igual and Santamaría (2017) summarize that:

> *"… the main pillars of (the theoretical framework of behavioral finance) are the Representativeness Heuristic (biased beliefs) and the Prospect Theory (unconventional preferences), which are underlying most of the biases that lead to irrational behavior."*

In their paper on how behavioral finance can assist financial professionals, Charupat and Deaves (2004) draw on the following biases found within the theories above:

- Loss aversion – to be more concerned about avoiding the loss of money even though financially it is inappropriate;
- Mental accounts – to treat money differently based on where it is received, from, how much it is, and its purpose;

- Representativeness – fixating on salient and readily available information is given too much importance, and finally,
- Limited self-control and procrastination

They then provide eight maxims for financial advisors to help investors:

1) Take a holistic view of assets and liabilities
2) Allow as much pay as is affordable to be automatically invested
3) Forget the past and base decisions on future costs and benefits
4) Take a holistic long-term view of investments
5) Do not get caught up in investment fads
6) Past returns are no guarantee of future performance
7) Save early and as much as possible
8) Stay the course

These biases are well-documented and accepted within the current and accepted understanding of investor behavior.

> *"Papers from Kahneman and Tversky on these subjects are in fact the most cited research papers of this literature review with approximately 35.000 citations each, according to google scholar, more than double than the third most quoted paper" (Igual & Santamaría, 2017).*

It is clear that investors need help keep their minds on the future, and not be swayed by the past, or by their present situations, in order to be successful investors.

Ironically, there is a "Futures Market" which applies "futures thinking", but not in the way one would expect. The futures market allows traders to buy a contract (termed a "futures contract") which allows them to buy a particular commodity at a certain price at a certain time in the future, Hargrave (2019). How close the commodity is to that price at the time the contract ends determines the profit or loss that an investor will make. The contract will be paid out at the price it was sold at, not at the actual price. This is a way for producers to plan ahead. They know that if they sell a futures contract at a certain price, that they will receive this price when the time comes. How the price is determined is based on a mathematical model.

The timing of the market, and in the case of the futures market, predicting what the price of a commodity will be, all require a certain "knowing of the future."

Futures studies involve a certain "knowing of the future" as well, as Voros (2003) identifies in his generic foresight process. In it, he describes 4 stages: Inputs, "Foresight Work", Outputs, and Strategy. Inputs often includes scanning the environment for information, signals, and events that speak to the current status within the field of interest. "Foresight Work" is comprised of 3 steps: Analysis, Interpretation, and Prospection, where Analysis is as the name suggests, Interpretation "probes beneath the surface" and provides a more in-depth analysis of the inputs, and Prospection involves the "creation of forward views" often as **scenarios**. Next, Outputs are the options for action today, as identified by the "Foresight Work," as well as an expanded perception of strategic options available and possible. Finally, Strategy takes in the Outputs to generate decisions and actions for implementation. It is within the step of "Prospection" that the foresight process may offer unexplored value to the investing world. Where one attempts to "time the market", **the creation of forward views is a natural place in which foresight might provide insight and guidance.**

Sharpe, Hodgson, Leicester, Lyon, and Fazey (2016) propose a framework with which to understand tools and approaches for working with the future, and how they might be used, across varying levels of uncertainty and agency where agency is our ability to make decisions, and take actions to change a situation.

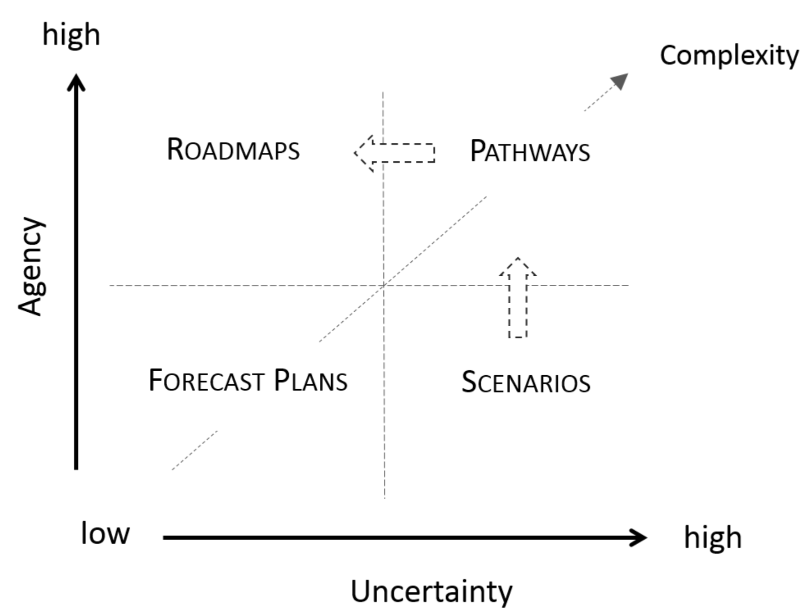

FIGURE 2: TOOLS AND APPROACHES FOR WORKING WITH THE FUTURE (SHARPE, ET AL., 2016)

The framework shows that where uncertainty about the future is low, and agency is high, a roadmap is the appropriate tool to apply from the foresight toolbox. In the case of investors, assuming they are not directly involved in the functioning of the underlying organization that they have invested in, they have a low level of agency and their uncertainty will likely be high as well, in which case, scenarios may be the better option.

Slaughter (1989) also proposes three broad applications for foresight as it relates to the breadth and purpose of the work:

- **Pragmatic:** Focused on competitive advantage within industry or business
- **Progressive:** Focused on transforming the industry
- **Civilisational:** Focused on reconceptualizing human activities and transforming the whole of society

The scale of the decisions being made at the level of markets, may point to a Pragmatic application of foresight to investing, although this might be left to the investor to interpret. Slaughter's definition of the different levels of analysis which can be made using foresight tools speaks to the ability to construct futures with differing and defined levels of horizontal and vertical spatiality, which provides a richness to the outcomes of futures work. Some foresight methods assist in gaining these perspectives, as will be discussed in a review of methods (See Methodology section.)

When considering the use of foresight within the context of investing and investing options, the breadth and depth of analysis required also depends on the depth of involvement the investor decides to have in the decision-making process. Whereas the do-it-yourself method requires that you make all decisions regarding what to invest, how much to invest, when, and for how long, other options such as financial advisors and robo-advisors assist the investor in these decisions, either taking responsibility for making the decisions, or advising on which decision to make.

Robo-advisors

Robo-advisors are the term for a method of investing where:

- All or most interaction occurs online, no human interaction

- A series of questions are asked of the investor, to create a portfolio recommendation
- The makeup of the portfolio is chosen by a “robo”
- The portfolio is rebalanced by a “robo”

Unfortunately, advisors favor higher net-worth individuals due to the lower aggregate costs of engagement, and this drives low investment participation rates by less wealthy households, (West, 2012). Therefore, it might be determined that even more new investors turn to robo-advisors.

Because choice is limited in this method, the investor cannot choose their investments, the only input required being answers to the questions at the beginning of the process. To provide a general overview of what these questions entail, five Canadian robo-advisors, including the most successful robo-advisor in Canada today, Wealthsimple, were assessed, and the questions asked by these robo-advisors during the sign-up process were documented. An analysis of these questions provides context into what questions are asked of investors. The questions aim to garner an understanding of the following:

- Their risk tolerance
- Their plans for the money
- What they would like to save for (there must be a goal)
- How much they think they will need (which requires some understanding by the investor, of why they would need the money and what for)

Financial Advisors

The choice of a financial advisor, is one that is sought out by many Canadians. 67% of those that do invest, consult at least one investment professional, (OSC, 2017).

According to the Canadian Securities Administration (n.d.) an adviser can help you:

- Set your goals
- Build a plan
- Choose suitable investments
- Track your progress
- Adjust your plan, when needed

When considering the intersection of foresight and investing in this context, the focus will remain on the first and second bullets above, before the choice of suitable investments takes place. This is because this decision is generally heavily influenced or made by the advisor. The use of foresight as used by an investor, is the main focus.

According to the Government of Canada, the terms “financial advisor” and “financial planner” are used broadly and don’t always mean that a person has specific qualifications, expertise or certifications. Outside of the province of Quebec, anyone can call themselves a “financial advisor” or “financial planner.” There are many places to find financial advisers including banks, credit unions, stockbrokers, mutual fund dealers, independent financial planning companies.

To understand the approach taken by the broad range of financial advisors possible, expert interviews were conducted to help inform this topic (see Findings.)

3. Methodology

The following methods have been used as the scaffolding to build out an approach to this research: scenarios, generic futures, causal layered analysis, personal futures, the diamond star, and an approach by Draudt and West (2019) called “What the Foresight”. Through a review of investing, and the listed foresight methods, the methodology applied investigates the following:

1. The application of foresight to choose your own investments (from a very tactical perspective, i.e. buy this stock, and sell that bond), and;
2. The application of personal foresight to plan and in most cases, begin your investing journey (from a very tactical perspective, where making the decision to invest is the first important step to being a successful investor.) Its application is constrained by the following learnings from current investing methods:
    a. Short period of time to complete (either within an online survey or at the first meeting with a financial advisor
    b. Amount of work required to complete must fit within this same timeframe
    c. Applicable and practical enough to lead to a person to decide today.
    d. To conceptualize their future with enough surety to apply a dollar-figure to it, that may impact their current lifestyle

e. Able to be applied specifically at the personal level
f. Regardless of how one invests, there is the need to *invest*. The decision has to be made, and therein lies the more important step in ensuring that an investor is successful.

As foresight methods are generally applied to longer term perspectives (i.e. at the very least 5 years out) the ability to test any foresight methods applied to the first point above would prove to be outside of the purview of this MRP. However, there may be ways to incorporate foresight methods to the second point above. The application of foresight within the context of an advisor/ investor interaction provides a suitable environment within a manageable timeline to test the viability of using personal foresight within the investing space, without the need for long timelines. To further explore these possibilities, expert interviews, foresight method design, and a foresight workshop were chosen as the primary research methods to support this MRP. The following is a review of the foresight and personal foresight methods to be adapted, concluding with an explanation of the primary research that was conducted.

Scenarios

Scenarios are the most common way to create the "forward views" described by Voros (2003) in his generic foresight process. As described by Oglivy and Schwartz (2004),

> *"(Scenarios) are more like hypotheses of different futures specifically designed to highlight the risks and opportunities involved in specific strategic issues."*

In a review of scenario development techniques, Bishop, Hines, and Collins (2007) identified 8 categories and 23 variations of techniques that can be used to develop scenarios, however, the Royal Dutch Shell/Global Business Network (GBN) matrix approach, is the default for this work. In his book, "The Art of the Long View" Schwartz (2012) describes this scenario development method. The following steps are defined:

1. Identify the focal issue or decision – begin with the important decisions that have to be made, specific enough to the organization in question
2. Identify key factors in the local environment that influence the success or failure of that decision
3. Identify driving forces behind the key factors in step 2.
4. Rank the key factors and driving forces by uncertainty and importance

5. Choose scenario logics based on the most important and most uncertain forces and factors (usually with the use of a 2x2 matrix, to create 4 scenarios)
6. Flesh out the scenarios by providing content for each factor and driving force, then weaving them together into a narrative
7. Identify the implications of carrying out the decision in step 1, within each scenario
8. Select leading indicators and signposts to be monitored going forward, in order to indicate whether events are either leading to, or away from the identified scenarios.

What might the focal issue be for an investor? How might that question be crafted in order for scenario development to occur in relation to a trading decision? What might the most critical uncertainty and the most important factor be for an investor?

Generic Futures

Another method of scenario development, is through the development of generic futures. Developed by Dator (2009), all four generic futures are meant to be considered with equal probability of occurring, and all “need to be considered in equal measure and sincerity.”

1. **Continued Growth**: Most common amongst governments, educational systems, and organizations, and typical of the view whereby all continues to grow as normal.
2. **Collapse**: A lower stage of development than currently exists in today’s context. It should not be portrayed as a "worst case scenario"
3. **Discipline**: Focused on survival and fair distribution.
4. **Transformation:** Focused on the powerfully transforming power of technology, anticipates and welcomes the transformation of all life, including humanity from its present form into a new "posthuman" form.

These generic futures were created for use within the context of helping an organization or community plan for and move towards its preferred future. However, could the “market” be the community, for which a generic future is created? What application would fit best in the context of a trading decision, when that trading decision can be made at varying levels of both horizontal and vertical spatiality, based on the investor’s interpretation of variables of importance? For example:

- Short term gain or long-term gain?

- Extent of impact by external forces inside or outside of industry, business, category?
- Extent of impact by region, country, etc.?

Causal Layered Analysis

Inayatullah's Causal Layered Analysis (1998) method is another very common analysis method. It is concerned with how the future is framed, and defines 4 dimensions of analysis:

- **Litany:** The official unquestioned view of reality, day-to-day view of how things are
- **Social causation:** The systemic perspective (social, economic, and political causes of the issue)
- **Discourse/ worldview:** The deeper, unconsciously held ideological, worldview – deeper social, linguistic, cultural structures that are actor-invariant (i.e. not dependent on who the actors are)
- **Myth/ metaphor:** The unconscious emotive dimensions of the issue, the gut/ emotional level experience the worldview under enquiry

Inayatullah (1989) explains:

> *"Moving up and down layers we can integrate analysis and synthesis, and horizontally we can integrate discourses, ways of knowing and worldviews, thereby increasing the richness of the analysis."*

These layers of analysis add a richness to methods of developing futures, and can be applied before scenarios are created. How might layers of analysis, either using Causal Layered Analysis or otherwise, be applied to the application of foresight to investing? What does richness mean in the context of investing, and how much of that is dependent on the investor's own interpretations?

As we get older, we begin to move from thinking about what we need day-to-day, to planning for the future. From a first job to a career, experiences and salaries grow, prompting the need to start looking at the future, considering our long-term goal(s), and aligning our actions, to ensure we achieve those goals. Those goals may be related to building a family or building professional success, and most often, these goals will depend on the amount of financial resources available to support these endeavours, and oftentimes can depend on the time horizon. Although this MRP is more concerned with the application of foresight to long-term investing decisions (as these are typically the kinds made by new investors, at the beginning of their investment journeys,) shorter term investing decisions might also be supported by foresight.

The Three Horizons futures technique is described by Curry and Hodgson (2008) as connecting the present with the desired futures, helping to identify the divergent futures which may emerge as a result of the conflict between the embedded present and these imagined futures. This may be a possible method to consider in my Foresight Methodology design. Essentially it follows the following framework by Sharpe et al. (2016):

- Horizon 1 (H1): How things are done today, and how things may not be fit with the conditions which are emerging.
- Horizon 3 (H3): How things will be done in the desired future.
- Horizon 2 (H2): A transitionary period between H1 and H3, where disruptions that lead to H3 occur.

In the context of investing, the Three Horizon model may be a way to determine next steps from a personal standpoint, rather than from the perspective of a determining an investing decision. That is, what is the personal future(s) that the investor wants to achieve, and how can knowing their own three horizons, support the decision to invest? This leads us into personal foresight and an exploration of the tools available in this space, as they relate to the second part of this MRP, which is concerned with how personal foresight might be used to increase confidence in personal investing decisions (i.e. deciding to invest in the first place.) Personal foresight may play a role in the decision/ plan to invest, the “why” to invest. By having a clearer understanding of one’s future, the reason to invest, and for how long may be supported, and provide the motivation required to make the decision to invest.

The time to discuss your strategy is at the beginning of the investing journey. Barring those that DIY, there is a moment in time for advisors and for those using a robo-advisor, where their understanding of their future will determine whether or not they proceed with their investing decision.

Personal Foresight is an area of study that looks into applying the futures methods to your personal life. Incorporating futures methods with investing may allow users to take the same type of approach to long-term investing. (Note that personal foresight and personal futures will be used interchangeably.)

Personal Futures

A futures practitioner who has developed his own process for applying personal futures is Dr. Verne Wheelwright. In his book, "It’s your future…Make it a good one!", he describes a process that recognizes the cycles existing in everyone's life, by identifying life stages to help divide time-periods into more manageable sections, (Wheelwright, 2010) Supplemented by the Personal Futures Workbook, the steps in the process include identifying:

1. **Stages of Life** - from infancy through to vulnerable elder and end of life and the life stage you'd like to plan for
2. **Six personal forces of domains** or categories that are a part of a person's life from birth until death (Activities, Finances, Health, Housing, Social, and Transport)
3. **Stakeholders** – who are the most important people in your life and what their ages will be over the next 20 years
4. **Quality of Life trendlines** that tracks your anticipated (most plausible) and least plausible (pessimistic) projection of your next life stage, across ten-year time horizons.
5. **Trendlines** by personal Domain
6. **Life Events**
    - Scanning the environment and STEEP (Social, Technological, Economic, Ecologic, and Political Forces) for impacts at the World, National, and Local levels (with events with a high probability of occurrence and a high impact being the ones you want to plan for.)
    - Identification of common events in life and life stages where these events are likely to occur (at high probability and high impact, including any high impacts on key stakeholders and wild card events
7. **Personal Values** that are most important for you
8. **SWOT** (Strengths, Weaknesses, Opportunities, and Threats) where strengths and weaknesses are identified within each personal domain, and opportunities and threats are identified within each external event (i.e. STEEP)
9. **The Futures Wheel** – a diagram that assists in organizing ideas or impacts related to a central problem or question that you want to answer (in this case "your future" is the central question/ area of focus.)
10. **Scenario development** – 4 scenarios are developed including: Best Plausible, Worst Plausible (identified from the trendlines), Wild Card Scenario, and a Continuation of the Present scenario. The Wild Card Scenario includes anticipated high impact and high probability events, and one or more low probability and high impact events, within each of the personal domains.

11. **Scenario Narratives** – creating a story for each scenario that incorporates aspects of every domain, within the life stage chosen to plan for
12. **Strategic Plan** – This incorporates the vision, values, strategies, and actions you will apply in order to achieve your desired future
13. **Backcasting** – working backwards from the future, to identify the actions required to achieve your goals
14. **Vulnerability Analysis** – identifying the events that could cause things to fall apart in your life, to then identify ways to reduce the risk of them occurring
15. **Gap Analysis** – identifying what resources you might need, in the form of time, money, relationships, etc. to achieve your plan, within each of the six domains
16. **Contingency Plan** – identify what your actions would be in case your worst plausible scenario or wild card scenarios occurred

The process is structured in such a way that the participant understands:

- Their current situation and where they are today in relation to the past and the future,
- The possible scenarios that might occur in their life and possible and believable events that may occur in each of those scenarios,
- How to reach the future they want for their next life stage with strategies, action plans, and contingency plans to get them there.

It's application to finances and financial well-being is captured in the "Finances" domain, where the participant would look at finances in a number of ways and:

- Identify all the key financial items in their life (i.e. income, expenses, mortgage, debt, etc.)
- Identify quality of finances over time with the trendlines analysis
- Identify high impact and high probability financial items within the life stage planned for, in addition to any related to key stakeholders
- Identify strengths and weaknesses within finances
- Actions, and plans for how to meet finance goals, and contingency plans in case they aren't met

This process presents a robust application of personal futures to all aspects of life planning, including financial aspects and is provided as a series of worksheets for the participant to fill out as they make their way through the process.

Diamond Star

Another personal futures method is the Diamond Star. The Diamond Star is a method developed by Dr. Peter Jones, from the Strategic Innovation Lab at OCAD University. It proposes the use of a values assessment to align vision with deeply held values and commitments.

It is proposed in a canvas format to facilitate the comparison of three key categories: Values (learning and wisdom from your past), Aspirations (current aspirations and desires), and Destinations (possible future outcomes.) (Lima, 2019).

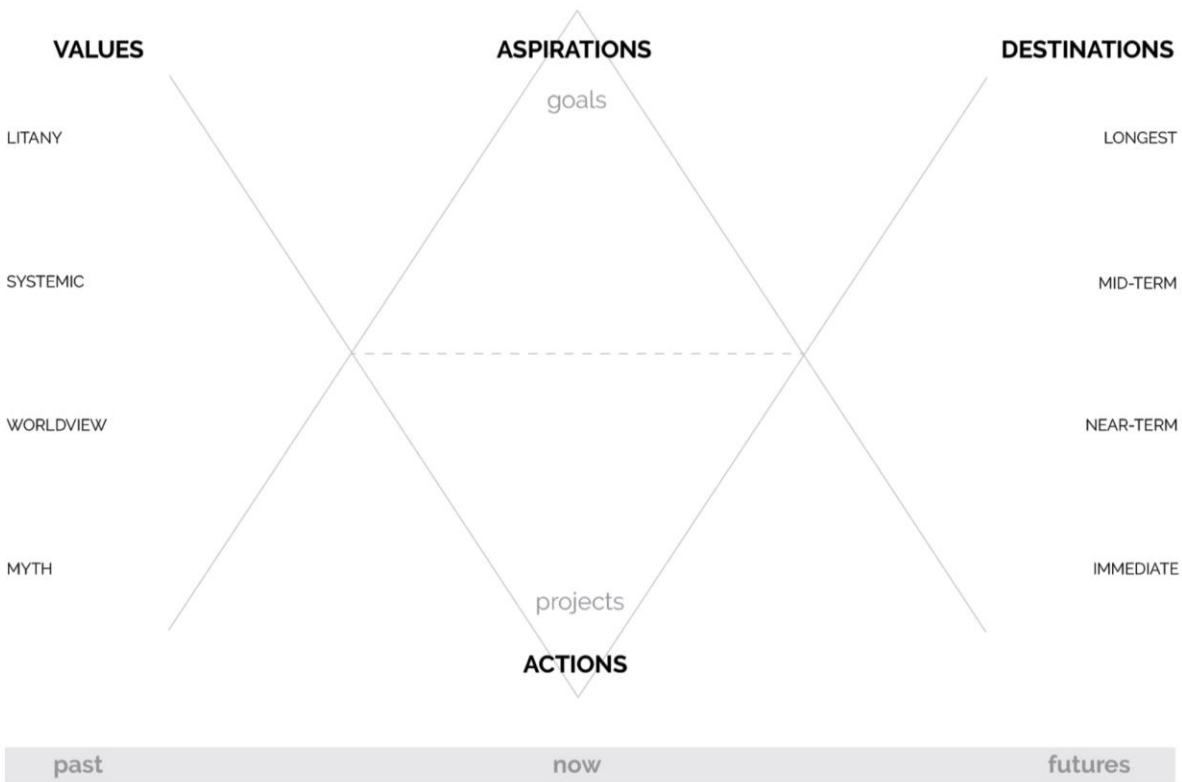

FIGURE 3: THE DIAMOND STAR CANVAS

Three key questions are proposed at the beginning of the process:

1. What are your highest aspirations (or your vision)?
2. What’s worth spending your career on?
3. How might you change something in the world a year from now? What’s possible?

The values section is completed by pulling from Inayatullah's causal layered analysis method, as described in the Background.

Within the canvas, actions are aligned to litany and aspirations are aligned to myth/metaphor, recognizing the relationship of the higher-level aspirations to deeper values that might hold unknown stories or lead to the identification of unconscious beliefs.

The combination of values and aspirations extends to what can be accomplished at your destination, either in the immediate, near-term, mid-term, or longest timeframe (determined by the participant.)

What the Foresight

"What the Foresight" is another offering by Alida Draudt and Julia Rose West, futurists out of Silicon Valley have also proposed a workbook format to assist participants in planning for their future. The components of their process are as follows:

1. Values Discovery – a list of values, with the task of identifying the most important values for oneself.
2. Surfacing Assumptions – a continuation of the present scenario, and assumptions required to maintain the present scenario in 5 years, as well as worries regarding what could happen
3. Other Futures – use of Alternative Futures (growth, constraint, transformation, and collapse)
4. Backcasting required to reach your preferred future
5. Implications (using the Futures Wheel) to help identify the impact of actions that are required to support the preferred future

The workbook also includes exercises meant to bring delight and playfulness to the futures planning process, including a "Letter to your Granddaughter" and an obituary for yourself in the form of a Tweet, in order to expand the creativity needed to think in the future.

Backcasting as a process, is used both in Draudt and West (2019) and to an extent, in Wheelwright (2010); an approach that works,

"…backwards from a particular desired endpoint to the present in order to determine the feasibility of that future and what policy measures would be required to reach that point" (Robinson, 1990).

Applied to one's own life, it would not be policy measures but rather activities required of oneself, to reach the end goal.

Expert Interviews

Five interviews with financial advisors were conducted in order to explore how financial advisors approach goal setting and planning for the future, when meeting with potential clients/ investors. As described earlier, activities before an investment choice is made are the main focus of this MRP, and these include how financial advisors assist their clients in setting goals and building a plan. In order to understand their approach, experts participated in one-hour interviews. Experts were considered to be any one who works or has worked as a financial advisor or financial planner. All those interviewed ranged in experience from 2 years to 20+ years of work as a financial advisor or planner. The experts interviewed for this project included financial advisors and planners from banks, multi-level marketing companies, and financial services companies. The experts were as follows:

- Expert 1 (E1): Financial advisor at a large Canadian bank (branch level)
- Expert 2 (E2): Financial planner at large Canadian bank
- Expert 3 (E3): Financial advisor at large North American financial services firm
- Expert 4 (E4): Independent financial advisor
- Expert 5 (E5): Financial Advisor at a multi-level marketing company that sells insurance and financial services

Over the hour, the experts were asked a number of questions which varied due to the semi-structured nature of the interview, however, all were asked the following key questions:

1. How long have you been an advisor for?
2. Please think about your current client base. What percentage of your clientele started investing with you within the following age groups:
    - 18-24
    - 25-38 (millennials)
    - 39-50
    - 50 +
3. How often do you meet with your clients? Why? (once a year, every month)

4. Comparing age groups as listed previously, which age groups would you say had the clearest vision for what they wanted to achieve with their finances? Why?
5. What steps do you take to determine what they want for their future?
6. What tools (online or otherwise) do you use to help your clients? (ex. Portfolio Asset Allocation for major life goals (house, family, education).)
7. Do you revisit them? Y/N How often? Why?

Exploratory Workshop

After the completion of the expert interviews, a comparison of the approach taken by each of the experts in helping their potential clients in prepare for the future, was completed. After an analysis of the similarities across approaches, further questions were generated from the perspective of the investor. What is the investor's reaction to these approaches? How successful is this line of questioning? How easy are these questions to answer? How well does this approach help investors envision their future?

In order to answer these questions, and to test how personal foresight might be applied to support personal investing, a 2.5h participatory, exploratory workshop was designed. Participation in the workshop required that participants had limited to no knowledge of investing, self-identified as "beginner" investors, which means that they want to learn more about investing, and don't necessarily feel confident in the knowledge that they currently hold.

The following objectives of the workshop were presented to the group:

- How does the approach taken by advisors (robo- or otherwise) impact success with investing?
- How might personal foresight be used in this approach?

We began with a very brief overview of investing, (with the disclaimer provided that this did not constitute investment advice, and that this is only being presented to level-set for the remainder of the workshop.)

The participants were asked to perform a role-playing activity wherein partners played the roles of advisor and investor, as part of a first meeting that an advisor would have with a potential client. The script for the "Advisor" was created as a result of the expert interviews conducted, and can be found in the Appendix.

After the role-playing activity, participants were then introduced to the Personal Foresight and Finances Tool. This tool was created based on the learnings from the review of investing, personal foresight, and foresight, as a format with which to consider initial forays into what might result from the intersection of personal foresight, foresight and investing. Aspects from personal foresight, foresight, and current approaches by advisors were applied to create the tool, and are listed as follows:

- Inclusion of five of the six personal domains identified by Verne Wheelwright,
- Inclusion of the Common Events list to elicit ideas from investors
- Trendlines specific to financial activities
- A canvas approach utilized by the Diamond Star Method
- Inclusion of a worksheet to understand where you are today, and where you want to be in 10 years, to reflect (human) advisor line of questioning
- Inclusion of risk and access, to reflect robo-advisor line of questioning

As a result of the above, the following worksheets were provided to participants.

Worksheet 1: Vision: Understand where you are today, and where you want to be in the future.

	Me Today, Age: _____ What is currently happening with me today?	Me in 10 years, Age: ____ What do these areas look like in 2029?
Activities School? Training? Career? Hobbies? Sports?		
Health Condition? Medications? Care?		
Housing Home? Country?		
Social Family? Friends? Community?		

Transportation Mobility? Personal, auto, public?		

TABLE 3: FORM PROVIDED TO PARTICIPANTS

Worksheet 2: Common Events (adapted from Wheelwright (2010))

The following are highly probable events and high impact events that may occur at various life stages. Use these to generate more ideas on what your futures could involve.

20-29 years (Young Adult)	30- 39 years (Adult)	40-60 years (Middle Age)	Age 60 onward (Independent Elder)
Complete education More education Rent Start family Marriage Start career Big trip High Impact: Accident; Illness or injury of child; Job loss	Start family Change careers Buy a home Buy a car Big trip Marriage Trips High Impact: Financial pressures; Divorce; Job loss	Children are moving out Children's education Parents need help Career promotion Big trip Leisure purchases Menopause Aging signs Empty nest Grandchildren Parents retire Peak earnings, savings High Impact: Serious or chronic illness, self or spouse; Parent illness or death; Crime victim; Job loss; Divorce	Eligible to Retire Health issues Increased aging signs Discretionary time Relocate, new friends Support children/ grandchildren Become caregiver High Impact: Retirement, changing roles and social; Serious illness, self or spouse; Death of spouse; Stop driving

TABLE 4: TABLE OF COMMON EVENTS & HIGH IMPACT EVENTS

The common events form was modified from its original version, by repeating some events across the age groups, to reflect the participants in the room (for example, many had not started a family yet, and were in their thirties, therefore "Start Family" was repeated to reflect this.)

Worksheet 3: Personal Foresight and Finances Tool

This worksheet was accompanied by the following instructions:

1. Fill out your Vision (Worksheet 1) using Worksheet 2 as a reference if required

2. Personal Future Graph
    a. Decide on your time horizon and add your ages to the age bubbles.
    b. Using your vision, plot the major events on the top half of the chart.
    c. Plot the major purchases that support these events.
3. Financial Futures Graph

Income & Expenses

- Graph your anticipated income.
- Graph your anticipated expenses.

Access – when should you be saving for that short-term goal? For that long-term goal?

- Fill in your (S) Short term saving periods
- (L) Long-term saving periods

Risk Tolerance – what is your tolerance for risk?

- (H) When can you be riskier with your money?
- (L) When should you be less risky with your money?

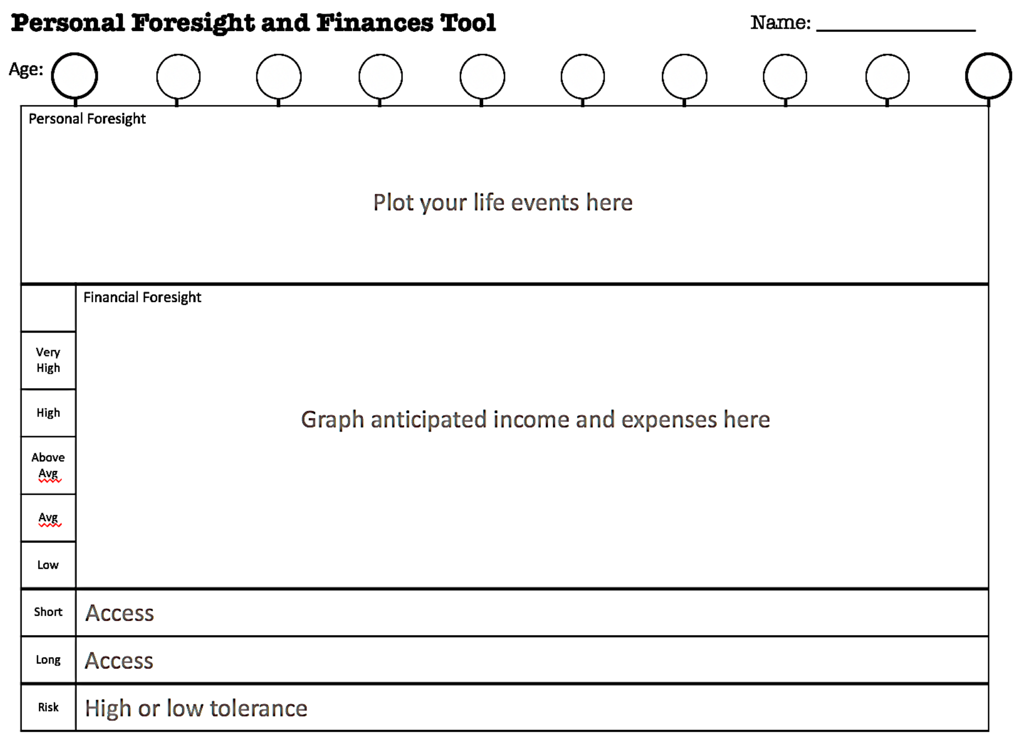

FIGURE 4: WORKSHEET 3: PERSONAL FORESIGHT AND FINANCES TOOL

After using the tool, themselves within a 20min timeframe, participants provided feedback on their experience using the tool, as well as areas for further exploration within the larger application of foresight more broadly.

4. Findings

In this section, the results of the expert interviews and the workshop are discussed.

Expert Interviews

Five semi-structured interviews were conducted with experts in the field of financial advising. The experts interviewed had between 2 to 34 years of experience to draw from, in providing their comments. A few attributes of the experts are listed here. Their consent to participate was provided on the basis of anonymity and therefore, the information here does not include any personally identifying factors.

Expert #	Institution	Income Restrictions	List of Own Clients?	Financial Advisor or Financial Planner
1	Major Canadian Bank	None	No (provided at Branch level)	Financial Advisor
2	Major Canadian Bank	Over $250K	No	Financial Planner
3	Financial Services company	None to Over $150K	Yes	Financial Advisor
4	Full-service brokerage, 100% commission-based	Over $250K	Yes	Financial Planner/ Portfolio Manager
5	Multi-level marketing company	None to over $150K	Yes	Financial Advisor

TABLE 5: EXPERT PROFILES

Themes emerged from the results of the interviews. To gain an understanding of the mix of clients they provide services to and the differences between them, one of the first questions that was asked was for a breakdown of who they typically see using the following age groups 18-24, 25-38, 39-50, and 50+. In general, the experts who had restrictions on who they could take on as clients, saw most of their clientele sitting within the older age groups, i.e. 39-50 and 50+. For these advisors, their younger clients generally came from client's who've sent their children to see them as a starting point for their investments. However, the differences between these age groups were still seen across all of the expert interviews performed, with some consistency.

On Future Vision and Financial Knowledge

The experts were asked about the clarity of vision each age group has towards their financial goals, as well as their level of financial knowledge, and their opinions on why or why not these levels existed.

Beginning with the 18-24 year old group, all felt that this group had the least clarity about their financial future. They are more worried about the needs of the moment – paying rent, paying for school, paying for their vehicle. "Definitely not them," - E1 one expert said; "They don't have a clue about their vision," - E2 said another. The question they are asked by this age group is "What's the minimum I have to invest?" E1. **How might a clearer vision for the future motivate younger investors to begin investing?**

Now although the clarity on a future vision may not be present, one expert felt that the interest was there – with more time on their hands, and information on investing readily available online, they have a greater ability to learn more should they wish to.

As we move to the 25-38 and 39-50 year old age groups, they were referenced as groups with more responsibilities, and therefore less concerned with their financial vision than they are about their immediate needs in the moment. Often called the sandwich generation due to their responsibility for both taking care of their children and their parents – many also find themselves taking on larger debts during this time – i.e. buying a family home, starting and supporting a family, etc. These groups are more proactive than the younger group, realizing that they need to initiate the conversation because of the increased financial responsibilities they have. Most experts considered these groups to have the clearest vision, because they are more aware of everything they don't know – and aware that they will therefore need to prepare themselves to handle these obligations sufficiently, from a financial perspective. It is also true in some cases that during these ages people begin to earn more money, as they reach the peak of their careers, and therefore they may not be thinking as much about their vision for the future as they are about making as much money as they can.

Once the immediate expenses and needs are taken care of, and the person has the opportunity to think about the future, the question moves from what to invest for, to what to save for. When people are accumulating their wealth, they are thinking about investing in order to reach a certain goal or vision. After a certain age and income level (which varies, but mainly is found in the 50+ age group) the focus becomes a deeper discussion around their situation and roadmap for the next 40-50 years of their life. Once retirement is saved for, what is the plan on how it should be spent, judiciously? How much will you need to meet your vision for the future at that point? As one expert comments:

> *"People are usually at the peak of their career. How do we try to use this for taking your foot off the gas?...It's not the basics, it's what to do once you spent money on the basics, and need to have more sophisticated ways of organizing your money." - E2*

Reasons to invest and what they save for change through the ages, as illustrated by the following figure. Although, a few experts commented that many (regardless of their age group,) do not know what their future vision is. One expert commented that:

"Most people do not have a budget, …nine out of ten people do not have a clue about goals…pretty soon they realize they don't have enough money so they have to cut something out or change what they want in retirement. You usually get to the bottom of it fairly quickly." - E3

Some clients, depending on their situation have complex finances to sort through, and many times it involves an emotional component. Do you want to do the same thing with your money as your partner does? How do you want to support your grandchildren? Who will your assets go to? To quote one of the experts,

"There is a lot of emotional involvement. People share stuff that they don't tell their family and friends…people share a lot with us." - E2

The Approach & Tools

As a result of the expert interviews, a list of common questions was created to reflect the approach that they take in helping their potential clients envision their future (as seen in the Methodology section.) Many commented on the nature of financial advising and how heavily it is based on human relationships:

"The best conversation is 80% listening and 20% talking."- E1

"You're in the people business. You have to be able to manage people…You think you're in the investment business (but if) you don't have people to see, you're unemployed. You learn how to work with people." - E3

Education is an aspect of the financial advisor interaction that was referenced especially for those that are new to investing – which can include both young and old clients.

"Part of my job is to educate them on important metrics – net worth, how to use assets to grow/ reduce cashflows, how well they look for the next thirty years, longevity and their tax situation."- E2

All advisors described making the effort to get to know the person, and making sure the person knew that this was sincere and that they can be trusted. Education is a factor in making sure they are trusted, as it provides transparency to the potential investor, on the motives and potential outcomes to expect from the advisor.

> *“When you're meeting a client for the first time, they want to know you're a person, not pulling out a cookie cutter and treating them as such.” - E4*
>
> *“Without trust, I’m a robo-advisor.” - E5*

The first meeting was about getting to know the person’s needs, why they’ve come to see the advisor, the types of financial experiences they had in the past. One expert, E1, recounted a tool provided to help understand the client from multiple perspectives, and to slowly determine the goals of the person through these answers. The tool is an acronym meant to guide a conversation with a potential client, and help inform how they might choose to invest. The acronym FORM, stood for:

- **Family**: Do you have a family? Do you take care of your parents? Do you have children to support?
- **Occupation**: Are you salaried? Commission-based? Business owner? (will have more options to contribute regularly)
- **Recreation**: Do you have expensive hobbies - ex. traveling the world.
- **Money**: Who drives those decisions in the family? What's your attitude towards money? Spender? Saver? Scared?

Advisors also use tools to assist in this conversation, but aside from the above tool, all other tools mentioned were in the form of software where values are input related to the clients’ income, expenses, assets, and financial goals. The software then provides a plan for how to achieve the goal that the client would like to reach, but from a financial perspective. The previous conversations around the person’s future are all driven by the need to determine a financial (numerical) goal in the future. All advisors use software which, after inputting all of a person’s financial information in the form of numerical values, shows their current financial situation, and how it is expected to change over time. Only one expert mentioned he did not use any tools, and only used a piece of paper, as he has had this conversation many times, enough to know the questions to ask. **How might differences in age impact the use of software vs. paper as a tool for use by advisors?**

The focus is not as much on a vision of the future, but rather on a quantifiable plan, which is heavily based on the current state (i.e. the software will show them where they will end up as a result of the financial information they know today.) This is what is used to determine whether the client is happy with their trajectory, or if they would like a different future for themselves, which would necessitate changes in their financial behavior (for example, to save an extra $200 per month.) **How might a vision of the future, unencumbered by financial realities, be helpful in creating more motivated investors?**

When determining how much a client might need when they retire, one approach used by an expert is to ask what their expenses are today, every month, and using this number as a baseline, helping the client to determine what their expenses might be when they are in retirement. All of these values are inputted into the software to see whether their plans are achievable, from a financial perspective.

“You need to have a number, or else you’re playing darts without a dartboard.” - E5

In this context therefore, a person’s vision of the future is heavily dependent on their current state. Envisioning this future state is not necessarily a function of their dreams and aspirations as much as it is about what they are constrained to, based on their current financial situation. A client is asked to provide information on their current state to build the picture of their future. They are then asked to judge whether their money takes them as far as they’d like it to, or if they need to make changes to their financial habits today.

At this point, the investment decisions are made, and what to invest in is determined, along with how much to invest. One expert relayed a story in which a couple had about $25,000 saved, but couldn’t bring themselves to give up the money because they were afraid of making a mistake.

“The initial catalyst however, is the decision to invest, not the (amount of) money.” - E3

How might a clearer vision of the future motivate people to invest more easily?

Advisors will revisit with their clients every 6 months to a year, depending on the client. This is driven by the need to maintain the relationship with the client, and check in to see if anything from a financial perspective has changed, to be factored in to the financial plan.

Usually, a change in a financial plan, or whether a person sticks to it or not depends on whether their plan was too aggressive, (i.e. the client cannot afford the savings plan they’ve created,) and whether their financial situation has changed (ex. They’ve increased their income, started a family, etc.) and they can no longer continue investing as expected. **How might a clearer view of the future improve the ability of investors young and old, to stick to a realistic plan? How might alternative futures create greater acceptance for changes needed today, to support a financial plan?**

In a way, the software can provide alternative versions of a financial future by inputting different numbers to generate different financial futures. There is a similarity here to foresight in that essentially, alternative financial versions of their future can be shown from a quantitative perspective. It is interesting to note that in financial planning, a very concrete method of planning for the future is created, via the use of one number to determine the investment plan. **How might foresight add uncertainty to the process, in a way that still allows for a certain concreteness? How might alternative futures from a qualitative perspective aid the potential investor in towards in investing success?**

Through these expert interviews, a number of questions have been raised for exploration. It is clear that envisioning the future is constrained from the very beginning by the financial context that the client is in today. Advisors are incentivized to guide clients to a number, which sets the stage for the financial plan to implement. Therefore, advisors rely heavily on ensuring the client gets to the point that a number can be identified as the goal (i.e. They would like to have $3000 per month in retirement.) The key questions that arise are,

- How might a non-financial vision of the future change the investing experience, or even, the decision to invest?
- How might the plan created based off of this be more/ less beneficial to a potential investor?
- How realistic does a plan have to be for the investor to invest?

The findings of the role-playing activity shed light on some potential answers to these questions. The role-play is one of the activities carried out as part of the workshop, and is described in the forthcoming section.

Workshop

Role Play Feedback (Advisor/ Investee)

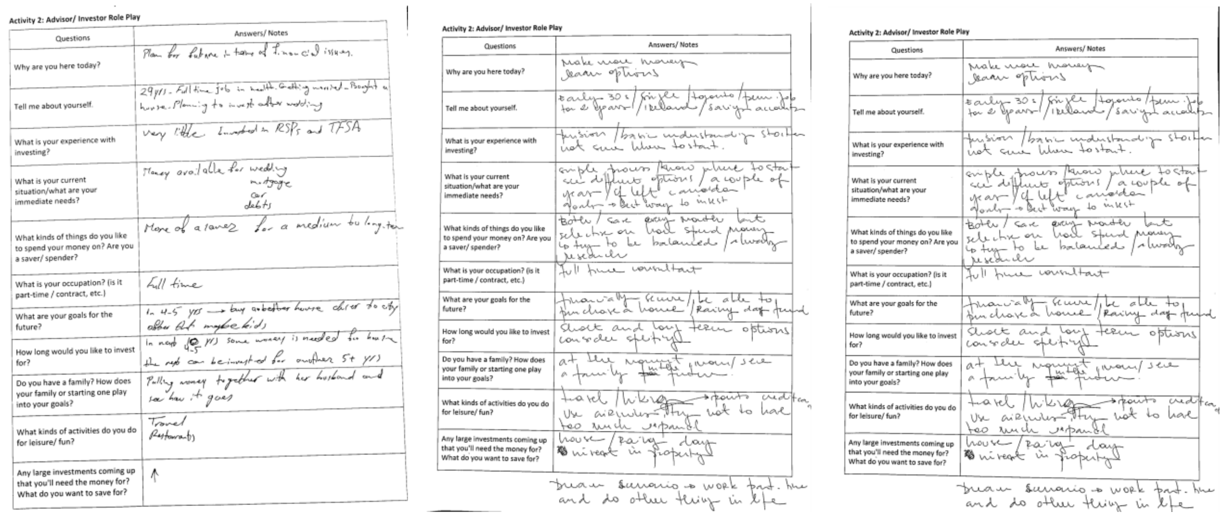

FIGURE 5: SAMPLE ANSWERS FROM ROLE-PLAY ACTIVITY

After completing the exercise, the group debriefed on their feelings about the interaction with an advisor (as both an advisor and as an investor) and the following main themes were identified.

As established through the expert interviews, the use of the first meeting is a discovery meeting where no products or investment plans are laid out. Rather it is the time for the advisor to understand the potential client, more about the context of their lives, and their purpose for coming to them in the first place.

During the workshop, 7 participants partnered up to role-play the interaction of a first visit, with one participant acting as advisor and the other as investor.

The nature of the questions posed by the advisor made some participants feel as if greater comfort with the advisor was necessary, in order to really get at the goals and "true" goals of the investor. As many of the participants had little to no knowledge and experience investing, it was the first time they were asked questions about their future goals in this way. A selection of participant feedback is as follows:

"It feels like I need to make concrete decisions about my life plan, and if I'm not going to do that, it makes it fairly overwhelming… Felt alarming that I couldn't with any certainty that I couldn't respond to any of the questions." - SB

"I feel like I have to make concrete decisions"- JH

Some felt that there was a level of comfort required with the advisor first, before these questions could be fully and truthfully answered, at a level that had meaning for the participant.

"The questions didn't get deeper. When you ask someone what they want for their future, (they) have to be a bit more comfortable to share what's in their life. How do you see yourself in the future – how would you like to be? Doing what?" - JH

"When you're talking to people about what they want in the future, I think you have to be a little bit closer to the person to make her comfortable to share what she really wants for her life." - JL

Considering that new investors may approach the first interactions with an advisor with a lack of clarity and uneasiness around their own uncertainty for their future goals, where could a personal foresight tool increase certainty or depth to the process?

Participant experts suggested that adaptations of the Causal Layered Analysis approach, and scenario development could be used to assist investors, to provide more depth to their understanding of their future and the different layers a person is not consciously aware of. Scenario development could be used as a way to see what different aspects of your plan could look like, perhaps as a plan with barriers, and with normal barriers, or as one participant stated:

"…Whether you're going for your dreams or not, you can see the difference…what happens in the collapse scenario? Do you have any plans for that or not?" - JS

Further feedback also identified the importance of identifying fears around finances, as well as their own perceptions about money. Those factors, not just what one wants for the future, impact how and why a person might invest.

"I think people have baggage that they've acquired from their family in terms of how they feel about money…what was your parent's philosophy on money?" - SB

What does this mean about how the advisor interaction can be changed?

Testing the Tool

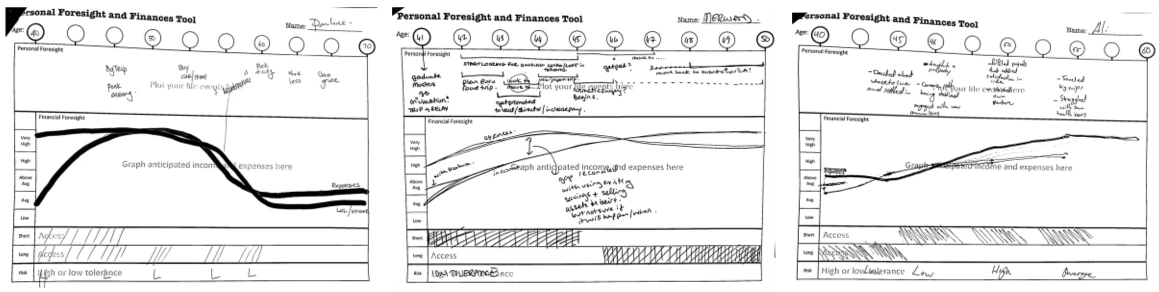

FIGURE 6: SAMPLE OF COMPLETED TOOLS FROM WORKSHOP

After completing the role-play exercise, participants then filled out Worksheet 1 and Worksheet 3 as described in the Methodology section. Three additional participants also joined the workshop to use the tool, resulting in 10 participants, with 6 being part of the SFI program. Upon using the tool, initial reactions from participants included the following:

> *"It actually makes you really think about the aspects you want in your life. I'm scared straight – I have to start saving now. I'm really thinking about investing in my future and taking actually steps now that I've plotted out in my life." – PR*
>
> *"You can see whatever you want to do with your life – right now it's here, and you can plan based on this canvas. You can see how far you want to go." – JL*
>
> *"The personal variables really difficult for me but I really liked having this template in life, just (seeing) the different Milestones that could come up (is) much easier." - MA*

However, a number of suggestions by participants were made with the potential to make the tool more useful in practice.

Suggestions

Common Events List

During the exercise, a list of Common Events by life stage (modified from Verne Wheelwright's process (2019)) was provided for use by participants. They stated that the events felt like they didn't fit within the events they foresaw for their own futures. They suggested to instead, include a list of life events, without the categorization by stage, because where those events fit is subjective to the individual.

Additional Details

"How high is high, how low is low?" - LF

A sort of "choose your own adventure" application was suggested for the various parts of the tool (for example, to label with a numerical value, what the actual income levels are, define the risk levels, define access.) This added a concreteness to the information on the page, to more clearly define what the future might look like.

There was a feeling of wanting to define as much as possible as way to acknowledge the uncertainty in the vision. Participants suggested adding space for more details such as:

- Risks, implications and emergency fund
- List of assumptions being made
- Your history with money, and the values applied to the handling of money
- The impact of key people in your life and their states of being over time

Participants also suggested various ways to help an investor become more aware of the options they have available to them, using dichotomies, helpful to be thought of side-by-side. Suggestions included:

- What is uncertain vs. certain?
- What takes money vs. what gives money?
- What is happening to me, and what is happening around me?

Time Horizon

Although participants were given the ability to choose their own timeline while using the tool, many felt that a shorter time horizon would be easier to determine what they think would happen in the future – and feel more confident about it. Personal foresight might be applied here to help investors keep a longer horizon (important for long-term investing) while feeling certain about the future.

5. Discussion

The purpose of this project was to investigate the intersection of foresight and investing, and then to more specifically find a potential place for personal foresight within that conjunction.

We began with an introduction and a background on investing and how foresight methods might be brought in as a salve to the sometimes anxious, tumultuous world of investing, as it is believed to be able to add certainty to an uncertain view of the market, with methods that require the user to envision the futures and prepare for them. Investing itself is such a future-focused activity, foresight finds a natural fit. If choosing to invest on their own, without assistance from a financial advisor, it is necessary to determine an investing strategy, one that will govern, how, when, and why an investment security is purchased.

When determining an investment strategy, fundamental analysis is concerned with the activities of a particular company, whereas technical analysis is concerned with trends across the market, or across multiple stocks, in an attempt to make a prediction as to which stock will rise or fall in price.

Upon first consideration, there may be some potential in applying foresight methods to complement these investment strategies. To help the investor identify signals and trends that could indicate an upcoming downturn or upturn in the current markets. Scanning practices of the current state as found in the Inputs stage of the generic foresight process by Voros (2003) could be completed. The act of scanning the environment and looking for signals could then be followed by scenario development, applied to an industry as a whole. These scenarios could also be applied to a particular organization's future, to identify signals to look out for in the current state (news, organizational changes, political events) potentially identified through backcasting activities, to course-correct as a do-it-yourself investor, through buying and selling actions based on the learnings from the application of these foresight methods.

Of course, these actions would be primarily applicable to long-term investment horizons, as foresight is concerned with longer timeframes. For example, a day trader (one who trades securities multiple times per day) is concerned with only price movements and not long-term investing. The long-term investor isn't interested in tracking the everyday ups and downs of the stock market, but rather in investments with some stability that will increase over long time periods, likely checked every 6 months to a year, (based on expert interviews.) Applying foresight methods every time an investor checked in on their securities in either of these time horizons would prove onerous for the individual investor.

In addition, in order to lend credibility and integrity to the foresight method being applied, the investor would need to have certain knowledge of an organization and/ or industry, in order to successfully apply foresight methods with enough research, and knowledge specific to the organization/ industry (sometimes even confidential knowledge) might prove to be too laborious an endeavor for the average investor. Considering that any one investor may be invested in a large number of companies, given the propensity for portfolios of different asset mixes to reflect risk tolerance and capacity, the application of these methods in this way becomes even more daunting. Where the effort may be less onerous and more realistic, is within personal foresight, as a method to fortify oneself and her actions, vs. trying to read the actions of the market, so that whatever the market does, the investor is well-positioned for success.

To invest is defined as (to) commit (money) in order to earn a financial return. (Definition of 'Invest', n.d.) Depending on one's own definition of what that entails, investing can mean putting money away for a vacation home, for retirement, or to buy a new house. All of these provide a financial return in different ways, either buying something tangible, or something more abstract, like a stake in a company (stocks) or loaning money to the government (Guaranteed Investment Certificate). Therefore, how a person decides to invest their money throughout their lifetime, and at different stages in their lives, is a varied and different decision for each person. Part of the benefit of personal futures methods, is that a person's life is assessed from many of angles, from stakeholders that play a significant role in your life (Wheelwright, 2010), to the impact of values (Lima, 2019), to alternative futures that could occur and the factors at play within them, from the economic context to the environmental (Draudt & West, 2019) Within these assessments, the investments of a person, whatever form they may take, are captured, thereby providing a space for the Personal Foresight Investing Model.

The Personal Foresight Investing Model guides a user towards success as an investor, by helping to avoid the pitfalls of investing, and solidifying one's resolve to stay true to an investing plan over time, regardless of the ups and downs of the markets.

The Personal Foresight Investing Model can be applied as a part of personal futures planning, to better prepare the user for their financial futures, and as a result, improve their success as a new investor.

A vision of the future, unencumbered by financial realities is helpful in creating more motivated investors. The use of personal foresight before any investing endeavor provides a clearer vision of the future, motivating people to invest more easily. Part of the hesitation to invest, as identified in the expert interviews, was that people are afraid to let go of their money today, for tomorrow's goal.

E1 stated that in the 18-24 year old range, the question he was often asked was "What's the minimum (I can invest)?" This stems from multiple priorities today that compete for financial attention, and not enough understanding, or acceptance of the fact that if you start early, you will be better off but *in the future.* Personal futures planning will bring certainty to this uncertain look at the future, and add gravity to the need and benefit of investing today, for a better tomorrow. Armed with a clearer vision of their possible futures, one is in a better position to determine what and how to invest, because they now have a picture (or multiple pictures) of what their actions today, will contribute to.

Where the investor engages with a financial advisor, personal foresight facilitates that first interaction with an advisor, where they may have a lack of clarity or uneasiness around their own uncertainty for their future goals. A modified version of the tool proposed in the workshop, can be utilized at this junction in the financial advisor and investor engagement. These could also be incorporated into the questions asked by robo-advisors as well, potentially into a more interactive activity in personal futures rather than solely an exercise to determine risk tolerance, risk capacity, and financial goals.

The modifications include additions from a foresight methods perspective:

Timescale

The timescale beginning at the participant's current age and ending at a future age (determined by the participant) is reminiscent of horizon 2 in Three Horizons method, and presented the participant with the relevant choices she had to make, to get to where she wanted to be in the future.

Aspirational, but Realistic

As seen in the use of the tool by participants of the workshop, there was a need to challenge one's aspirational view of the future, where providing more realistic attributes created a greater comfort with the vision. Once a greater comfort with the vision was attained investing would come more easily. The main theme shared by all participants was the need to make the future **less aspirational and more realistic**, with an option to see these various scenarios. Most, when faced with the need to plan, think first of the most likely and more optimistic scenario. The incorporation of scenario development within the tool could mitigate this tendency as it suggests different futures both optimistic and pessimistic. When developing the scenarios, they could be incorporated through a more personal lens, as presented by Wheelwright (2010).

> *"It is very aspirational – I can't think of bad things happening – that's the biggest barrier…Will Canada still look like it does? Am I doing the right thing?" - LF*

Foresight allows for aspirational planning without the aggressiveness that leads some investors to fail because their aspirations are not mitigated by well-thought-out strategies and events. Foresight will allow for the perfect balance between having an aspirational future, and a manageable plan, to more confidently reach tomorrow's goals. **Alternative futures and scenario development**, provide the permutations of futures necessary to instill confidence in the investor that they will achieve their preferred future, and backcasting can provide concrete steps to get there.

As identified by the experts however, those 50 and above, are planning their finances in terms of what to save for, whereas those under 50, are planning what they'd like to invest for. Those at the stage of "what to invest for" are still at an **aspirational** stage in their life. Those at the stage of "what to save for" are only able to live within the means they have saved for, and require more **realistic** scenarios. Therefore, the emphasis for older investors would be on alternative futures and scenario development with a more realistic perspective.

Quantifying Foresight

The practical side of investing necessitates that goals are quantified in order to understand an investor's current situation and where they want to be in the future. As such, the conversation between the investor and advisor is followed by the use of software that inputs the numerical values provided by the investor, to estimate how much must be invested to reach a certain value within a certain time horizon.

Therefore, adding dollar-values to quantify events identified in foresight and personal foresight would prove useful in increasing the practical application of these methods. Events identified in scenario development and the Three Horizon model might be quantified with dollar-values, to lend more insight into the financial implications of these potential futures. Backcasting might also be used to lend credibility to the final dollar-values associated with the financial goals defined through the process. It provides a way to work back from the future, and think through the financial events and personal actions that might need to occur in order to realistically reach one's goals.

Quantification as a way to add concreteness to an investor's conceptualization, rather than a reduction in the time horizon planned for by the investor may provide the practical view one seeks for their personal plan.

"Genericizing" Foresight

One of the key challenges of the tool, and incorporating foresight methods, is its constraint to be used during a meeting with a financial advisor, or within a sign-up process with a robo-advisor. Within the workshop, participants were given 20mins to complete the exercise, however considering the number of additions workshop participants requested to be made to the tool to add more color to the visions of the future created, more time will be required to use it.

Drawing inspiration from the "generic" futures method and Verne Wheelwright's use of Common Events, "genericizing foresight" in the form of templated scenario components could aid in shortening the time to completion so that these foresight methods can be used within shorter time constraints, without compromising their value and validity. This could involve a standard list of:

- Mindsets and worldviews pertaining to financial success
- Typical scenarios related to financial successes, with methods to indicate which key activities will/ will not occur.
- Identifying 5 key challenges that might be faced across all scenarios, for a quick wind tunneling based on the investor's current situation.

Windtunneling involves playing out the impact a challenge has on an investor within each scenario, to better understand how well they might perform in that scenario. Drawing from the outputs of the workshop, the following suggestions for additional inputs into the personal foresight tool could be defined within each windtunneling, to provide a clearer understanding of how an investor's actions might be impacted.

- Risks, implications and emergency fund
- List of assumptions being made

- Your history with money, and the values applied to the handling of money
- The impact of key people in your life and their states of being over time

These are however, proposed with a caution best stated by Voros (2003):

"The deeper the interpretation carried out, the potentially more robust the forward views (in the case, scenarios) which are created. It should also be clear that scenarios based solely on the Analysis step (e.g. based solely on trends and forecasts) will generate a very narrow range of alternative potential futures, as is clear in Figure 1. Such a paucity of breadth in the forward view, owing to a lack of depth in interpretation, represents a risk to the continued viability of an organisation; doubly so if the narrow range of options generated has a high degree of credibility apportioned to it in the minds of decisionmakers because of the use of "hard" (and therefore "solid") quantitative methods. It is valuable here to remember the maxim "garbage in, garbage out" from computer science. Let us be careful what we put in." - (Voros, 2003)

The line between saving time with generic futures information, and investor-inputted information, requires further investigation, in order to incorporate more aspects of foresight into the investing process.

Given the current digital age where faster, easier, and digital is a common desire; evidenced by the gig economy (ever-increasing part-time/ freelance/ as-needed employment), the sharing economy (Uber, Airbnb, etc.), and the constant drum of social media usage; applying these modifications to foresight methods can allow them to fit into smaller and more digestible timeboxed activities – perfect in this digital age. Foresight methods may be perfectly suited for this because foresight necessitates a deeper level of enquiry, resulting in richer, more meaningful outputs. Today, the strength of these methods could be what investing services utilize to push uptake to the mainstream for widespread usage, with a more personalized and meaningful engagement with investors. If validators and delegators today enlist the help of someone they trust to either help with or make their investment decisions for them, then increasing their trust in a robo-advisor (or other not-yet-created technology-driven service) with a more meaningful interaction could encourage an easier transition to non-human advisors. As artificial intelligence becomes more and more entwined into our everyday lives, an incorporation of foresight into the discovery of an investors needs and objectives can aid in its success.

Values

Although not a focus of the exploratory workshop, the use of values is another path by which new investors can find the confidence and resolve to begin investing. Both personal foresight and foresight methods include the activity of defining personal and/ or societal values. As Wheelwright (2010) references in his Personal Futures method, values are one's "…personal rules, so they guide your behavior and your actions. They will also guide your way to the future." Not incidentally, all of the personal foresight methods reviewed in this research included the identification of one's own values as relevant and pertinent to the completion of the personal foresight process. There is a synergy here with investing, in that one's personal values can also be used to direct one's investing motivations. Considering that in a survey of millennials, "57% of respondents are willing to sacrifice part of their return in the case of an investment in socially responsible instruments" (Formánková, Trenz, Faldík, Kolomazník, & Sládková, 2019), this is an important synergy.

Socially responsible investing allows one to exclude industries to invest in based on one's own moral judgements. Responsible investing, although similar in intent, does not exclude companies based on industry. Rather, by applying ratings to companies based on their performance against environmental, social, and governance (ESG) indicators relevant to their industry, investors can invest in companies that meet a certain standard of performance. This creates a greater value to the investment as it is connected to the personal values of the investor, holding more meaning for them than just to turn a profit. It may attach to their hopes for the world they want to see around them, the industries they'd prefer find success, and the environment they wish to preserve not just for whatever future arises, but as thee future they are aiming for, the one they want to see, outside of what they can currently control. It means that they are personally invested, not only financially in a way that meets their needs, desires, and hopes at a deeper level, attaching to their beliefs and hopes for the world outside of their own.

6. Conclusion

Investing young and investing early is an accepted maxim in any generation of investors. Looking at the trends in financial behavior over time, the younger generations after Baby Boomers are dealing with more difficult financial times than their predecessors. Based on current trends, many millennials (born between 1982 and 1994,) will not be able to retire until the age of 75 (Hobbes, n.d.). We face changing industries – the rise of the sharing economy and demise of taxis and landlines, and even the recent announcement of a closure of the Oshawa General Motors plant ("GM's Oshawa Plant", 2018). Noted in a recent Ottawa Citizen article, a recent survey of 4000 millennials across Canada found that the average wages for people between the ages of 18 and 35 have remained stagnant for nearly four decades (Pilieci, 2019). In a recent article in the Financial Post, Generation Z (the demographic born after 1996, proceeding millennials) are

> *"…are less optimistic about economic opportunity and student debt. As a result, Gen Z likes to play it safe. 'They are more risk-averse than previous generations in terms of both attitudes and behaviour'" (Griffin, 2018).*

It is true that more millennials are saving more than investing, in fact, 4 in 5 millennials are saving, but only half of millennials are investing according to the Ontario Securities Commission (2017). Considering the apprehension to invest, and the increased financial troubles of the younger generations, being prepared for shocking changes in the economy, unknowns like what the world be like in 10 years, especially with recent world events that have shaken what is predictable and what is not, (ex. the election and possible re-election of the current president of the our neighboring country to the south,) these uncertainties should encourage the use of Personal Foresight as a welcome addition to the investor's toolbox.

The inclusion of Personal Foresight in the toolbox of an investor serves a triple purpose.

First, its ability to create confidence and perseverance in one's own pathway forward. Strategic planning for an organization is a way for organizations to prepare themselves for the futures ahead, putting processes and changes in place today to ensure success in the future. Personal Foresight acts in the same way, to prepare an individual for the futures ahead, and put processes and changes in place today to ensure success in the future. The use of personal foresight may be the precursor to investing when used as part of one's own life-planning process, but more significantly it can be the impetus for investing. The tangible practice of writing and capturing one's intentions is the key function of personal foresight. Once the path forward is uncovered and written down, it is more likely to be achieved. As any self-help guru will tell you – write down your goals and make them SMART – specific, measurable, attainable, relevant, and time-bound. Writing them down makes it tangible. Writing them down helps you to realize them. Personal Foresight goes much further than just writing down goals. Personal foresight requires an actively thoughtful engagement, and goes into much more depth than solely writing goals down. It requires the investor to actively think through different facets of multiple goals they might have in more than one scenario of the future. Personal Foresight can also be included as a part of the investing approach, in the goal-setting and visioning part of financial planning with an advisor, to ensure goals are aspirational and achievable. Adapting these tools to be more easily applicable within shorter timeframes, and quantifying the elements of one's personal futures position these tools for practical application to financial endeavors.

Second, as a corollary to strengthening the resolve of its followers to start and stick to their personal path, personal foresight strengthens the resolve of its followers to stick to their investment path and to keep the investments they have made (especially with investments earmarked for the long-term) despite market uncertainty. Investors are plagued by emotional pitfalls causing them to act in ways contrary to their best interests. Behavioral biases have been found to drastically effect investor behaviors to the point of irrationality, when compared to the expected behaviors as defined in the Efficient Market Hypothesis. With the addition of social mood as described by Prechter and Parker (2007), investors not only have to deal with their own biases as they relate to their own finances, but also as they relate to their assessment of the financial markets and their tendencies to follow herd behaviors. Personal foresight should keep us from following herds and fads (such as Bitcoin investing), instead following a discipline towards goals defined by foresight for a preferred future. The futures lens of personal foresight reinforces the need to put futures first, the need to not let today's issues cloud the vision of the future one has prepared and planned for, and the ability to stay the course.

Finally, foresight as a practice allows investors to pivot away from impending crashes or potential downturns by learning to see signals and trends in their environment that might foreshadow them. A sort of forewarning system that enables investors to recognize events as markers signaling the need for potential exits or entries into markets. As a do-it-yourself investor, the value of scanning and determining trends could help one to course-correct their own investment strategies as events play out. For example, if their scenario included a collapse of a particular industry with potential trends that could lead to this event, an investor would now be positioned to recognize these signals and trends in anticipation of a collapse, and take precautionary steps to steer out of harm's way, long before it comes to pass. If one looked at the media's treatment of market behaviors, it is a very myopic view, designed to get clicks and scare investors to buy or sell fast in panicked anticipation of the "big crash." Foreboding headlines like "The bond market is flashing its biggest recession sign since before the financial crisis," (Cox, J., 2019) abound. Or, the promise of a "get rich quick" stock, the best stock to buy today, for the best return, penny stocks (stocks for under one dollar) where you "can't go wrong." Foresight provides a lifeboat in a sea of speculation, where deciphering competing pundit opinions and trusting their own (often limited) knowledge and experience of the markets are the only buoys. Personal foresight guides the lifeboat forward, attuned to the investor's goals, through the fear and confusion that plague investors who do not have a solid plan. For the 59% of millennials who do not invest, with 6 in 10 saying they don't know enough about investing to get started (OSC, 2017), nervousness about jumping into such a tumultuous sea can be assuaged with personal foresight.

The net result of these findings helps the average uninformed investor to improve their own resiliency in weathering financial storms, and provides additional ways to retain their investments in uncertain markets. Personal Foresight methods are not limited to a financial perspective. Decisions about investing are actually reliant on a broader understanding of one's whole personal futures. Financial institutions that recognize this may be able to appeal to a larger number of investors, with deeper engagements that, for example, enquire not just about future monetary goals but on personal futures. As a means to increase the "humanness" of the online investing experience, this approach can make the difference between a meaningless online interaction, and a significant turning point towards a lifetime of investing. The additional breadth and depth afforded by the incorporation of personal futures into the offering of financial institutions could also provide a bridge to address all financial endeavours of an investor, perhaps not only limited to investing services.

Personal Foresight adds value to the investors toolbox, not only as a way to strengthen today's investor, but as a way to strengthen today's investing services. Kroeger (2017) observes that:

> *"Many millennials have spent their lives in a digital environment. A typical millennial finds, consumes, and shares content on social media platforms."*

As solutions become faster, more accessible, and more technology-driven, Personal Foresight can be incorporated into the design of these services, contributing to the development of a deeper and more meaningful connection to the investor, a key differentiator for robo-advisors today, whose main competitors are human advisors.

7. Limitations of the Study

The limitations of this study were related to the methodology. The depth and breadth of the expert interviews was a small sample size of 5 experts. A larger sample of experts could be used to provide greater depth and breadth to these findings. The exploratory workshop was done to provide a preliminary assessment of a foresight tool to be applied in the context of investing. Because of the subjectivity of personal goal setting and personal futures, this study was limited in identifying the possible adaptations for investors from varied personal situations, for example those who are more/ less financially privileged due to the small sample size of the workshop. It was noted in the expert interviews that the use of paper vs. software is preferred depending on the age group. The impact of the mode in which the personal foresight tool is provided can be further studied. Limitations exist in the ability to observe advisors working with investors in-situ because of privacy concerns. A revised tool as a result of the workshop was not tested, and could be include in further research as a means to strengthen and build upon these initial findings.

Finally, the study is limited in that a more specific engagement with millennials was not conducted, which would provide more concise observations relevant to this generation of investors, or even to Generation Z who will proceed them.

8. Future Research

The use of personal foresight tools within the financial planning process is required to better understand how to increase their viability in the interaction with an advisor, in contexts where humans are no longer a part of the process (i.e. robo-advisors) and the personal foresight tool is used without assistance.

A significant amount of additional information was requested to be added to the personal foresight tool provided during the workshop, creating the need for more research into how the tool can be used, potentially passed the first engagement with an advisor, or throughout the process, to allow for a more robust version of a personal foresight tool to be utilized, especially for the robo-advisor experience. A prototype that incorporates foresight methods that have been adapted, genericized, quantified, and then incorporated into a current robo-advisor's online experience through the use of a questionnaire, and a guided video-tutorial, with a longer initial engagement with a potential investor is an innovation for further testing. The prototype can be refined as the balance between deeper engagement and reasonable completion time is struck, along with an exploration of the potential for artificial intelligence to support this onboarding of investors, either by saving time, or allowing for more dynamic questioning based on answers provided.

If privacy concerns can be addressed, such a prototype could eventually be tested within financial institutions, to understand the success of the prototype versus current services offered. In addition, participant workshops could be conducted to further iterate on and refine the prototype.

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10. Appendices

Appendix A: Sample Questions of Canadian Robo-Advisors

RBC InvestEase

1. First things first: What would you like to invest for?
2. Which statement best describes your investing experience?
3. Ex. New or inexperienced, own some but not sure what they are, manage my own, Managed by someone else)
4. Describe your investing knowledge (ex. I have been investing for a few years and have a basic understanding of investments.)
5. How do you fund your existing investment account(s)?
6. Ex. I'm a new investor and/or I don't yet have an investment account.
7. Tell us about your plans for this investment. (ex. how much you plan to deposit and when you want to withdraw it.)
8. How would you like to invest on an ongoing basis? (ex. I plan to make X biweekly contributions.)
9. Please enter the value of your net liquid assets.
10. How much investment risk are you comfortable with?

11. What is your investment approach? Ex. growth, preservation of investment, stability)
12. What would you do if the market took a downturn? (ex. withdraw my funds)
13. Lastly, tell us about your employment (ex. I earn a salary and my annual income is X).
14. Next step is to recommend a portfolio.

BMO SmartFolio

1. Tell us about your financial goals (ex. car, house, travel, general, etc.)
2. The following account types are recommended (ex. TFSA, RRSP, Single, RESP)
3. How much are you looking to invest for your retirement? (ask for initial, recurring contribution and at what frequency) (Please note that a minimum of $1,000 is required to start investing. Don't have $1,000? Put in what you have and set up a recurring contribution to get to the minimum investment amount within six months.

   If the minimum investment amount is not reached within six months, we will work with you to find a better alternative.)
4. Next: your investment knowledge, your investment objectives, how much risk you can take on
5. When is your birthday?
6. At what point are you looking to withdraw a significant amount of money from this account? 3-5 years (I want to grow my money for a few years and won’t need it for some time.)
7. Do you have other accounts other than this one?
8. How would you describe your investment knowledge? (ex. good, I know a lot about stock markets and investing.
9. If you lost 20% of your account, what would your initial reaction be? (ex. I’m a little concerned. (I am not too worried at the moment, but it does concern me that my account dropped so much so quickly.)
10. How would you describe your ideal investment outcome? Ex. A considerable return. I understand that you need to risk money to make money.
11. They recommend a portfolio at this point

Wealthsimple

Ask for name, citizenship, residential and mailing address, gender, employment status, role, SIN, we’ve made these assumptions about you – Get your personalized portfolio

1. What’s your age (slider)
2. Why are you investing? (car, retirement, etc.)
3. When do you plan to retire? (age)
4. Do you have any previous experience investing in stocks, bonds, mutual funds or other securities? (High interest savings accounts don’t count.) (ex. It’s my first time investing, 5-10 yrs., etc.)
5. Depending on your answer, it will ask you what you’ve invested in before or what your income is
6. Where will your income come from?
7. How much are you comfortable saving per month? A general rule is 20% of your monthly income. (But, as long as you’re not retired, even committing to a small amount per month will make a big difference to Future You!)
8. Do you currently have savings or investments?
9. Start by adding up your chequing, savings, investment portfolios - even the cash under your mattress - but exclude assets like your home or car. An estimate will work.
10. What’s the value of property and other assets you own?
11. Just add up the value of your home (what you think it’d sell for today), car and any other valuable. An estimate is fine.
12. What about your debts?
13. Lastly, add up the value of any mortgages you have (what you still owe), and the amount owed on leases or credit cards. An estimate will work.
14. If you were to invest $35,000, which scenario would you be happiest with? Ex. I can take some losses ($7,000) to earn more long-term ($12,250)
15. Investing comes with risk. There’s no right or wrong answer, it’s more about what you feel comfortable with.

ModernAdvisor

1. Tell us about your investment goal (build wealth, save for retirement, save for the short term, etc.
2. Select your account type
3. Tell us about your financial situation (annual income before taxes, total financial assets, etc.)

4. In order to determine what type of investor you are, please take this short questionnaire (take the risk appetite quiz) – how would your best friend describe you as a risk taker? Ex. a real gambler)
5. If you had to invest $50,000, which of the following investment choices would you find most appealing? Ex. 60% in low-, 30% in medium-, and 10% in high-risk investments)
6. You are on a TV game show and can choose one of the following, which one would you take? Ex. 50% chance at winning $5,000; 25% chance at winning $10,000
7. You have an opportunity to invest in a startup venture that has a 20% chance of success. If successful you could make 50 to 100 times your investment. If unsuccessful your entire investment would be gone. How much would you invest? (Nothing, One month's salary)
8. How would you rate your own investment knowledge? Ex. I understand the basics of investing
9. Given the best- and worst-case returns of the four investment choices below, which would you prefer? Ex. $200 gain best case; $0 gain/loss worst case
10. When you think of the word "risk", which of the following words comes to mind first? Ex. Loss, Uncertainty, Opportunity, Thrill
11. Outcome: You are a Moderate investor: You can tolerate moderate ups and downs in your portfolio

Wealthbar

1. Email and password
2. What account type are you opening?
3. How long do you plan to invest for?
4. When deciding how to invest your money, which do you care more about? (ex. minimizing losses, both equally, maximizing gains)
5. My annual income is X
6. My debt is X
7. My investment accounts are worth X
8. Portfolio recommendation is given, and other types are shown as well.

Appendix B: Discussion Guide for Expert Interviews

My name is Nadia Berger, and I am completing the requirements for my Masters of Design in Strategic Foresight and Innovation. For this program I will need to apply foresight, a strategic planning tool, to an area where it's use has not yet been explored, and that's where this interview comes in. I am looking at the role of financial advisors, and the process you take when advising your clients, and how it might help clients prepare for the future. Your responses here will be anonymous and confidential. Are you ok with me recording? I'd also like to let you know that there are no right or wrong answers, so please say whatever you feel best answers the question for you.

(Note that the following questions may or may not be asked depending on the flow of the conversation. The bolded questions will definitely be asked.)

1. **How long have you been working as an advisor?**
2. What happened that led you to become a financial advisor?
3. What is the biggest challenge with your role?
4. What do you enjoy the most about being a financial advisor?
5. Which financial institution do you work with? (do not ask)
6. At what age do your clients usually come to you to start investing?
7. Do you have a list of clients?
8. **Please think about your current client base. What percentage of your clientele started investing with you within the following age groups:**
    - **18-24**
    - **25-38 (millennials)**
    - **39-50**
    - **50 +**
9. How long on average is your engagement with a client (how long do they stay with you for?)
    - knowledge per age group and why?
    - vision clarity per age group and why?
    - challenge per age group and why?
10. **How often do you meet with your clients? Why? (once a year, every month)**
11. How do you most often communicate with them? Why? (email, phone, etc.)
12. What is your approach to advising? What steps do you take the client through? List and explain.

13. **Comparing age groups as listed previously, which age groups would you say had the clearest vision for what they wanted to achieve with their finances? Why?**
    - Specific to General?
14. What contributes to this clear vision?
15. Now I'd like to learn about their level of investing knowledge. Who would have the highest level of investment knowledge and why, from most to least?
16. **What steps do you take to determine what they want for their future?**
17. What kind of information do you ask for?
18. **What tools (online or otherwise) do you use to help your clients? (ex. Portfolio Asset Allocation for major life goals (house, family, education).)**
19. What kinds of goals come out through these sessions?
20. **Do you revisit them? Y/N How often?**
21. How do these goals change over time? (what do you do to support/ hinder that? Like frequency of contact, changing products, etc.)
22. How committed would you say they are to their investment plan and why/ why not? Does this relate to their clarity of vision?
23. What makes them most successful? Is it related to how well they envision their future?
24. What makes them the most challenging?
25. What phases would you use to describe their progress?
26. How might new investors think of their early allocations in markets?

Appendix C: Workshop Flow

Topic	Time (mins)
Introduction	10
Investing 101	10
Activity 1: Draw Your Future	5
Activity 2: Advisor / Investor Role-Play	20
Roleplay Debrief	10
Break	15
Activity 3: Personal Foresight & Investing Tool	20

Group Discussion	30

Workshop Discussion Guide

Advisor Script:

- Why are you here today?
- Tell me about yourself.
- What is your experience with investing?
- What is your current situation/what are your immediate needs?
- What kinds of things do you like to spend your money on? Are you a saver/ spender?
- What is your occupation? (is it part-time / contract, etc.)
- What are your goals for the future?
- How long would you like to invest for?
- Do you have a family? How does your family or starting one play into your goals?
- What kinds of activities do you do for leisure/ fun?
- Any large investments coming up that you'll need the money for? What do you want to save for?

Debrief Discussion: Role Play Exercise

- How did you feel about the questions being asked?
- Was there anything you expected to be asked or felt was missing?
- How helpful were the questions in helping to clarify your own financial future?
- What worked, what didn't?
- How might you improve the questions?
- Did the conversation make you feel more or less clear about your financial future?

Instructions Provided: Personal Foresight and Financial Futures Tool

1. Fill out your Vision
2. Personal Future Graph
    a. Decide on your time horizon and add your ages to the age bubbles.

    b. Using your vision, plot the major events on the top half of the chart.
    c. Plot the major purchases that support these events.

3. Financial Futures Graph

Considering your personal future…

Income & Expenses

- Graph your anticipated income.
- Graph your anticipated expenses.

Access – when should you be saving for that short-term goal? For that long-term goal?

- Fill in your (S) Short term saving periods
- (L) Long-term saving periods

Risk Tolerance – what is your tolerance for risk?

- (H) When can you be riskier with your money?
- (L) When should you be less risky with your money?

Debrief Discussion: Tool Debrief

For all participants

1. Looking at the end result – compared to the roleplay results, how helpful was it to you? Why/ why not?
2. What was challenging about it? What was easy about it?
3. What are the limitations to only using it with financial advisors?
4. How else might it be provided aside from or in addition to, financial advisors?
5. How might different age groups benefit from different tools?
6. Does investing knowledge matter when using this tool?
7. Do I have a tool here that you think could be used, is it appropriate for cultures and backgrounds?

For SFIers/ practitioners

1. What else could be done from a foresight perspective to help people plan for their future?
2. Are there other foresight methods that would be helpful in terms of personal foresight?
3. Does this go far enough, should we go farther out? Could there be a more SFI-far out version of this that may not work at a Bank but could work otherwise?
4. How would you take this further? Include values? Scenarios?
5. What is the line between being audacious enough (e. g. could do whole lifetime) and being practical?