

Closing the World’s Investment Gap

**Initial Design Report**

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# Problem Statement

Money matters – love it or hate it, money has become a cornerstone to survival and society. Despite all the claims that “money doesn’t buy happiness” money is a critical component allowing one to pursue the life they want. Money provides us with the ability to satisfy our basic survival needs (i.e. food, shelter, clothing, etc.), creates opportunities for choices/flexibility, allows you to live your dreams and/or fund the causes you care about. By this point, we believe that we do not need to convince you about the importance of money, as we can appreciate that everyone had some concerns about money at some point or other. Rather, we are here to help you make money, so you can live the life you want!

Fundamentally, there are only two ways to make money – by working and/or by having your assets work for you. We all know the importance of working with most of us having jobs to satisfy our monetary needs, but having your assets work for you is something that most people often overlook. We are here to change that. Alpha Factory aims to reduce the stigma around investing and make it accessible and understandable for everyone. Ultimately, Alpha Factory aims to close the world’s investment gap by making investing activities part of everyday life!

Simply put, investing is the act of committing money or other assets to an endeavor with the expectation of obtaining an additional income or profit in the future. (Investopedia). Ultimately, investing allows you to further enhance your wealth as it provides you with the opportunity to earn a return on investment (i.e. additional money in the future). Conversely, if you don’t invest you are missing out on the opportunity for financial growth and/or asset appreciation.

There are many reasons to invest with as many different investment goals as there are people. Common reasons to invest your money include, but are not limited to the following:

1. Grow your money – return on your investments allows your money to build, creating additional wealth over time
2. Save for retirement – you may be working now, but we all know you cannot work forever. Saving money for retirement, and better yet, investing your retirement savings will allow you to live off these funds after you stop working
3. Earn higher returns – if you want to grow your money, you need to put it in a place that offers a higher rate of return than the interest rate provided by your savings account(s). With many investment vehicles (more on these later!) offering opportunities to earn higher rates of return, investing your money provides the opportunity to achieve these goals
4. Reach financial goals – whether these goals involve buying a home/car, putting your children through college, paying off loans and/or starting a business, having an additional source of income by investing your money will help you on that path

As you can see there are many different investment goals with as many, if not more, investment strategies to achieve them. We understand that this can be overwhelming for the average person, but that does not mean that investing should only be available to the few people who understand it. Everyone needs money, and everyone has some financial goals – Alpha Factory is here to help you invest in your future and make your money work for you!!

# Project Scope

With the plethora of different investment goals and strategies present Alpha Factory simply cannot generate portfolios to accommodate them all. As such, we have decided to focus in on a range of investors to optimally satisfy their needs. Luckily, we have decided to focus on you – the average member of the population!

Specifically, Alpha Factory aims to use our platform and proprietary portfolio generation techniques to help the average person with limited knowledge of the financial markets and/or limited time to manage their own asset portfolios/investments. Specifically, we aim to get to know you through our quick questionnaires, so we can create a personalized diversified portfolio of assets at a risk tolerance you are comfortable with while meeting your investment goals. From there, we manage your money for you – this includes automatically rebalancing your portfolio to account for any market fluctuations and reinvesting your investment proceeds (e.g. dividends) to ensure that your money doesn’t take any breaks while working for you. We understand that investment goals change overtime and we offer dynamic portfolio modifications to address your evolving user preferences and inputs.

[MODIFY LATER AFTER SURVEY / MAKING DESIGN DECISIONS]

# Survey of Existing Solutions

Since the invention of the Internet we have greatly changed the way we work, learn and interact with each other – it is time we change the way we invest! In fact, this change is already well underway with several other robo-advisors already out there. Alpha Factory has learned a great deal from our competitors that have been first to market, and we aim to use these lessons learned to not only outperform them but outperform the market as well.

In surveying the existing solutions, we decided to limit our scope to a select number of robo-advisors based in Canada and the United States. Specifically, we decided to further explore Nest Wealth, BMO Smartfolio, Wealthsimple, Questrade Portfolio IQ and WealthBar as they were ranked the Best Canadian Robo-Advisors in 2018. (by greedyrates) Moving across the boarder, we decided to explore Betterment, Personal Capital, Schwab Intelligent Portfolios, SigFig and Wealthfront as they were ranked the Best Robo-Advisors in 2018 by Investopedia.

With changing consumer preferences, and an increasingly technological world, robo-advisors have surged in popularity. Robo-advisors ultimately allow everyday investors to set up a customized, diversified portfolio and provide access to a series of wealth management services that previously only seemed to be available for the ultra-wealthy and financially literate. With a growing selection of robo-advisors with seemingly new firms entering the market on a daily basis and veteran robo-advisors (like those already mentioned) expanding their offerings at a rapid pace, it has become increasingly difficult to pick the best robo-advisor.

In reality, with varying investment goals and preferences the best robo-advisor is a subjective matter highly dependent on the respective financial goals of each individual investor. However, after a comprehensive survey of the top 5 rated robo-advisors in both respective countries, it was noticed that the top-rated robo-advisors shared the following common features:

* Low initial investment – namely the ability to generate a robust and diverse portfolio without requiring massive capital involvement (in contrast, attaining a diverse portfolio of assets traditionally required a great amount of initial capital)
* Low fees – ultimately allowing the investors to retain most of the money their money earns
* Popular investment options – namely having a smaller universe of assets allowing the investors to be familiar with and understand the assets they invested their money in
* Comprehensive portfolio management features – especially those that allow the investors to feel like the portfolio generated is truly unique to their needs and created with their input

While creating Alpha Factory we were conscious about all four of these features and made all our design decisions to ensure that our users obtain all the features that made those robo-advisors a success. More than this, Alpha Factory aims to achieve better returns than the aforementioned robo-advisors with careful consideration of their asset universe, parameter estimation and portfolio generation methodologies.

## Survey of Existing Solutions – Deeper Dive

Prior to discussing Alpha Factory’s design and methodology we provide a deeper dive into each previously mentioned competitor. Alpha Factory ultimately used these competitors as case studies in creating their own design decisions. Note that this section can be skipped without much impact on subsequent sections.

1. Betterment LLC

With over $10B in assets under management (AUM), Betterment is one of the robo-advisor behemoths. What makes Betterment so appealing to inexperienced investors is that it has no minimum account balance for its basic plans, while still offering top-tier portfolio management services through its premium plans. Betterment also advertises that “you can potentially keep an additional 2.9% of your investor returns each year” because of their passive investing approach[[1]](#footnote-1), minimal rebalancing and tax-efficient techniques.

Based on their risk questionnaire Betterment provides you with a customized portfolio of low-fee stock and bond index funds.

1. Personal Capital

Personal Capital aims to provide an all-in-one financial platform by allowing their clients to connect their existing bank accounts to the platform to track their spending and retirement savings on top of their portfolio’s performance. With over $5B in AUM, Personal Capital largely follows modern portfolio theory, namely Mean Variance Optimization (MVO) to construct the optimal portfolio of assets by maximizing the portfolio’s returns subject to customized risk constraints. As with Betterment, Personal Capital improves upon the basic MVO by employing tax loss harvesting and rebalancing.

It is worth noting that Personal Capital charges the highest fee (i.e. 0.89%) but justifies it by providing additional wealth/financial planning tools and a dedicated team of financial advisors.

1. Schwab Intelligent Portfolios

Schwab has disrupted the disruptive robo-advisor space by taking the low fees as low as they can go. That is, Schwab charges no account fees or commissions, rather earning money from Schwab ETFs and select third-party ETFs. It is worth noting that unlike the other robo-advisors discussed, Schwab does require a minimum $5,000 balance to open an account.

As with Betterment, Schwab creates custom portfolios of ETFs based on investor responses to their questionnaires and employs automatic rebalancing and tax loss harvesting for accounts with a value greater than $50,000.

It is worth noting that Schwab claims that the operating expenses investors pay for the ETFs in their portfolio are the same as they would had they invested in them on your own. As such, the operating expenses paid varies depending on the makeup of their portfolio and ranges anywhere from 0.03% to 0.40%.

1. SigFig

SigFig attempts to differentiate itself by catering to those with an existing online brokerage as it allows you to keep your existing investments with their robo-advisor creating an “intelligent, tax-efficient, diversified portfolio.” Like its peers, SigFig uses a risk-assessment questionnaire for creating customized portfolios for their clients. Like Schwab, SigFig has a minimum account balance of $2,000 and manages accounts under $10,000 for free but starts charging an account fee of 0.25% for any amounts greater (note that they only charge you on the portion exceeding $10,000).

1. Wealthfront

Like Betterment and Personal Capital, Wealthfront is a robo-advisor behemoth with over $7.5B in AUM and builds investors custom portfolios based on their answers to risk questionnaires. Like SigFig, Wealthfront manages your first $10,000 for free and charges 0.25% for amounts exceeding $10,000.

As with the other behemoths, Wealthfront offers a wide range of portfolio management services and various account types considering various nuances like tax-loss harvesting. For example, under this strategy, individual stocks representing an index are purchased instead of the index ETF such that they can be sold for tax-loss harvesting.

Alpha Factory considered the design decisions of these, and several other competitors in creating their own business plan – refer to Section XX. Decisions pertaining to management fees, initial investment balances, portfolio management features and asset selection was of particular interest during the comparison. Next, we turn our attention to the Canadian robo-advisors to further consider the asset selection based on the market that’s closer to home.

# Project Framework

### Stakeholder Analysis

### Functions

### Objectives and Constraints

# Design Decisions

## Business Logic

Demonstrate thorough understanding of the models/methodologies through literature review

### Asset Universe Selection

### Source of Financial Data

### Portfolio Generation Strategy

### Parameter Estimation

### Considerations for Robustness

### Portfolio Validation and Analytics

## Front-End

### User Interface

### Wireframe and Sketch of User Interface

### Gathering User Input(s) and Feedback

### Display of Computed Data

### Decision on Technologies Used

(Include a DfX Analysis)

## Back-End

### Storage of Financial Data (Both Raw and Computed Data)

### Cleaning Data & Dealing with Missing Data

### Choice of Database / Data Source for Raw Data

### Setup of Data Access Layer for Data (Both Raw and Computed Data)

### Hosting

### Flow Chart and Decisions on Technologies Used

(Include a DfX Analysis)

# Analysis of Service Environment

# Project Plan and Timeline

1. Passive investing methods seek to avoid the fees that may occur with frequent trading. With the main goal being to build wealth gradually, the primary investment mantra of passive investment strategies is that of buying securities with the intention of holding them long term. With the underlying assumption of passive investors being that the market posts positive returns overtime, passive investment strategies do not seek to profit from short-term market fluctuations as active traders would. [↑](#footnote-ref-1)