**Objective**

- To create a platform for quantitative analysis on strategies
- Ability to perform analysis on historical data (20 years available)
- To create a framework with the ability to choose the right stocks at the right time to obtain small losses and big profits

**Background**

- Investment fund industry in Canada is worth >$890 billion
- Canadians can either invest through an investment fund or do it themselves
- Investment funds can charge up to 23% in fees for their services and strategies
- In reality, Canadians have limited opportunities to test out their trading strategies
- Investors have a hard time putting their emotions aside when making financial decisions

**Problem**

Retail investors have strategies but lack the framework and infrastructure to validate and optimize trading strategies

**Solution**

Provide investors with the Trading Strategy Development Lifecycle (TSDLC) and infrastructure to backtest, optimize, walk-forward, and execute algorithmic trading strategies

**Results**

Investors are able to implement custom developed strategies through the TSDLC process

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**Trading Strategy Development Lifecycle**

- **Backtest**
  - The process of evaluating a strategy, theory, or model by applying it to historical data
    - Backtest metrics: Portfolio P&L, Return Distribution, Expected Returns, Expected Duration, Drawdown, Drawdown Durations, Annualized Return

- **Optimizer**
  - Genetic algorithms mimic the process of natural evolution to solve complex problems
  - Uses a global search to find a solution from the vast space
  - One chromosome represents an individual in the population and is a set of all parameters

- **Walk-Forward Analysis**
  - Re-optimizes the system on a continuous basis to adapt its parameters to the most recent market conditions
  - Essential part of testing and avoiding overfitting
  - Performance measure is Walk-Forward Efficiency

- **Live Trading**
  - Even though backtest and optimization results showed large returns, the walk-forward results showed the real performance of the strategy which was poor
  - Often, poor results, strategy will be redeveloped

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**What Did We Find?**

- Backtest results are not indicative of future performance
- Commissions have significant impact on returns
- Strategy parameters may change over time
- One performance metric does not tell the whole story
- A robust strategy displays profit in diverse market sectors and market conditions using long and short trades

**Solution & Results**

- Our process confirms and validates strategy’s returns
- Optimization process determines strategy’s parameters to improve results
- Walk-forward analysis reflects real performance
- Strategies can be traded in real-time
- Re-Optimization can dynamically change parameters

**Key Findings**

- Backtest results are not indicative of future performance
- Commissions have significant impact on returns
- Strategy parameters may change over time
- One performance metric does not tell the whole story
- A robust strategy displays profit in diverse market sectors and market conditions using long and short trades