

Beltz Ianni & Associates Beta Rotation

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Coach: Tom Reichlmayr

RIT



Background

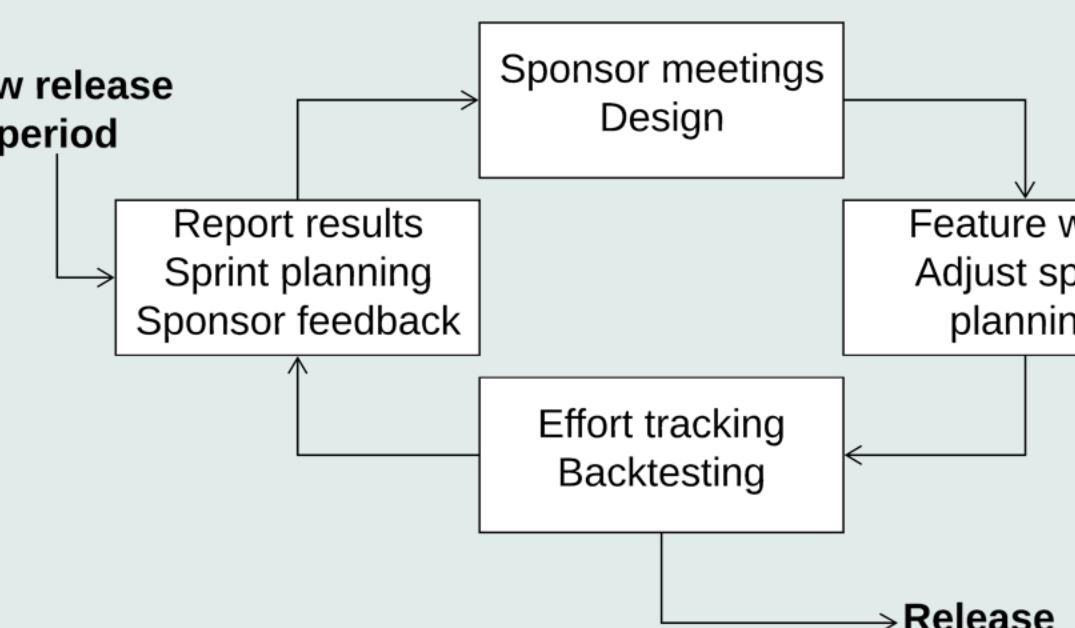
Beta Rotation is a software application created for Beltz Ianni & Associates, a financial advising firm, located in Rochester, NY. The application seeks to capture the phenomenon described in the 2014 paper "An Intermarket Approach to Beta Rotation: The Strategy, Signal and Power of Utilities" by Bilello and Gayed. In this paper, the authors' research indicated that a strategy of rotating a portfolio of Exchange Traded Funds (ETFs) between the Utilities Sector and the broader US Stock Market outperforms the passive "buy and hold" strategy.

The application signals to the user (a financial advisor) when to rotate a portfolio between the Utilities Sector and the S&P 500, representing the broader US Stock Market. The advisor notifies his or her clients, enabling them to maximize the return on their investments, and helping Beltz Ianni & Associates to better serve their clientele.

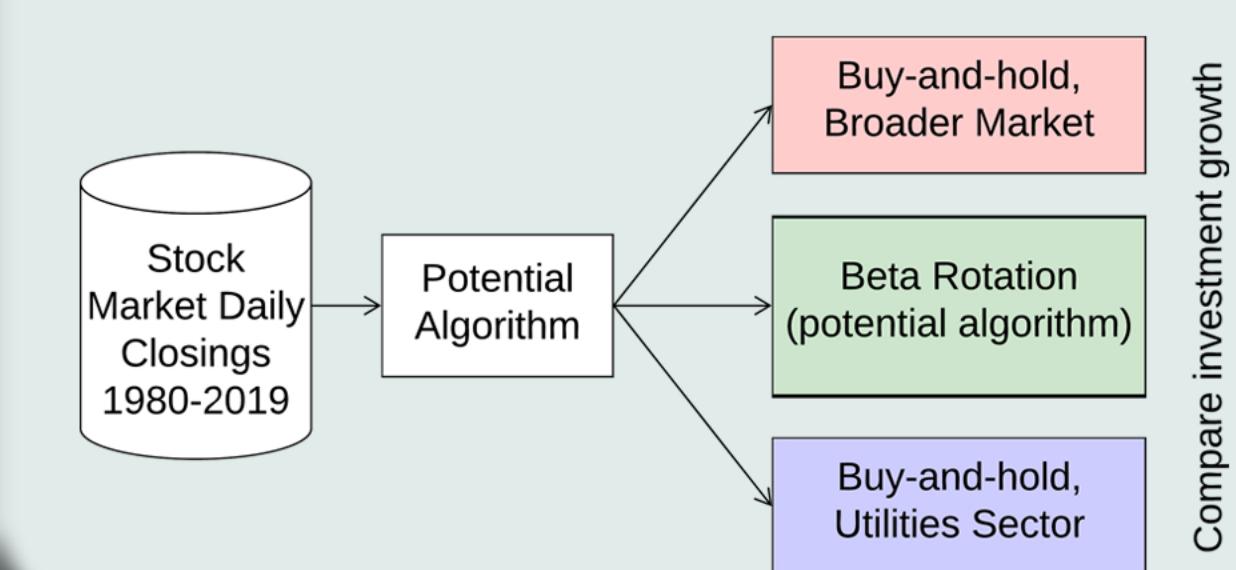
Process & Methodology

The team used an iterative process with 2-week sprints and regular incorporation of sponsor feedback.

When testing potential Beta Rotation algorithms, the team would discuss strategies with the sponsor, design potential solutions, develop the algorithms, perform **backtesting** against historical stock data, and analyze results with the sponsor.



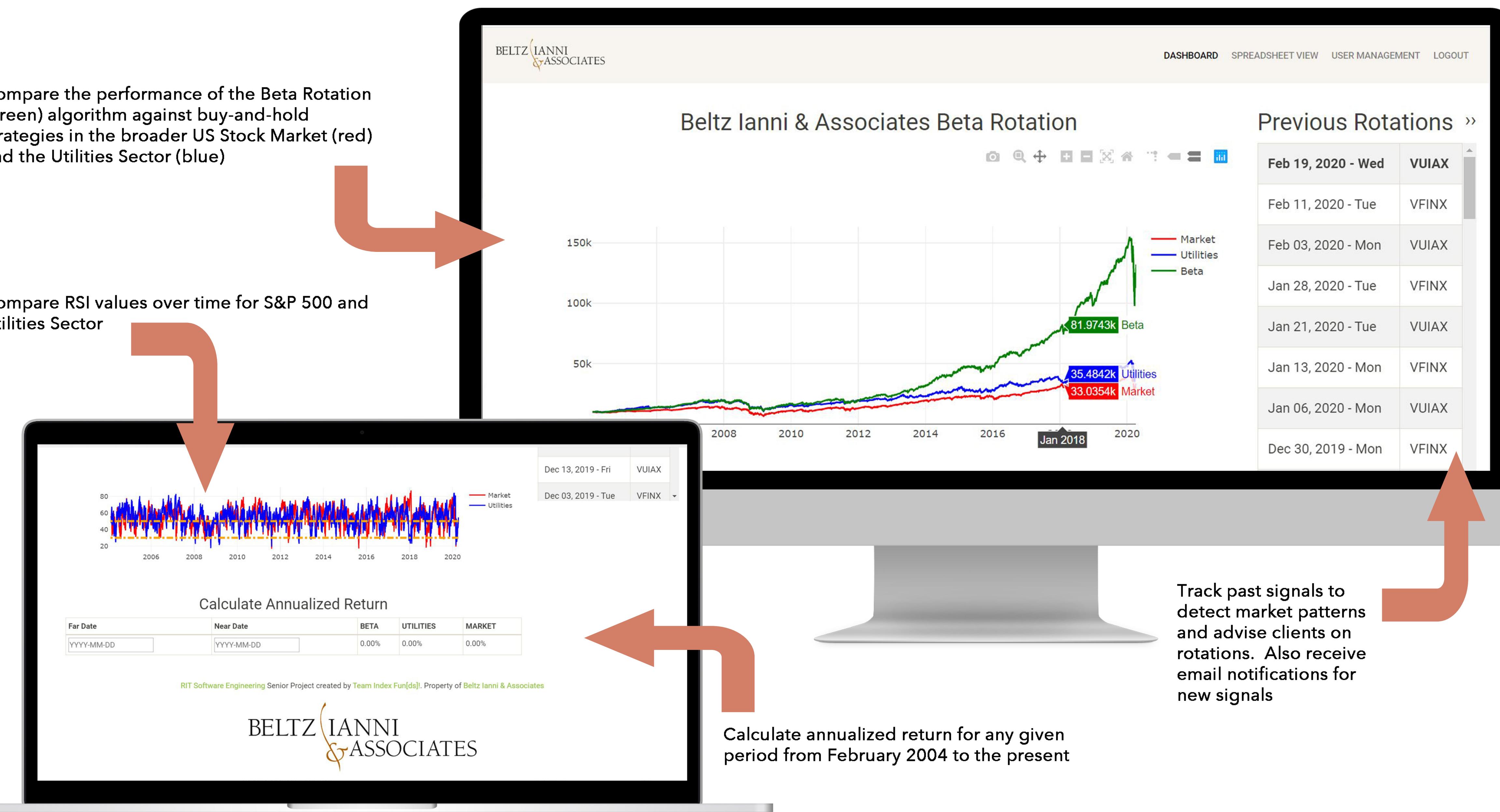
Backtesting with Historical Data



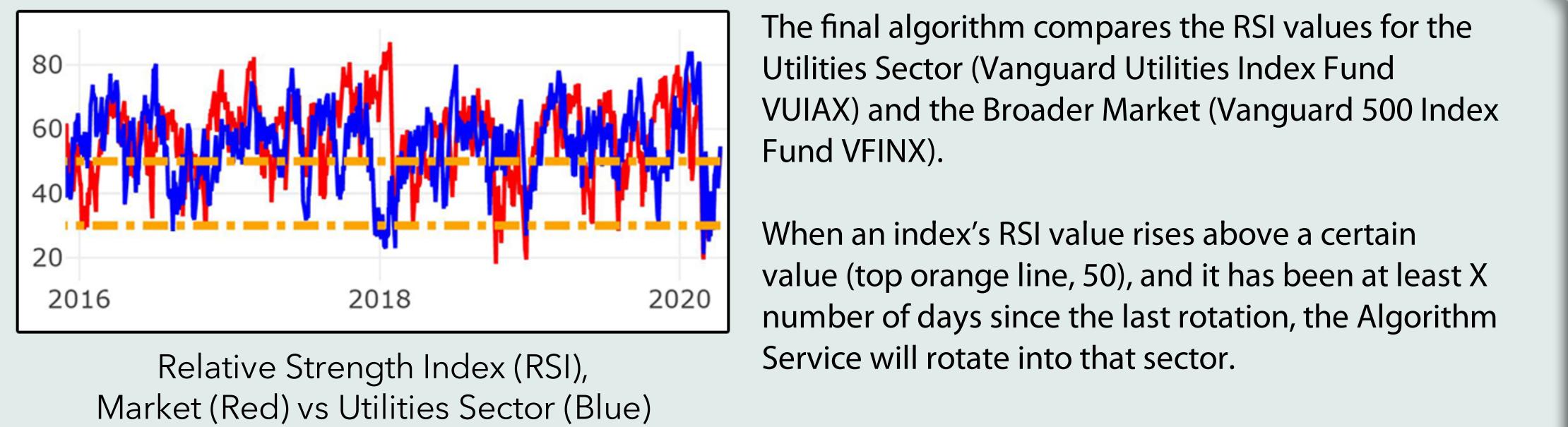
- To test a new algorithm, the team would:
- Add the algorithm to the Algorithm Service code base
 - Execute the algorithm against daily closings data from 1980
 - Plot the growth of a theoretical initial investment using two buy-and-hold strategies and the algorithm under test
 - Repeat for all 10 algorithms and different configuration combinations

Compare the performance of the Beta Rotation (green) algorithm against buy-and-hold strategies in the broader US Stock Market (red) and the Utilities Sector (blue)

Compare RSI values over time for S&P 500 and Utilities Sector



The Final Algorithm



The final algorithm compares the RSI values for the Utilities Sector (Vanguard Utilities Index Fund VUIAX) and the Broader Market (Vanguard 500 Index Fund VFINX).

When an index's RSI value rises above a certain value (top orange line, 50), and it has been at least X number of days since the last rotation, the Algorithm Service will rotate into that sector.

Results

\$10K Initial Investment **35.5 Avg Rotations/Year** **\$156K Max Growth**

Used to track theoretical investment growth using 3 strategies over a 16-year period

From February 2004 to February 2020

Versus \$51K for buy-and-hold Utilities Sector and \$40K for buy-and-hold Broader Market

Opportunities for Future Work



New Market Sectors



Custom Investments



Customer Profiles



On-Screen Signals