

I Know First





Investment Selection

Using Artificial Intelligence

DEEP LEARNING IN FINANCE



UBS **Future of Finance**
Challenge 2017 - Finals

Yaron Golgher, CEO - yaron@iknowfirst.com





I Know First Team

Dr. Lipa Roitman - Co-Founder and CTO



- Over 20 years of research and experience in artificial intelligence (AI) and machine learning (ML) fields
- Concept of IKF's algorithm has crystallized following years of his prior **research into the nature of chaotic systems**
- Head of IKF's R&D Team
- PhD from the Weizmann Institute of Science

Yaron Golgher - Co-Founder and CEO



- Over 17 years of experience in managing and leading IT projects for financial and financial institutions
- Formerly Partner and division manager for a leading Israeli consulting firm focusing on forecasting, budgeting and IT projects in the financial industry
- MBA from Ben Gurion University, B.Sc. in Industrial Engineering from Tel-Aviv University

Unique R&D Team



- PhD's , AI and Machine Learning Experts
- Prof. Yakov Yakubov, a Mathematician From Tel Aviv University
- Developers, Computer Science and IT professionals
- Applied Mathematicians & Statisticians
- Finance professionals
- IDF Veterans - Intelligence/8200 Unit/Mamram





What Do We Do?

Daily trading - rankings based on the short-term signals, filtered predictability

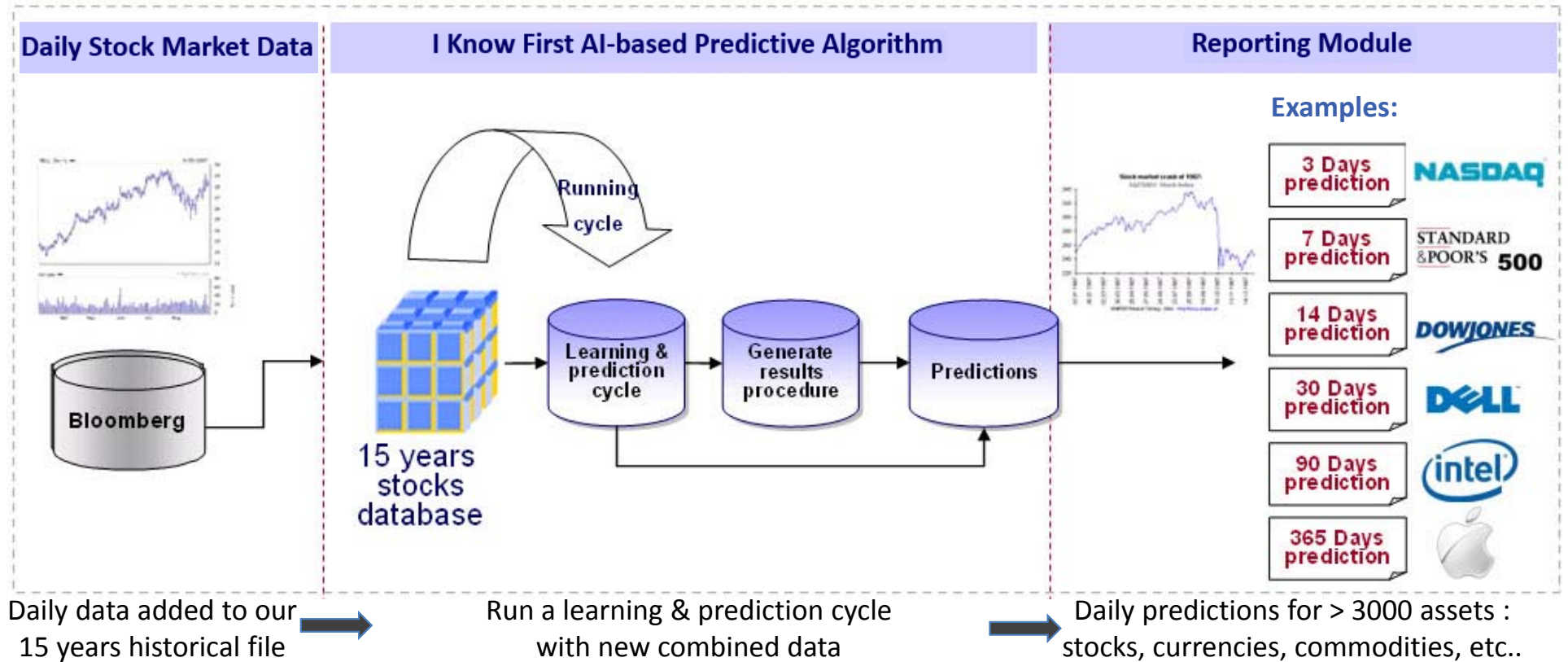


- AI-based solutions for institutional & Retail clients



UBS: Synergy with Investment Bank, Asset Management and Wealth Management

How We Do It – Daily Prediction Process



The results are constantly improving as the algorithm learns from its successes and failures



How We Do It – I Know First AI Technology

I Know First developed proprietary machine learning algorithm:

- Cutting edge **Deep Learning** approach, incorporating most recent research
- **Self-learning, Flexible** and **scalable, Adaptive** modelling of the capital markets through **multi-layered artificial neural networks (ANN)**
- **Supervised/reinforcement learning**
- **Genetic Algorithms (GA)**
- **Unique predictability indicator** as the fitness function and quality measure of the forecast

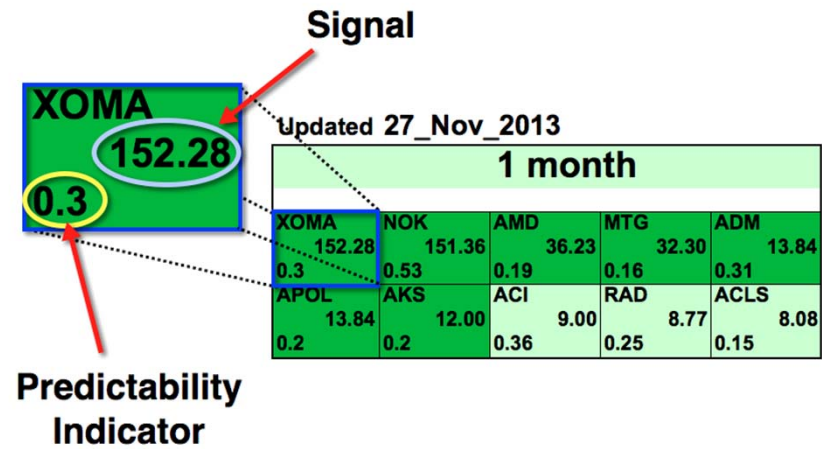
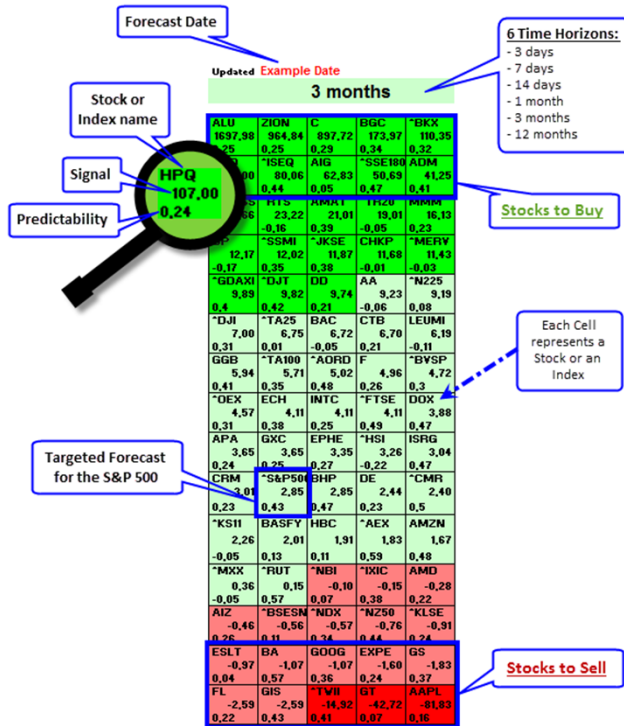
➡ **Unique self-learning forecasting algorithm, covering a constantly growing universe of currently over 3000 assets, which allows to**

- Separate and focus on the **most predictable assets**
- **Identify investment opportunities, generate trading ideas and develop systematic trading strategies utilizing AI-based forecasts**



How We Do It – Daily Forecast

Daily AI-Based Stock Forecast



Two indicators:

- **Signal** – Predicted movement of the asset
- **Predictability Indicator** – The historical correlation between the past algorithmic predictions and the actual market movement for each particular asset)

→ Key to identify and focus on most predictable markets and securities, enhancing the overall performance

Tiered Solutions Offering

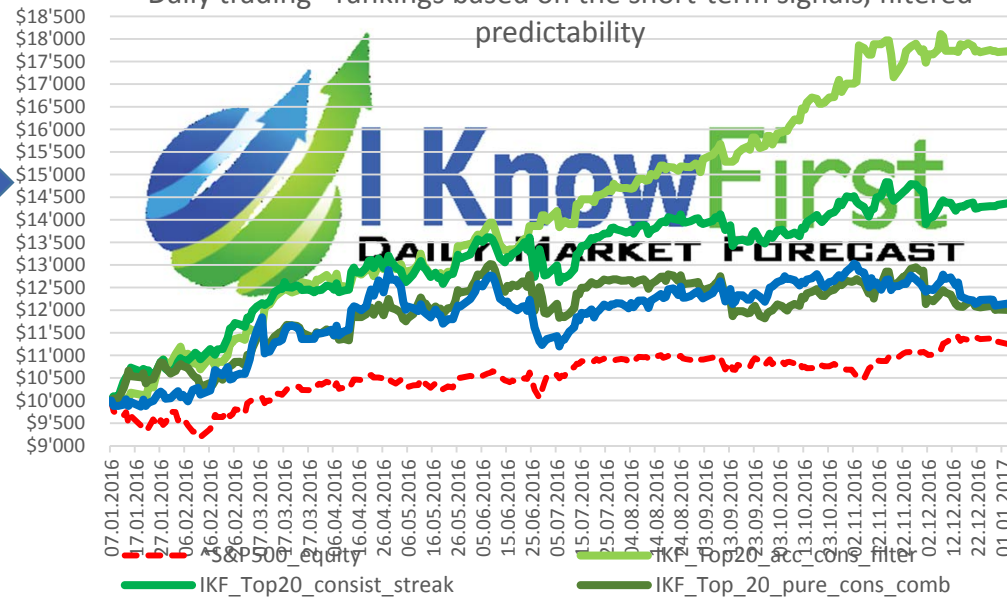
Tier 1: Daily AI-Based Stock Forecast

Tier 2: Wealth management solutions – systematic investing

SR ∈ [0.9; 4.63] β < 0.75 α ∈ [0.1; 0.6]

Daily trading - rankings based on the short-term signals, filtered

predictability



Forecast Date

Stock or Index name

Signal

Predictability

Targeted Forecast for the S&P 500

6 Time Horizons:
- 3 days
- 7 days
- 14 days
- 1 month
- 3 months
- 12 months

3 months

Stocks to Buy

Each Cell represents a Stock or an Index

Stocks to Sell

ALU	ZION	C	BGC	BKX
1697.98	964.84	897.72	173.97	110.35
0.75	0.25	0.29	0.34	0.32
ISEQ	AIG	SSETM	ADM	
80.88	62.83	96.69	41.25	
0.44	0.05	0.47	0.41	
ST	AT	AMOT	IT20	MMOM
23.22	21.01	19.01	16.13	
0.16	0.39	-0.05	0.23	
SSMI	JKSE	CHKP	MERV	
12.17	12.02	11.87	11.68	11.43
-0.17	0.35	0.38	-0.01	-0.03
GDAXI	DJTI	DD	AA	N225
9.89	9.82	9.74	9.23	9.19
0.4	0.42	0.29	-0.06	0.08
TA25	BAC	CTS	LEUMI	
7.00	6.75	6.72	6.70	6.19
0.31	0.01	-0.05	0.21	-0.11
TA100	AORD	F	BVSP	
5.94	5.71	5.02	4.96	4.72
0.41	0.35	0.49	0.26	0.3
OEX	ECH	INTC	FTSE	DOX
4.57	4.11	4.11	4.11	3.88
0.31	0.38	0.25	0.49	0.47
APA	GXC	EPHE	HSI	ISRG
3.65	3.65	3.35	3.26	3.04
0.24	0.26	0.27	-0.22	0.47
CRM	S&P500	BHP	DE	CMR
-1.01	2.85	2.85	2.44	2.40
0.23	0.43	0.47	0.23	0.5
KSHI	BASFY	HBC	AEX	AMZN
2.26	2.01	1.91	1.83	1.67
-0.05	0.13	0.11	0.59	0.48
MXXX	RUT	NBI	IXIC	AMD
0.36	0.15	-0.10	-0.15	-0.28
-0.05	0.57	0.07	0.39	0.22
AIZ	BSESN	NDX	N250	KLSE
-0.46	-0.56	-0.57	-0.76	-0.91
0.26	0.11	0.24	0.44	0.24
ESLT	BA	GOOG	EXPE	GS
-0.97	-1.07	-1.07	-1.60	-1.83
0.04	0.57	0.35	0.24	0.37
FL	GIS	TVB	G	AAPI
-2.59	-2.59	-4.92	-42.72	-81.83
0.22	0.43	0.41	0.07	0.16

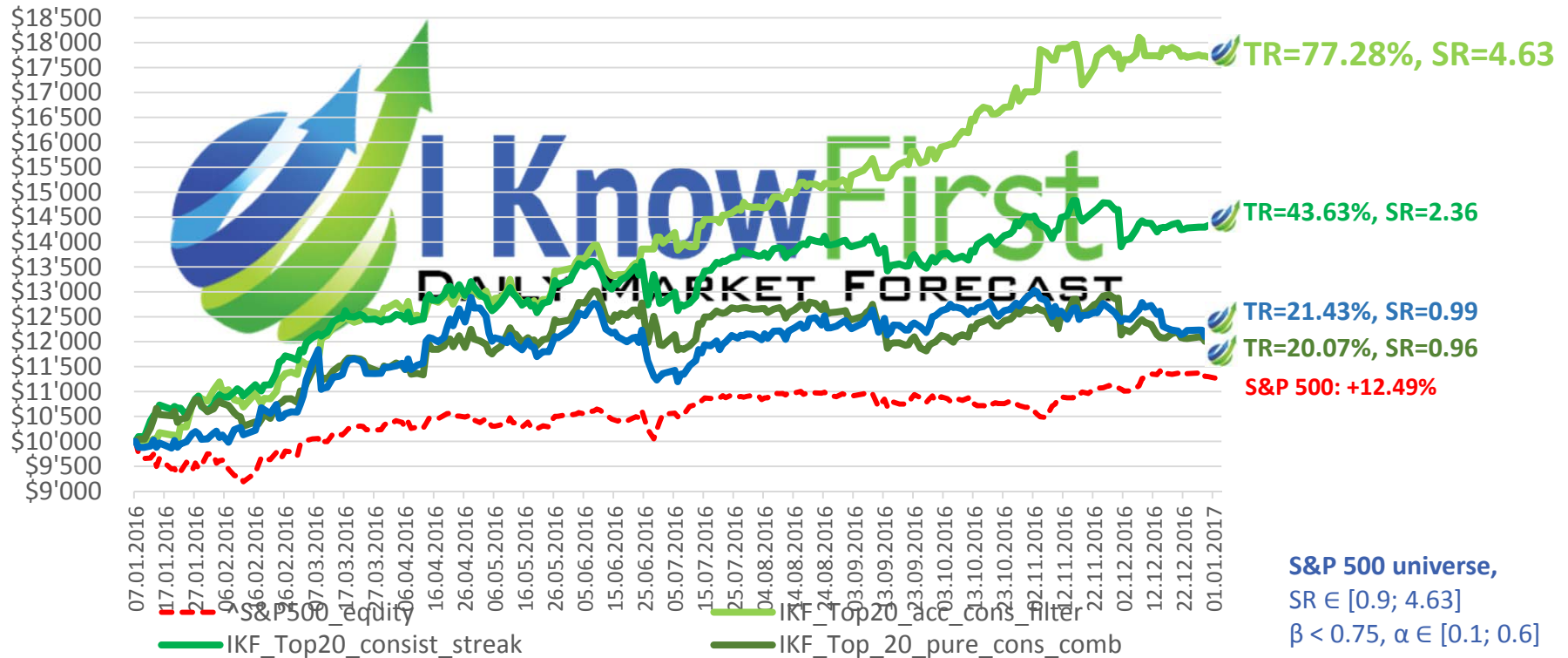
IB → Quantitative Investment research and trading solution

Wealth Management → Integration into UBS's research & advisory processes (long term forecasts)





Wealth management solutions – systematic investing



Asset Management → AI-Powered Investment Products: ETF's, Smart Beta ETF's, Mutual Funds, Hedge Funds



The Opportunity : UBS Business Areas

Applications Of Deep Learning:



I Know First
Predictive Algorithm

Investment Bank

Quantitative Investment research and trading solution:

- Stock Price Forecasting
- FX Forecasting
- UBS Neo: customized portfolio Forecast + trading Ideas generator

Asset Management, Investments

AI-driven systematic investment strategies (short/long terms):

- Stock-picking
- Sector ETFs rotation
- Smart-beta

AI-powered investment products

- Mutual funds
- Hedge funds
- Smart-beta/actively managed ETFs

Wealth Management, Research & Advisory

Integration into UBS's research & advisory processes (long term forecasts)

AI based forecast For Sectors

Geographical diversification

Other Divisions Specific Data-Rich Projects

