



# TrakInvest ICO Whitepaper

[www.trakinvest.ai](http://www.trakinvest.ai)

Dec 15, 2017

Private and Confidential



# Introduction



The empowerment of individuals through automated systems and social networks is disrupting the traditional retail brokerage and investment management models. The industry has suffered from the loss of customer trust and low levels of retail participation given two key fundamental issues: (i) information asymmetry was driven by the fact that the institutional investor has superior information and analytical tools at their disposal vis-a-vis the average retail investor; therefore the retail investor is typically on the “losing” side of the trade and (ii) inherent conflicts of interest in the traditional financial services model. At its core, The TrakInvest Project is about “Crowdsourcing of Financial Wisdom” and rewarding the participants in its decentralized economy based on performance and insights.

Trakinvest, a virtual social trading platform, currently offers (i) users the ability to share their portfolio data with other members of the network for a monthly subscription (ii) provides “crowdsourced” sentiment, forecasting and prediction tools using innovations in smart contracts, machine learning, NLP and artificial intelligence, and (iii) and digital certification programs in online trading. Users can access and explore the existing platform at [www.trakinvest.com](http://www.trakinvest.com).

TrakInvest is best set up to implement this project and already has a strong three-year track record having built up a 100,000+ user base in Asia through its partnerships with corporates, universities, and governments in the region. The Platform will also be introducing (i) a virtual trading platform for cryptocurrencies and (ii) next generation “crowdsourced” sentiment tools for equities and cryptocurrencies. These proprietary tools have been developed using the social trading data and behaviour collected for the last three years. TrakInvest aims to empower the retail investor with all these tools to create a level playing field removing the information asymmetry that has plagued them for so many years.

TrakInvest is poised for strong growth as we look to introduce TRAK Tokens by Q1 2018 to our existing user base, thus providing them with the ability to earn service fees in ETH in exchange for providing their real-time trading data and sentiments through TrakInvest’s web and mobile platforms. Currently, the community continues to provide invaluable trading data, insights, and sentiments through the platform by maintaining a virtual trading portfolio: [www.trakinvest.com](http://www.trakinvest.com). At the application level, the token utilities will include: (i) Tokenized data ownership, (ii) Tokenized reputation system, and (iii) Tokenized certifications.

The shift from a centralized technical infrastructure to distributed, ecosystem-enabling platforms is laying the foundations for new business models in investment insights and financial transaction technologies. Identifying the industry shifts, TrakInvest platform is utilizing blockchain technology to create a decentralized peer to peer ecosystem that incentivizes members of the community on performing value added services. The rewards, incentives, and insight tools encourage the full establishment and continuity of the virtual socio-trading environment that rewards for performance and sharing of trading data in a risk free manner.

By leveraging the blockchain technology, TrakInvest aims to increase the scalability of the current platform while enhancing its security and transparency levels. Backed by a powerful tech stack and the strength of Ethereum’s Open community network the ecosystem has a strong technical foot holding.



TrakInvest is backed by a highly experienced management team and advisory board. The senior management of the team has held leadership positions in leading firms including J. P. Morgan Partners, AIG, State Bank of India, ICICI Securities and Religare. The global advisory board is comprised of individuals and existing investors with strong global experience and exposure in technology, telecommunications, media, cryptocurrencies and financial services. They have held leadership positions in companies including Spotify, Siri, Summly, Bitcasa, Fixmo, Ginger, Desti, Magisto, Nexon and StudioX.

TrakInvest, currently operates in Singapore, Thailand, and India and will be extending its services and product offerings to China, Malaysia, Indonesia, Vietnam, Korea, Japan over the next 18 months. You can sign up and stay informed at the ICO website [www.trakinvest.ai](http://www.trakinvest.ai). You can also access and explore the existing platform at [www.trakinvest.com](http://www.trakinvest.com)

### Existing Partnerships



**Risk Disclaimer:** Buying TRAK Tokens involves substantial risk of loss and is not suitable for every investor. The valuation of the TRAK may fluctuate and, as a result, clients may lose more than their original investment. Before deciding to invest in TRAK tokens, you should carefully consider your investment objectives, level of experience, and risk appetite.



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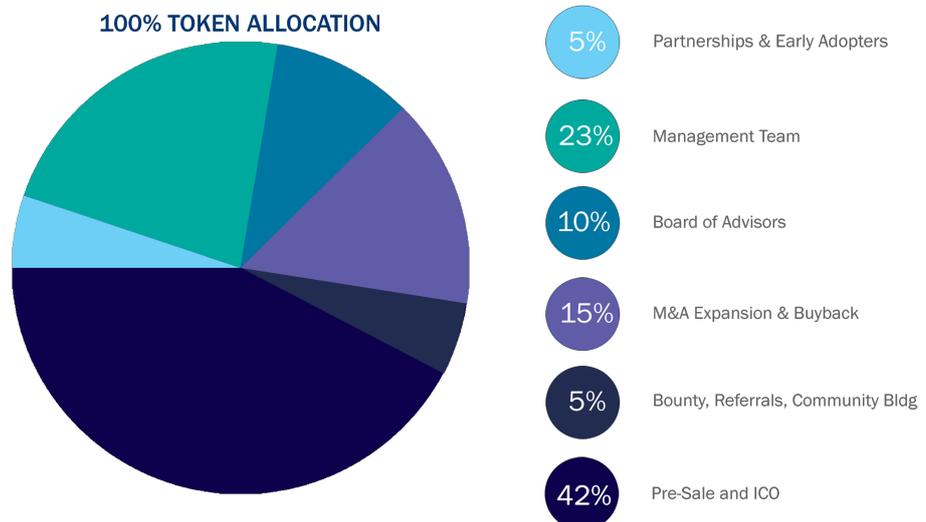
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# Trakinvest ICO

Token Name	TRAK
Website	<a href="http://www.trakinvest.ai">www.trakinvest.ai</a>
Type of Offer	Initial Coin Offering
Total Tokens	155,294,118
Accepted Currencies	Ether (ETH)
ERC20 Token	Yes
Token Main Sale Price	1 ETH = 2000 TRAK tokens / 1 TRAK token = 0.00050 ETH
ICO Pre-Sale Dates	8am December 16 (SST) – 8pm January 31 (SST)
ICO Sale Dates	8am February 1 (SST) – 8pm February 28 (SST)
Offering Structure**	66,000,000 tokens available
Pre-Sale	
Tranch 1 - 11,000,000 tokens	23.08% discount   8 am December 16 - 8 pm December 30, 2017
Tranch 2 - 11,000,000 tokens	15.25% discount   8 pm December 30, 2017 - 8 pm January 21, 2018
Tranch 3 - 11,000,000 tokens	8.42% discount   8 pm January 21 - 8 pm January 31, 2018
ICO	
Tranch 4 - 11,000,000 tokens	4.31% discount   Starts on 8am February 1 (SST)
Tranch 5 - 11,000,000 tokens	2.25% discount   Starts automatically after tranch 4 ends
Tranch 6 - 11,000,000 tokens	1.09% discount   Starts automatically after tranch 5 ends

\*\*Discount in each Tranch is applicable until the end of allocated time period or allocated tokens being sold out, whichever is earlier.





# Executive Summary

>> **The current global equity investment system does not favour retail participation given information asymmetry and inherent conflicts of interest. Our core intent is to level the playing field and shift the model from arbitraging opacity to arbitraging intelligence. Trakinvest's mission is to crowdsource financial wisdom and using big data analytics, AI and Machine learning share the trading behaviour of the masses with the retail investor, thus giving them an edge.**

The incentive to provide investment education, tools and financial benefits to people without ready access to capital has been absent for some time. Trakinvest platform seeks to empower millennials by (i) providing AI tools to make better informed decisions and (ii) creating a reward based economy to incentivize people for their data and insights, regardless of income, or location. TrakInvest utilizes the concepts of Social Trading, Robo-Advisory and Artificial Intelligence (AI) to deliver this value proposition to its growing community of 100,000+ users.

TrakInvest revolutionizes the traditional investment education format by allowing users, regardless of their experience, exposure or ability to participate by providing them with transparency and "TRAKing" features such as "Copy Trade" to maximize their learning potential.

TrakInvest provides white-labelled solutions for access to its key features for marketing and new customer acquisition to companies in the Financial Services Sector. Companies train new users or engage existing users to invest in stock markets. With a simulated environment across 10 international stock exchanges and over 18,000 stocks, customers practice stock investing without losing real money and once confident can invest with real money leading to brokerage revenue for our Corporate partners. We provide "white-labelled" solutions to our Corporate customers that includes our various components and tools offered on our web, mobile and messenger applications. TrakInvest's approach to innovation revolves around a learn-share-earn core. The portal is designed to incentivise new users and seasoned investors alike through meaningful financial incentives, insights and career opportunities. The idea ultimately, is to be the bridge between those with alpha generating ability and talent, but limited to no capital, and those with capital but not necessarily the time, alpha generation ability or inclination.

The portal allows users to create groups to share information and insight on equities and sectors. It allows users to showcase their level of knowledge on specific sectors and stocks, and to learn from others on sectors they want to get better at. The actual trading happens in real time during market hours in the markets covered including Singapore, Hong Kong, and China, India, Australia, and the US, and that forms the basis of their investment track record. In Q1 2018 TrakInvest will be introducing a similar product to also trade crypto-currencies.

As new users gain confidence and showcase their track record, they can gain users who "TRAK" them. For all users, seasoned investors and others, the portal provides a substantial financial incentive to "TRAK" and to be "TRAKed". That incentive is four-fold:

- i. Users are provided with a recommendation engine suggesting Top Traders and Ideas. Using the TRAK Tokens the participants will seamlessly be able to make payments to Top Performers for advice and real time trading data.



- ii. A proprietary TI Score – combining a user’s investment track record with how active they are on the social hub – in effect estimating a proxy for their positive

influence on the portal. Your TI Score will determine your “influence” at the stock, sector, and market level and will determine the number of Tokens your “followers” will contribute to you for sharing your real-time trading activity on the Platform.

- iii. Existing Partnerships & Sponsorships with global financial institutions in Asia, e.g. Edelweiss Securities, Karvy Securities, HDFC Securities, Siam Commercial Bank Securities, Andhra Pradesh Government, Indian Institute of Sciences, and other Universities in the region provide the education and career incentives to the users and ensure continued engagement with the Platform
- iv. The higher your TI score, the more you will show up in TRAK suggestions, the greater the probability of gaining users who TRAK you (remember TI is a combination of social activity / impact and investment track record), the greater the chances of a high payout on TRAK fees. Similarly, the better your performance, the more chances you have of garnering one of the many planned internships on offer – which are usually awarded through performance contests on the portal, and of actually leveraging participation and showcasing your record, into a meaningful career opportunity.

The first markets TrakInvest has built its operations are India, Singapore and Thailand and intends to continue its expansion into Southeast Asia, North Asia and the Middle East in 2018. TrakInvest is focused on targeting on the Asian market, where the demographic dividend will be the key growth factor. With a population of 4.5 bn and 52% online, Asia’s middle class population is set to explode, reaching 2 bn by 2025; during the same period the disposable income is set to grow 3 times.

The population of millennials also known as generation Y, has been growing over the past years and this year it will be the largest generation ever. Until 2020, the aggregated net worth of the global millennials is predicted to more than double compared to 2015, with estimates ranging from \$19 – \$24 trillion. The millennial customer in wealth management can broadly be placed in the following 3 categories:

	The novice	The loner	The cautious
	<b>Low financial knowledge</b> <b>Your future investor</b>	<b>Self-directed</b> <b>Your future enthusiast</b>	<b>Negative perception</b> <b>Your future referrer</b>
 <b>Information</b>	<ul style="list-style-type: none"> <li>• Concise information</li> <li>• Simplistic investment data</li> <li>• Social media interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed information</li> <li>• Technical investment data</li> <li>• Real-time access to data</li> </ul>	<ul style="list-style-type: none"> <li>• Clear information</li> <li>• Transparent investment data</li> <li>• No hidden fees or kick-backs</li> </ul>
 <b>Services</b>	<ul style="list-style-type: none"> <li>• Virtual investment portfolio</li> <li>• Investment learning tutorials</li> <li>• Passive investment mandate</li> </ul>	<ul style="list-style-type: none"> <li>• Social investment clubs</li> <li>• DIY structured products</li> <li>• Algorithmic trading solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Face-to-face consultation</li> <li>• Performance-based fees</li> <li>• “Case-by-case” pricing</li> </ul>
 <b>Technology</b>	<ul style="list-style-type: none"> <li>• Demo trading account</li> <li>• Simple portfolio builder</li> <li>• Online investor school</li> </ul>	<ul style="list-style-type: none"> <li>• Algorithmic investment tools</li> <li>• Custom invest. product builder</li> <li>• Mobile investment solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Online meeting feedback</li> <li>• Adviser peer comparison</li> <li>• Benchmark my performance</li> </ul>

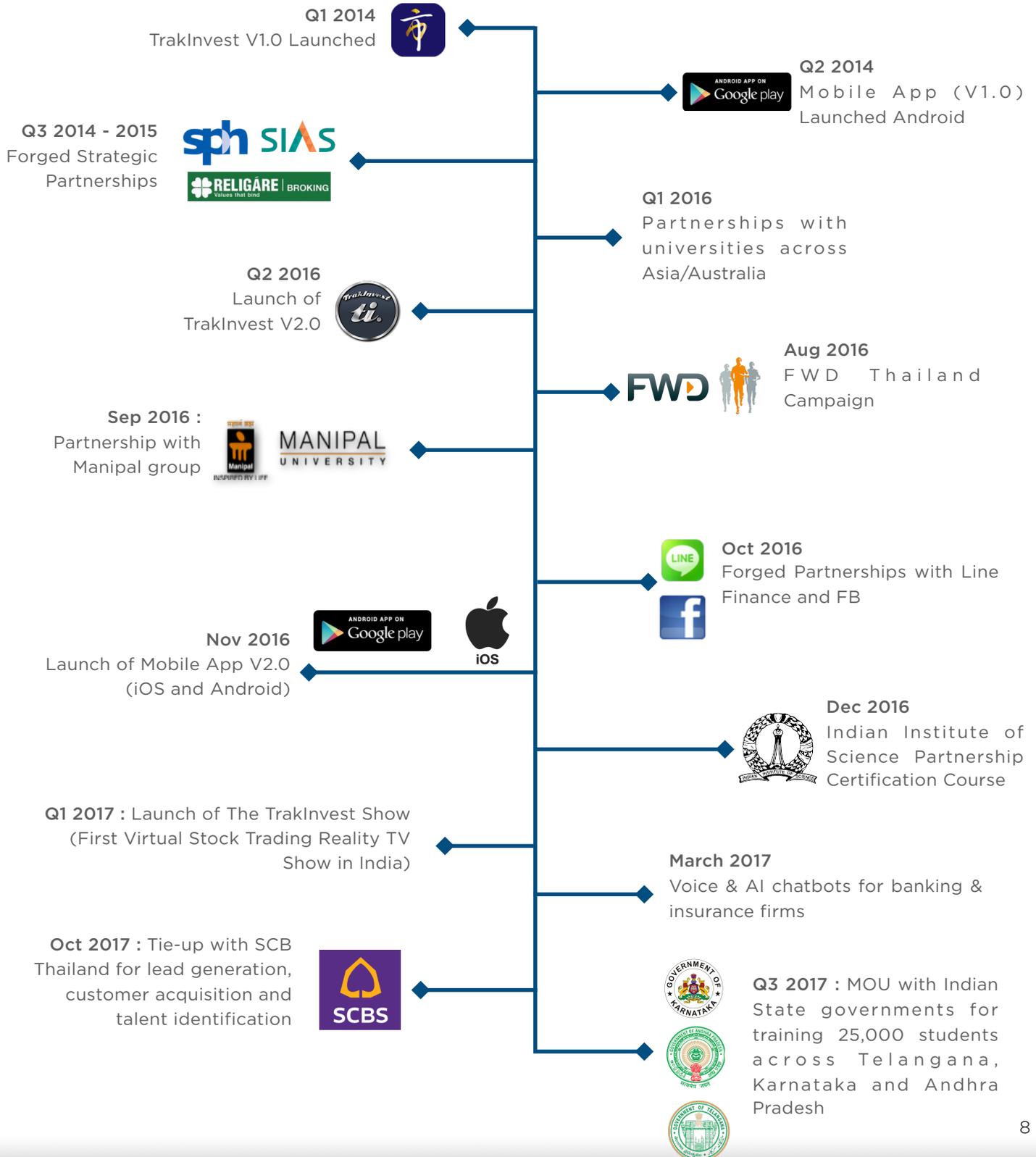
TrakInvest is addressing the needs of millennial wealth management by providing online financial certification courses, financial data, sentiment analysis and AI powered insights to enable its users to make better informed trading decisions.



TrakInvest is building its market by aligning the financial and career incentives of the demand and supply sides of the social trading market equation.

# Milestones

The Platform and the management team have already achieved a number of milestones since inception as illustrated below;

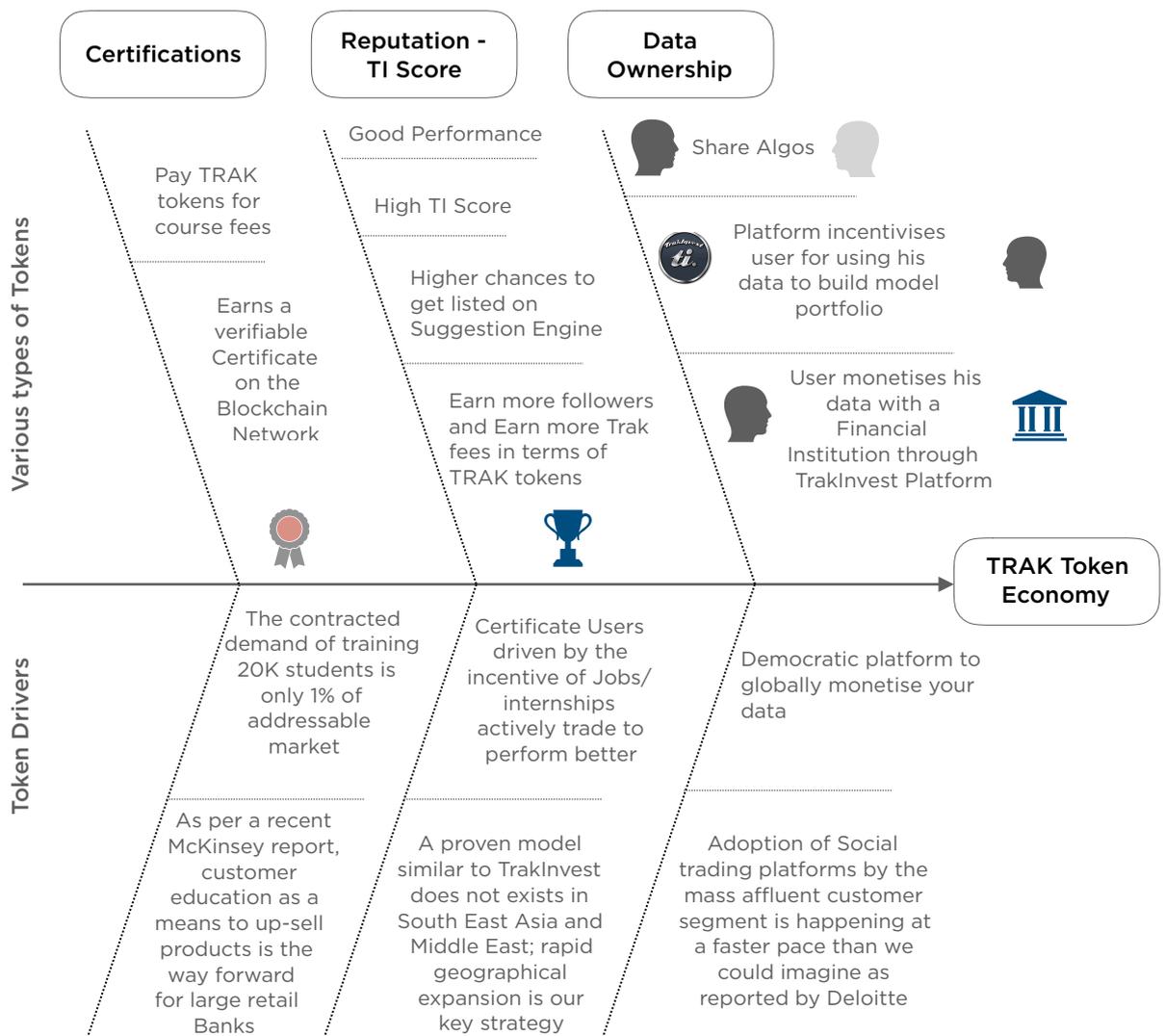




# Tokenomics

>> TrakInvest Token ('TRAK' token) is a utility token that can be used to perform a variety of activities on the Platform. The demand for the TRAK token is driven by the strong pipeline of existing contracts with leading corporates and universities, TrakInvest's continued marketing initiatives including the "The TrakInvest Show," and overall market dynamics. In this section we describe the use cases for the TRAK tokens and provide with details of the contracted and projected demand and their key drivers.

There will be primarily 3 types of utility tokens to engage with TrakInvest for the services mentioned above. At the application level, the token utilities include: (i) Tokenized data ownership, (ii) Tokenized reputation system, and (iii) Tokenized certifications.





## Token Demand Drivers

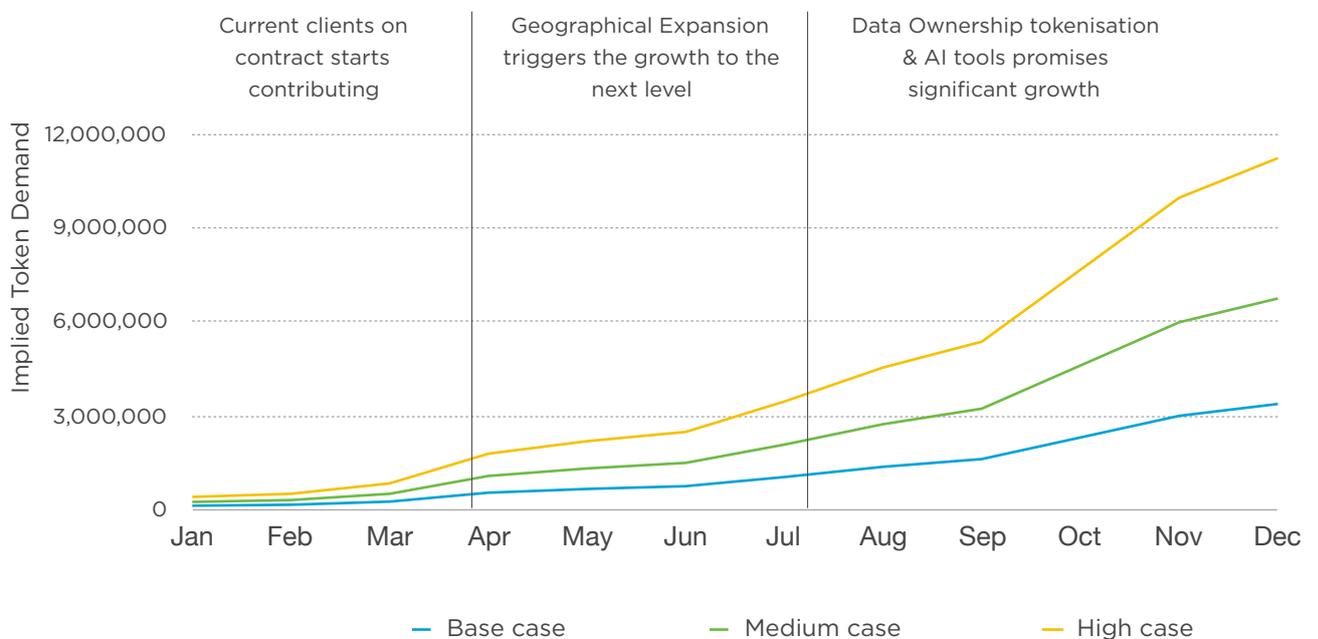
The Token drivers that presents compelling reasons to augment the growth of TRAK token economy in the next 12 months and have outlined our key assumptions based on our existing contracts and conservative forecasts.

The current contracted demand for TrakInvest’s Certification Program is 20,000 students receive certification at USD 150 / student. Our current pipeline of students represents less than 1% of the annual relevant student population in India looking for job-ready short-term certifications. Given our expansion plans for both India and other countries in South East Asia and Middle east, the projected demand for Certifications in 2018 is 4x the current demand.

The Platform currently has 100,000 “Traks” being performed by the current user base for no monetary incentive. The price per “Trak” will be the equivalent of USD 1 - 100 per “Trak” per month. Given the introduction of the TRAK Tokens we conservatively expect this activity to grow 5x from current levels in 2018.

The projected growth in the total user base is projected to 3x our current levels driven by our launch of the TrakInvest Show Season 2 (India), launch of Siam Commercial Bank Investment Centre and investment labs at Universities in Thailand and India. We expect the projected growth multiples to increase as we roll-out in other countries in the region.

Introduction of the AI Sentiment Tool for equities and cryptocurrencies available to retail and institutional investors and the introduction of the marketplace will represent “upside” case of demand for the Trak Tokens. Given the strength of token drivers and their potential impact on the TRAK token economy, we have constructed 3 scenarios for depicting the growth trajectories of the token demand in the graph below-



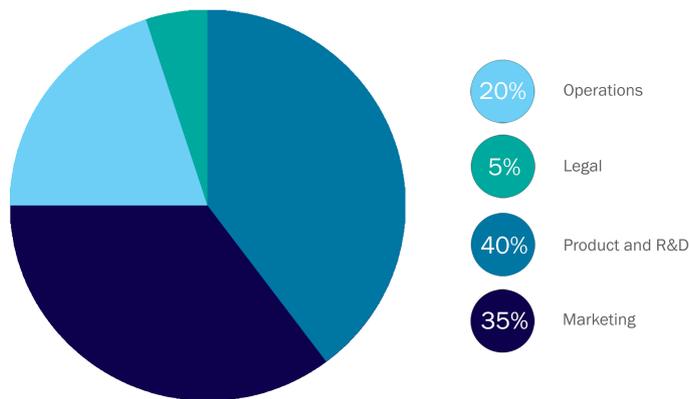
	Based on existing contracts in place i.e. conservative case	Based on greater market penetration with existing products	Based on introduction of new products including AI Tools
Total Users	284,000	384,000	584,000
Projected Revenue (USD)	7,560,000	15,000,000	25,000,000
Implied Token Demand	15,120,000	30,000,000	50,000,000



# Use of Proceeds

>> TrakInvest ICO is looking to distribute 66 million TRAK tokens denominated in ETH. The proceeds from the ICO will be utilised for product extension and geographical expansion.

Use of Proceeds



## Product and R&D

Forty percent of the funds raised during the ICO will be allocated to the development of product to strengthen the machine learning and robo-advisory features. Algorithms will be developed that will automate advisory to build a recommendation engine for customised portfolio management for the retail millennial consumer.

## Marketing

Thirty-five percent of the funds raised will be used for awareness and reach-out to the millennials across Asia, which boasts the biggest millennial population in the world. Focus will be to build key partnerships with large universities and state governments to access a large number of consumers

## Operations

Teams of trainers, sales, customer support and recruiters will be required to train and place the certified candidates. This kind of team will be in place at all the countries where TrakInvest is operational and will be there in the next 18 months.

## Legal & Admin

Although AI, blockchain-based services are growing at an exponential rate, there is still ignorance about them and their potential. This can lead to legal requirements failing to keep up with the progress of blockchain, even becoming a hindrance in the process. As such, to make the TrakInvest Ecosystem available on a global scale, there are some license and legal requirements that will need to be met, for which 5% of the funds will be allocated.



# Product and Business RoadMap

<b>Q1 2018</b>	<b>Tokenisation &amp; geographic expansion</b> <hr/> <p>Launch of Certificate tokens</p> <hr/> <p>Listing of TRAK token on exchange &amp; custom TI wallet</p> <hr/> <p>Training project of 20k students starts</p> <hr/> <p>Launch of The TrakInvest Show in India (Season 2) and Vietnam &amp; Thailand (Season 1)</p> <hr/> <p>Launch of Siam Commercial Bank Securities campaign</p> <hr/> <p>JV setup in China and rep office setup in Thailand, Vietnam &amp; Middle East</p>
<b>Q2 2018</b>	<b>Cryptocurrency Trading Platform</b> <hr/> <p>Launch virtual trading of crypto-currencies</p> <hr/> <p>Launch of simulation games for crypto-currency trading</p> <hr/> <p>Launch of Reputation token</p> <hr/> <p>Launch of TrakInvest powered Investment Labs in various Universities of India and Thailand</p>
<b>Q3 2018</b>	<b>AI tools</b> <hr/> <p>Launch of AI powered Sentiment analysis tool for both equities and crypto-currencies</p> <hr/> <p>Launch of Data ownership token</p> <hr/> <p>Launch AI and NLP powered voice chatbot in english, Thai and cantonese/mandarin languages</p>
<b>Q4 2018</b>	<b>Aggressive Marketing and Sales</b> <hr/> <p>Launch marketing campaigns in India, Thailand and China</p> <hr/> <p>Build up sales team and offices across multiple cities</p> <hr/> <p>Sign up B2B customers for white-label fintech engagements</p>

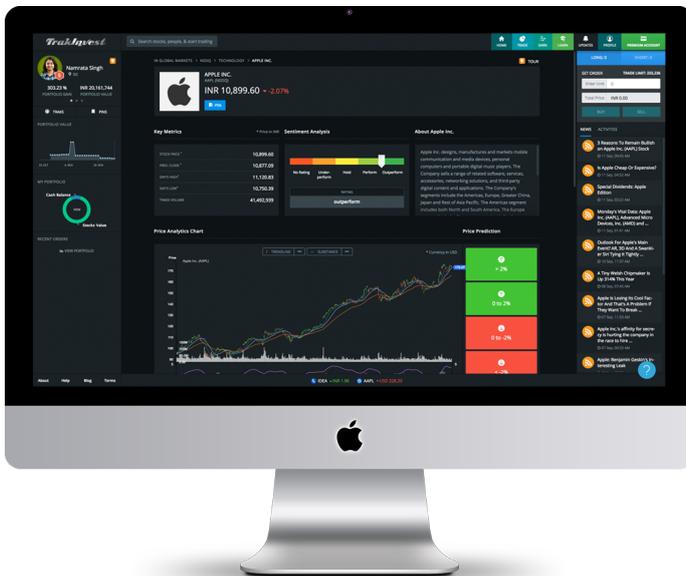


# Platform Overview

Trakinvest is a platform that provides a tremendous volume of relevant information to a variety of investors. The platform also provides various tools, including a portfolio management tool. The platform will create a strong brand through the strategic use of various media, including the Web.

Key Features Include:

- Real stock price feed for 10 global exchanges of 8 different countries including US, UK, China, India, Thailand, Singapore, Australia, and Hong Kong.
- 22 hours of trading facility along with live portfolio tracker
- Real time news feed
- Peer-to-Peer learning
- Gamified user experience
- Key Financial Ratios, stock search and price charting functionality
- Stock Sentiment Score for over 18,000 global stocks
- Engaging and interactive user interface
- Anytime trading with the TrakInvest mobile app and Facebook Messenger Chatbot
- Detailed personalized Trading Reports
- Customer support

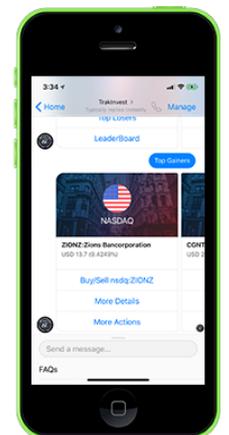


Full-fledged trading and learning management system available on desktop



Mobile App available in both Playstore and App Store

Intelligent chatbot available on FB messenger



Information and account information is ubiquitous across devices and medium



# Customer Acquisition



TrakInvest user base of 100,000+ has been built using offline and online channels. The management team has conducted workshops, seminars across various universities in Singapore, Australia, India and Thailand. Furthermore, in Q1 2017, the company launched The TrakInvest Show on its YouTube channel. The TrakInvest Show was Asia's first interactive reality TV show based around the TrakInvest application. With 600 minutes of original content, the show had a digital reach of over 10 million people with daily active user base of 35,000. The customer engagement was further driven by the support of India's leading investment gurus, who share their strategies and insights on our platform. You can access all the videos of The TrakInvest Show - Season 1 [here](#).

Given the enormous success of Season 1, India's number one business news channel ET NOW has partnered to telecast the Season 2 of TrakInvest Show in prime time slots. We have been approached by and are in active discussion with TV channels in Vietnam, Thailand, Indonesia and Taiwan to re-create The TrakInvest Show in native languages in the respective countries.

				
<b>The TrakInvest Show - Episode 5</b> 103K views • 8 months ago	<b>The TrakInvest Show - Special Guest - Andrew</b> 6.5K views • 8 months ago	<b>The TrakInvest Show - Episode 5 highlights</b> 6.2K views • 8 months ago	<b>The TrakInvest Show - Episode 4 (Highlights)</b> 6.1K views • 8 months ago	<b>The TrakInvest Show - Special Guest - Frank</b> 16K views • 8 months ago
				
<b>The TrakInvest Show - Special Guest - Ramesh</b> 57K views • 8 months ago	<b>The TrakInvest Show - Episode 4</b> 61K views • 8 months ago	<b>Episode 3 Promo</b> 138 views • 8 months ago	<b>Episode 4 Promo</b> 234 views • 8 months ago	<b>The TrakInvest Show - Special Guest - Prof.</b> 8.2K views • 9 months ago
				
<b>The TrakInvest Show - Special Guest - Dr. Alka</b> 6.4K views • 9 months ago	<b>The TrakInvest Show - Episode 3</b> 87K views • 9 months ago	<b>The TrakInvest Show - Special Guest - Chetan Bhagat</b> 8.9K views • 9 months ago	<b>The TrakInvest Show - Special Guest - Dr. C.K.</b> 10K views • 9 months ago	<b>The TrakInvest Show - Episode 2</b> 88K views • 9 months ago



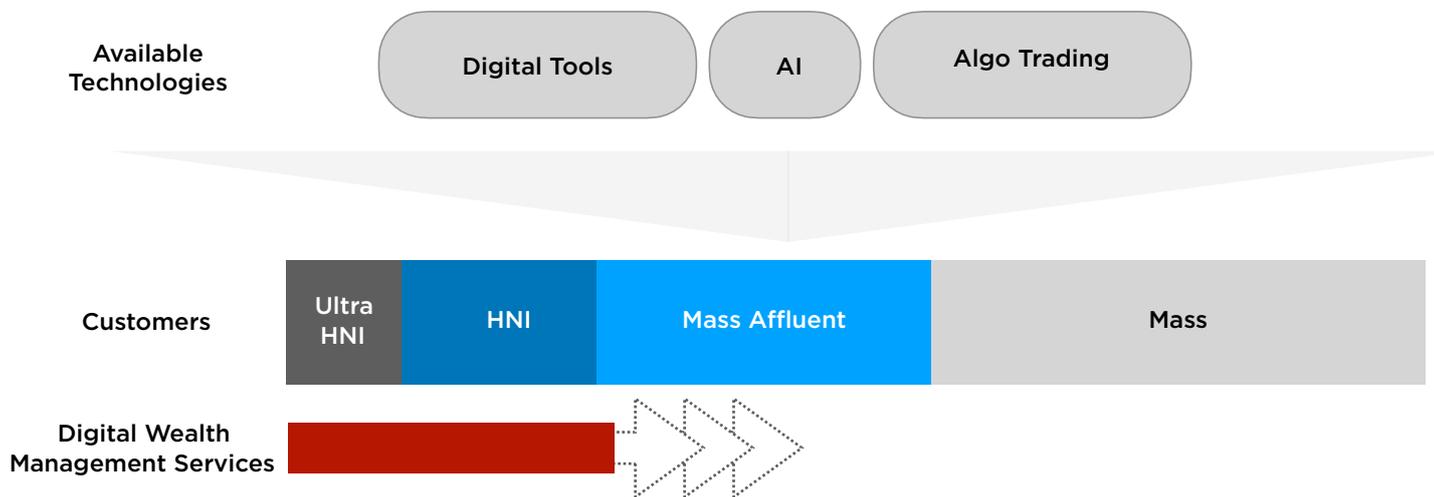
# The Disruption

»» The fourth industrial revolution is bringing about the convergence of the physical and cybernetic worlds, and the digital technologies that come with it is creating disruptions in a previously traditional industry – the financial services industry.

Innovations led by technology-enabled platforms are disrupting the existing industry structures and complex eco-systems. Deep-Diving into the investment management landscape, key trends such as robo-advisory, social trading and AI are shaping business models, consumer behavior and the entire ecosystem.

Traditional investment management involves providing personalized advisory solutions to the high net-worth individuals. Personal wealth managers with access to sophisticated tools and specific information manage the investment portfolios in exchange for charging high fees.

In recent decades, however, such high value advisory services have been automated to create cost-effective advisory solutions. These automated advisory solutions known as robo-advisory, provide algorithm-based advice at nominal cost. As a result, the services of traditional wealth managers have been commoditized and businesses have been forced to shift online and move beyond the high-end customer to target the mass affluent customers. Refer the WEF report on future of financial services published by Deloitte, given in the reference section of this document.



Customer expectations are also shifting, as there is a rising demand for low cost, personalized solutions that are hassle free and convenient to access on demand. Further, post the financial crisis of 2005-2008, there is an increased sense of distrust for financial advisors. In a recent Bloomberg study, over 90% of the millennial population chose non-traditional methods for managing their personal investments.

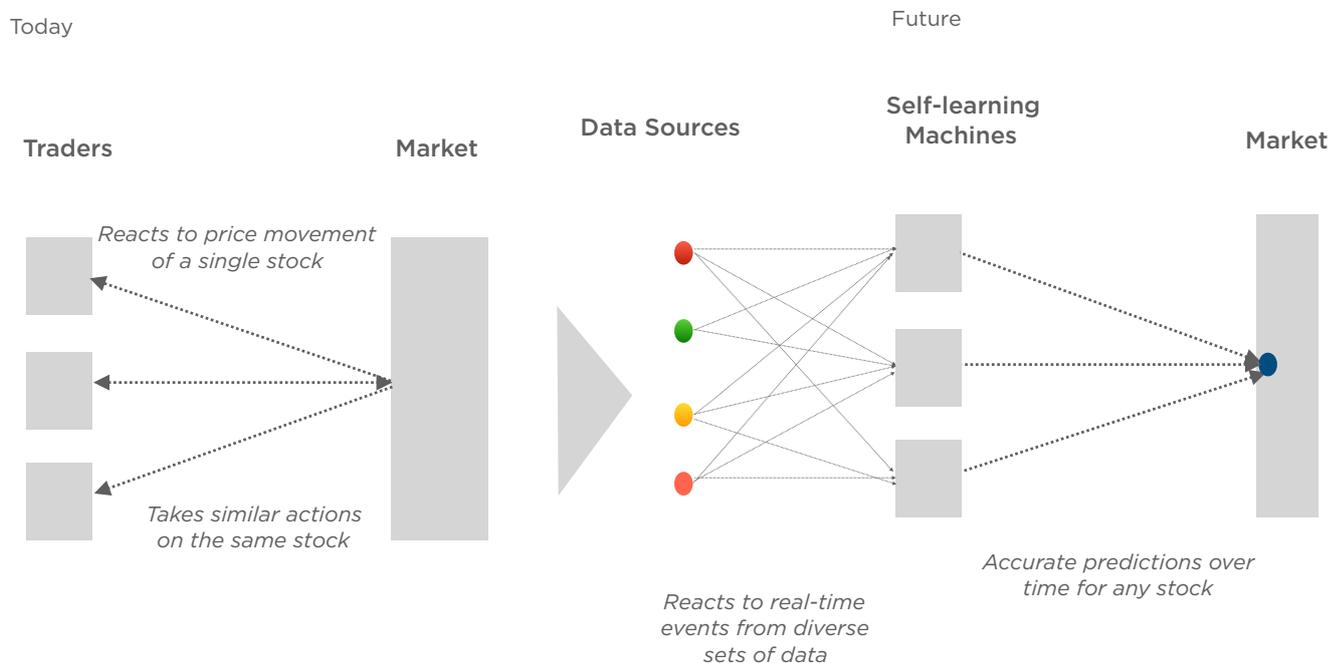
Such an environment is further fuelling the rise of robo-advisors and social trading tools. Robo-advisors build trust, transparency and consistency in performance by eliminating



human intervention. Social Trading tools empower individual customers to share investment advice and to gain from market insights of the crowd. An overall environment of “prosumers” is created where the customers participate in production, competing with traditional wealth advisors on generation of better returns on investments.

Emerging technologies in big data analytics and infrastructure are producing smarter, faster machines that are capable of processing large amounts of unstructured data that include real-time market events and social media news feeds. Traders can now gain deeper insights into specific stocks to correlate market movements rather than just studying price movements of a single stock.

Complex algorithms and trading strategies that incorporate machine learning can be developed to churn the vast amounts of data for stock market predictions. Machine learning capabilities improve the accuracy of the predictions over time.



TrakInvest sits at the cusp of these emerging trends in social trading, robo-advisory and AI. TrakInvest provides a marketplace for individual investors to share their data and earn fees for doing so. Individual investors learn and gain market insights from their peers based on their performance without any other agenda.

TrakInvest has access to the trading data and behavioral insights of 100,000+ customers as a result of their activity on the TrakInvest platform. TrakInvest proprietary algorithms churn this data to provide market insights and customized portfolio recommendations to individual investors. These recommendations improve over time as algorithms continuously incorporate and learn by accessing more and more data. TrakInvest users access all these features on demand through easy-to-use, interactive interfaces over web, mobile and social media chat-bots.

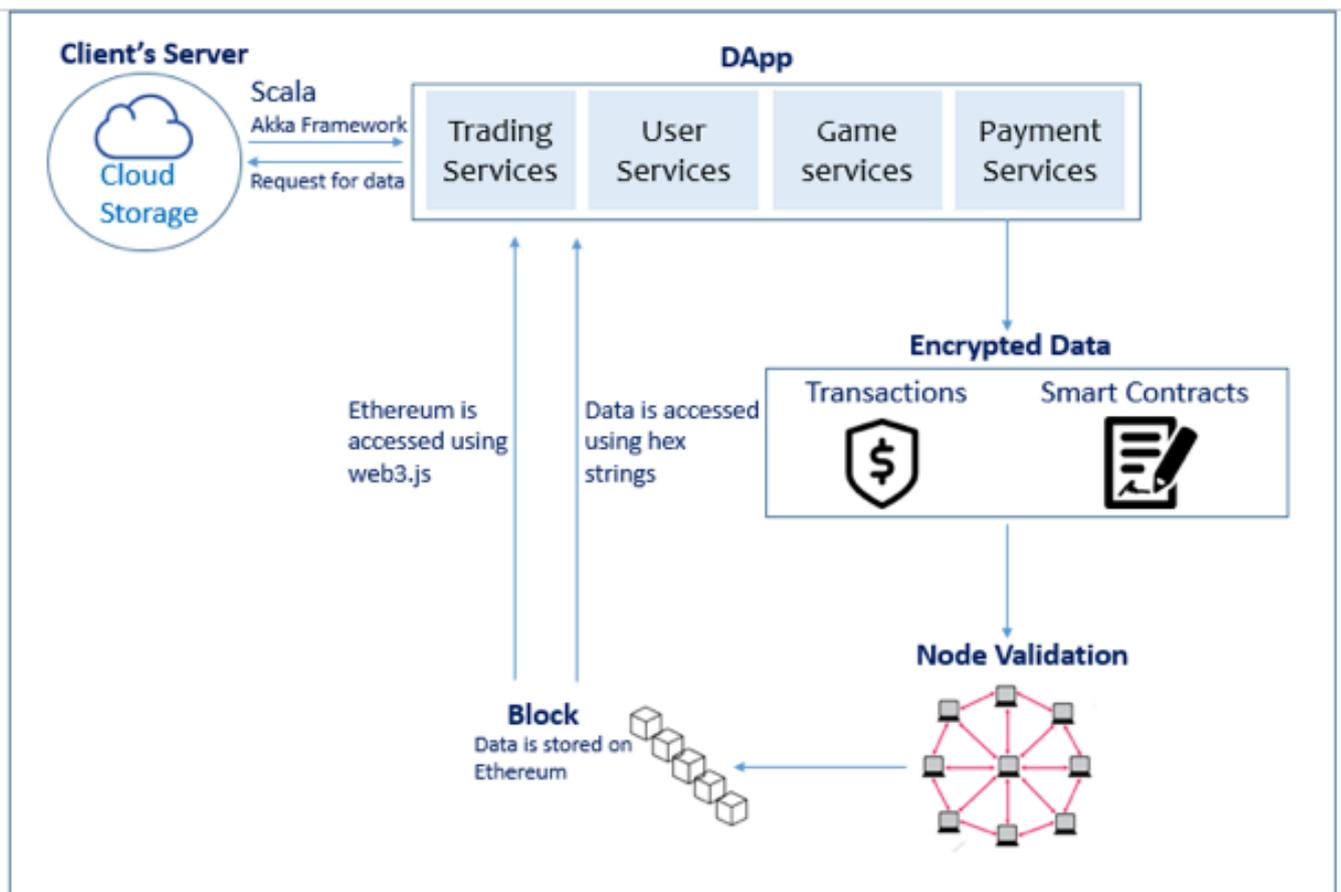


# Technical Architecture

>> Trakinvest is built using micro-services architecture. Services in Trakinvest are grouped by their functionality and the nature of logic needed. There are 3 types of services in the system: Gateways Stateless Services, Batching Services, and Gateways Services that enable the web to access our applications. These services include the portal and the chat-bot. Stateless services are built in such a way that they support horizontal scalability. These services have access to the database and are able to perform some business logics before returning the values to gateway services. Some of these stateful services are storing stateful AKKA actors to make calculation even faster and stateful services have direct access to their intended databases.

Due to the nature of micro-services, we are not bound to specific language/technology. However, there's a limitation imposed on the language that we are adopting. At the point of writing, we are focusing only on JVM based languages to ensure the performance, robustness and stability of the system. Services currently are written in 3 languages: (I) Scala, utilizing the PLAY and AKKA frameworks, (ii) Java, utilizing the Spring Boot & Ecosystem, (iii) Javascript using the Node and Express. For the front end development we have utilized React, Redux, and Saas/Scss frameworks.

Services in TrakInvest are deployed in containerised docker images. With dockerized application, the platform can easily achieve horizontal scaling without configurations.





# Trakinvest AI

➤➤ **TrakInvest has brought the concept of “track records” from the institutional level down to the retail level.**

Given advances in natural language processing (NLP) and the explosive growth of online prediction communities, rich social investing data sets are making it possible to evaluate investors not just by their popularity but also by their historic performance. Two trends heighten the importance of accurate measures of investor trust for the always-connected modern investor looking for credible trade ideas and information: more retail investors are directly managing their own investments in part because of declining trust in traditional advisors.

The three key initiatives in the TrakInvest AI recommendation engine include: (I) Sentiment Analysis, (ii) Network Analysis, (iii) Ti Reputation Score. The sections provide a brief overview of the various segments and more detailed technical methodology is available on request.

## **Sentiment Analysis**

This section discusses the framework behind the sentiment analysis engine that will derive crowd sentiment from a corpus of documents. The results of this sentiment analysis will work in both a push and pull mode. In push mode, news and announcements will trigger a push notification to end users based on their interest profile while pull actions will empower the end user to query the engine on the current status of a current stock.

The corpus of information for the sentiment analysis will be retrieved from a blend of time sensitive and query-able websites, for which web crawlers are written to derive share specific news, mandatory corporate disclosures, public discussion boards and twitter feeds. This will be further supplemented by information mined internally from TI's discussion boards to provide an asymmetric advantage in the development of the public sentiment.

Once the textual information has been retrieved, it is then pre-processed for vectorisation. A multi-pronged approach is then taken to determine sentiment based on consensus readability measure (e.g., Fog Score), lexicon based approaches (bag-of-words using Harvard General Inquirer / Loghran and McDonald dictionaries) and machine learning methods including Support Vector machines, Random Forests and Deep Neural Networks, trained over historical price data of each share of interest.

## **Network Analysis**

The recommendations from the sentiment analysis engine will then be supplemented with a TI-STOCK score and a TI-TRADER score, which each provide a time sensitive quantitative metric by which the traders and stocks can be ranked, specifically based on their performance within the TI platform.

## **TI Score**

The Ti Score is a combination of the individual's performance combined with the social “relevance” of that performance within the network. As an isolated individual, the TI score



could be defined as a weighted sum of the multiple attributes of a Trader's behaviour. The attributes to consider are for example (i) Total Gain/Loss and current position for Sell Orders for a Stock and (ii) Current Position (Profit/Loss) of the Holdings.

However, when the individual is a part of a network where there are followers and followings then it becomes a Graph problem. In this scenario, the TI score may be compared to a Page Rank that the Google's search engine builds behind the scene. In a Graph, the attributes of the followers and the followings also get included, for example (i) Total Gain/Loss and current position for the Sell Orders of the followers and followings for Copied orders for that Stock, (ii) Current Position (Profit/Loss) of the Holdings of the Copied Buy Orders that his/her followers and followings executed.

Additionally, for each person that a Trader follows, there is a degree of influence that he/she has on the Trader. This influence percolates to other Traders who follow this Trader. The TI score thus obtained is a Holistic score, i.e., the Graph's Overall Influence calculations have to converge to a specific set of values.

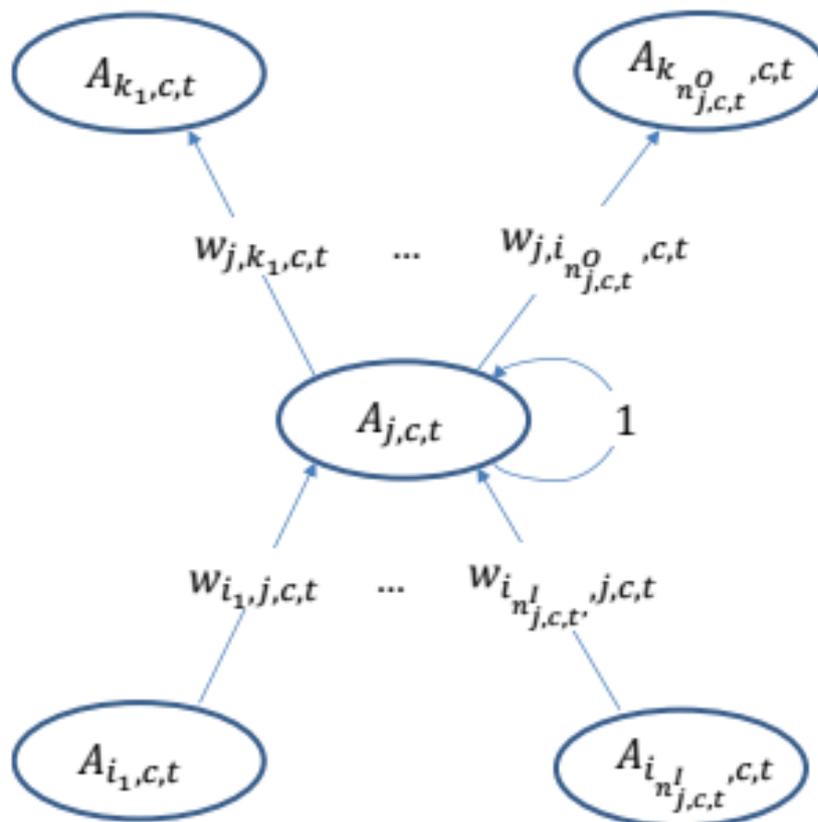


Figure 1. Influence Diagram for Traders



The following equations capture the Mathematical Model for the same.

$$\bar{p}_{j,c,u} = \sum_v^{u-1} (p_{c,v} \cdot Q_{c,v}^B - (p_{c,v} - \bar{p}_{j,c,v}) \cdot Q_{c,v}^S) \cdot (1+r)^{t-v} \quad (1)$$

$$A_{j,c,t}^B = \sum_u^t ((p_{c,u} - \bar{p}_{j,c,u}) \cdot Q_{c,u}^S) \cdot (1+r)^{t-u} / \sum_u^t Q_{c,u}^B \quad (2)$$

$$A_{j,c,t}^C = (p_{c,t} - \bar{p}_{j,c,t}) \cdot \sum_u^t (Q_{c,u}^S - Q_{c,u}^B) / \sum_u^t Q_{c,u}^B \quad (3)$$

$$A_{j,c,t}^P = \sum_u^t (\bar{p}_{j,c,u} - p_{c,t}) \cdot Q_{c,u}^S \cdot (1+r)^{t-u} / \sum_u^t Q_{c,u}^B \quad (4)$$

$$A_{j,c,t} = A_{j,c,t}^B + A_{j,c,t}^C + A_{j,c,t}^P \quad (5)$$

$$w_{i,j,c,t} = A_{i,c,t}^{Copy} / \sum_i A_{i,c,t}^{Copy} \quad \forall i \in \{i_1, \dots, i_{n_j^I,c,t}\} \quad (6)$$

$$I_{j,c,t} = \sum_i w_{i,j,c,t} \cdot A_{i,c,t} \quad , \text{ where } i \in \{i_1, \dots, i_{n_j^I,c,t}\} \quad (7)$$

$$O_{j,c,t} = \sum_k w_{j,k,c,t} \cdot A_{j,c,t} \quad , \text{ where } k \in \{k_1, \dots, k_{n_j^O,c,t}\} \quad (8)$$

$$T_{j,c,t} = A_{j,c,t} - I_{j,c,t} + O_{j,c,t} \quad (9)$$

where,

$\bar{p}_{j,c,u}$  is the average price of buying Scrip 'c' at time 'u' for Trader 'j' (recursive definition)

$A_{i,c,t}^B$  is the Booked profit for selling Scrip 'c' at time 't' for Trader 'j'

$A_{j,c,t}^C$  is the Current notional profit for Scrip 'c' held at time 't' for Trader 'j'

$A_{i,c,t}^P$  is the Positional profit for Scrip 'c' at time t that was sold before time 't' for Trader 'j'

$A_{j,c,t}$  is the Total profit position for Scrip 'c' at time 't' for Trader 'j'

$A_{i,c,t}^{Copy}$  is the Total profit position for Scrip 'c' at time 't' for Trader 'j' for Copied orders only

$w_{i,j,c,t}$  is the influence weight of Trader 'i' on Trader 'j' w.r.t. Scrip 'c' at time 'u'

$I_{j,c,t}$  is the Inflow Influence Value of Trader 'j' for Scrip 'c' at time 'u'



$O_{j,c,t}$  is the Outflow Influence Value of Trader ' $j$ ' for Scrip ' $c$ ' at time ' $u$ '

$T_{j,c,t}$  is the TrakInvest Score for Trader ' $j$ ' w.r.t. Scrip ' $c$ ' at time ' $u$ '

$i \in \{i_1, \dots, i_{n_{j,c,t}^I}\}$  is the set of incoming influences for Trader ' $j$ ' for Scrip ' $c$ ' at time ' $u$ '

$k \in \{k_1, \dots, k_{n_{j,c,t}^O}\}$  is the set of outgoing influences for Trader ' $j$ ' for Scrip ' $c$ ' at time ' $u$ '

$n_{j,c,t}^I$  is the number of Influencers of Trader ' $j$ ' for Scrip ' $c$ ' at time ' $u$ '

$n_{j,c,t}^O$  is the number of Influencees of Trader ' $j$ ' for Scrip ' $c$ ' at time ' $u$ '

$Q_{c,u}^S$  is the Quantity of Sell orders for Scrip ' $c$ ' at time ' $u$ '

$Q_{c,u}^B$  is the Quantity of Buy orders for Scrip ' $c$ ' at time ' $u$ '

$p_{c,t}$  is the price for Scrip ' $c$ ' at time ' $t$ '

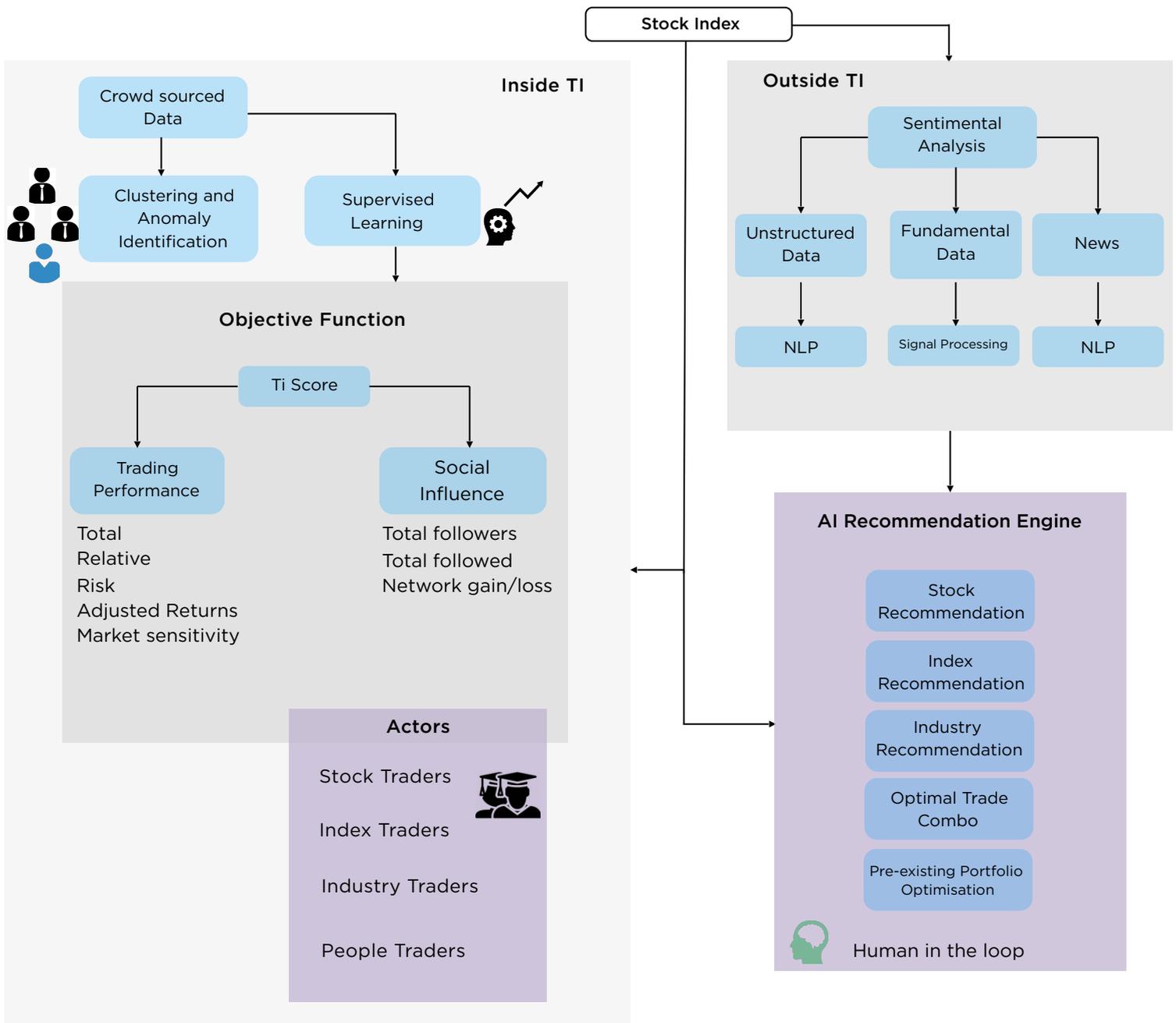
$r$  is the rate of interest of used for Net Present Value calculations

Notes:

1. All Amounts are measured as a % of Initial Constant Balance (e.g., \$100,000), making the profit calculations comparable
2. For a non-zero rate of interest ' $r$ ', the value for money would be different depending on when the Trader registered on the Platform
  - o The rate of interest ' $r$ ' may be considered to be zero for simplicity
3. The Moments of the Distribution need to be considered to account for the variation in a Trader's performance, i.e., Median ( $v$ , as unbiased Estimate of Mean) and Standard Deviation ( $\sigma$ )
  - o An easy approach there could be to include only those Traders in the Graph that have a min # of Orders executed for a particular Scrip, e.g., 30 - "magic" number sometimes used by Statisticians



Illustrative architecture diagram of the TrakInvest AI product





# Management Team

>> Meet the team whose vision and efforts are driving the business.



**Bobby Bhatia**  
CEO & Founder  
Singapore

Bobby has 25+ years of financial services experience in private equity and investments having executed over \$5bn+ of equity and mezzanine transactions in Asia. He has held leadership positions at J.P. Morgan Partners Asia, AIG Asia and O'Connor & Associates. Mr. Bhatia attended Stanford and Duke Universities.



**Arjun Chakraborti**  
President & Country Head India

Arjun has 15 years of experience leading Product, Sales and Operations teams across India & Australia. Arjun has worked with marquee organisations - ICICI, Religare Securities & Network 18. Arjun has built the India business of TrakInvest, driving growth through innovation and key partnerships in the region. Arjun is an MBA and is also an alumnus of the Harvard Business School.



**David Watson**  
Global Head - Product, Spartan Inc

David has previously led TrakInvest's marketing, branding and community building efforts and continues to remain as a senior consultant to the business. David has an MBA from Tsinghua University & MIT and has earned his Bachelor of Creative Arts from the University of Melbourne.



**Urvi Babla**  
Head - Marketing

Urvi has 12 years of global experience across Marketing, Strategy and Digital Marketing, leading teams across top firms such as ICICI Securities & Religare Securities. She is at the forefront of driving market expansion and new customer acquisition for TrakInvest. Urvi is an MBA from Manchester Business School.



**Rahul Sharma**  
Director

Mr. Rahul Sharma has 22 years of experience in leading the North Asia operations for the HR consulting practice at Executive Access. Based out of Hong Kong, he leads the corporate business development and relations for TrakInvest. Mr. Sharma is also on the board of Dr. LalPathLabs, a leading health-care firm.



**Abha Bakaya**  
Anchor & Creative Director

Highly creative and multitalented Television News Editor, Anchor, and Producer with 15 years of experience in TV production, news reporting, live TV segments, and lifestyle show host. She is the Anchor & creative director of The TrakInvest Show.



**Dr. Kanth Miriyala**  
TrakInvest Security  
CEO & Founder - [turinglabs.io](http://turinglabs.io)

Dr. Kanth is actively working with TrakInvest for building the most secure blockchain and crowdsale platform. He is the Founder/Advisor/Early Stage Investor in Quintant (sold to iGATE), Qik (sold to Skype), Gravitant (sold to IBM), Cicada Resorts (sold to Premji Invest). Former Head of Global Business Consulting at iGATE.



**Parag Arora**  
TrakInvest Security  
CTO & Founder - Turing Labs

Parag is actively working with TrakInvest for building the most secure blockchain and crowdsale platform including the wallet strategy and tokenomics. He is an YCombinator, Microsoft & IITD Alumnus. He has co-founded Glowing.io and PlusTxt later sold to PayTM. He has developed various Wallets, Smart Contracts, DApps and Infrastructure on Blockchain.



**Preetham**  
Blockchain developer

He is an experienced developer and skilled in blockchain, solidity, Node.js, MongoDB, AWS, Linux, elastic search, Redis and virtual reality. He has a strong engineering background with a Bachelor of Technology (B.Tech.) focused in Computer Science from Kurukshetra University.



**Divyashish Jindal**  
TrakInvest Community Building  
Co-Founder - Jacobi Partners

Divyashish Jindal is actively working with TrakInvest to create marketing awareness and build the community for the TrakInvest ICO. Previously, he has also co-founded WiseStep, Appytab and TestRocket. He has been an advisor to various organisations in Blockchain & ICO space.



**Ankit Tiwari**  
Director - Engineering

Ankit spearheads the engineering team. He is majorly working on the AI tools along with the data-science team. Ankit has also served as an independent technical consultant for Public Health Foundation of India. He has a bachelor's degree in computer science.



**Jes Anub**  
Senior Developer

Jes is a Senior Software Engineer with a Masters degree in Computer Engineering. She's got over 8 years of experience in software development, and enjoys coding in JavaScript the most. Jes is working on all AI enabled developments for TrakInvest



**Namrata Singh**  
Senior Software QA

Senior software QA with full system development life-cycle experience, including designing, developing and implementing test plans, cases and processes. Namrata is expert in testing web and mobile applications. She is experienced in developing traceability matrix and automating processes using various tools.



**Monika Arora**  
Tech Lead

Monika has 12 years of experience and is proficient in analysis of new upcoming market requirements and do it from planning to end development product. Monika is working on the development of the AI enabled chatbot for TrakInvest.



# Board of Advisors



### Frank Meehan

Co-Founder & Partner at SparkLabs Global Ventures  
London  
Current Investor

Mr. Meehan has held leadership roles across Ericsson and Hutchinson Whampoa. Frank is an experienced entrepreneur with deep expertise in Technology and telecom. His previous board positions include Spotify, Siri, Summly, Affectiva, Bitcasa, Fixmo, DoubleTwist, Ginger, Desti and Magisto.



### Partha Pratim Talukdar

Founder Keynome Technologies,  
Worked for Google  
India

Partha leads machine learning and AI at IISc - India's leading technical university. Previously, he worked with google on NLP, data integration, & cognitive science. His recent research has focused on graph-based learning algorithms for large-scale information extraction, temporal information processing, automatic knowledge harvesting from large data & neuro-semantics.



### Jimmy Kim

Co-Founder & Partner at SparkLabs Global Ventures  
Korea  
Current Investor

Jimmy has strong experience in technology and gamification. He has held leadership roles at Nexon and igrade studio . Jimmy was the founding investor and active deal adviser of Studio Ex, an online gaming studio that was acquired by Disney in 2012. Jimmy has also completed the Stanford University's Graduate School of Business's Executive Management Program.



### Vorada Thangsurbkul

First Executive Vice President,  
Siam Commercial Bank  
Thailand  
Current Investor

Ms. Vorada has 24+ years of experience in investment banking and wealth management at leading financial institutions in Thailand and South East Asia. Previously she has led the private banking operations for Morgan Stanley Stanley She holds an MBA from Kenan-Flagler Business School.



### Chatchaval Jiaravanon

CEO - Charoen Pokphand,  
Indonesia & Finansia Syrus  
Securities  
Board Member - True  
Corporation  
Thailand, Current Investor

Mr. Jiaravanon is a successful entrepreneur who runs Thailand's largest private company and a diversified business conglomerate - The C.P. Pokphand group. He holds directorships across multiple private and public businesses in Thailand with interests in Telecom, Energy, Financial services, agribusiness etc



### Alan Chou

Director of Publishing &  
Operations SEA - Blizzard  
Entertainment  
Singapore

Alan heads the team responsible for all publishing operations in SEA including partner management, marketing, business ops and sales. He has previously worked with microsoft and Intel. He holds a mechanical engineering degree from UC Berkley and an MBA from University of California



**Mandeep Nalwa**  
CEO & Founder - Taurus Wealth  
Singapore  
Current Investor

Mandeep had spent most of his career with various private banks in the Asia-Pacific region with specific exposure to Equities, Fixed Income, Currencies, Derivatives and Managed Assets. Mandeep is a member of the founding board of the Association of Independent Asset Managers (AIAM) in Singapore. He is an alumnus of the Indian Institute of Management, Ahmedabad, India.



**Ms Woraphanit Ruayrungruang**  
Executive President, Reignwood  
China/Beijing/HK  
Current Investor

Ms. Woraphanit is leading China based Reignwood's strategic vision outside of China. Reignwood has diversified global holdings and Ms. Woraphanit ensures international investments in diverse sectors ranging from property, luxury and lifestyle to sport, consumer goods and wellbeing.



**Prasad Vanga**  
Partner - Anthill Ventures  
India

Prasad Vanga is a successful entrepreneur, angel investor and a business transformation coach. As an Investor he was involved with several Startups that have scaled their businesses with speed like Tynker, Medplus and Manage my Spa. Vanga has consulted for some of the top companies in the world like Nike, Starwood, Symantec, Google, Kraft and GE.



**Karthik Iyer**  
CEO & Founder-BlockchainMonk  
India

Karthik Iyer is the India Ambassador of the P2P-Foundation (the worlds largest think tank on decentralization and peer to peer). He is part of one of the largest EU research project on P2P, [P2PValue.eu](http://P2PValue.eu). He has over a decade of experience working for large technology firms such as Red Hat, Novell and Sun Microsystems and has successfully ran various hi-tech ventures in the past.



## Media and PR Links

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2. [Forbes India - 14/03/2017](#) (From mock trades to real jobs)
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