

We all want to go to
heaven...
...but not right now

Kodoy

A photograph of the Milky Way galaxy arching across a dark night sky. The galaxy's core is visible as a bright, dense cluster of stars. Below the sky, the dark silhouettes of trees and a body of water are visible, reflecting the light from the stars. The word "Kodoy" is written in a stylized, italicized font with a red outline and blue fill, positioned in the upper center of the image.

Kodoy

...

**an engineering approach
to lifespan enhancement
through digital twin
simulation-assisted
interventions.**

1. THE SOLUTION

04 - 14

2. REPROGRAMING AGEING

15 - 30

3. MENTORS

31 - 45

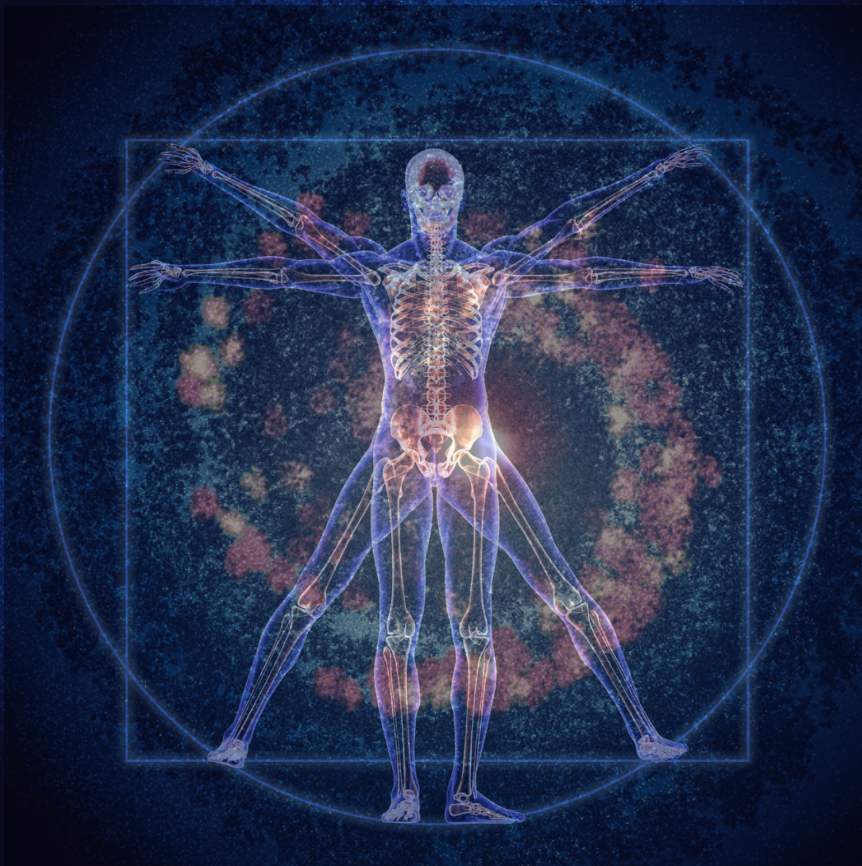
4. COMPARATORS

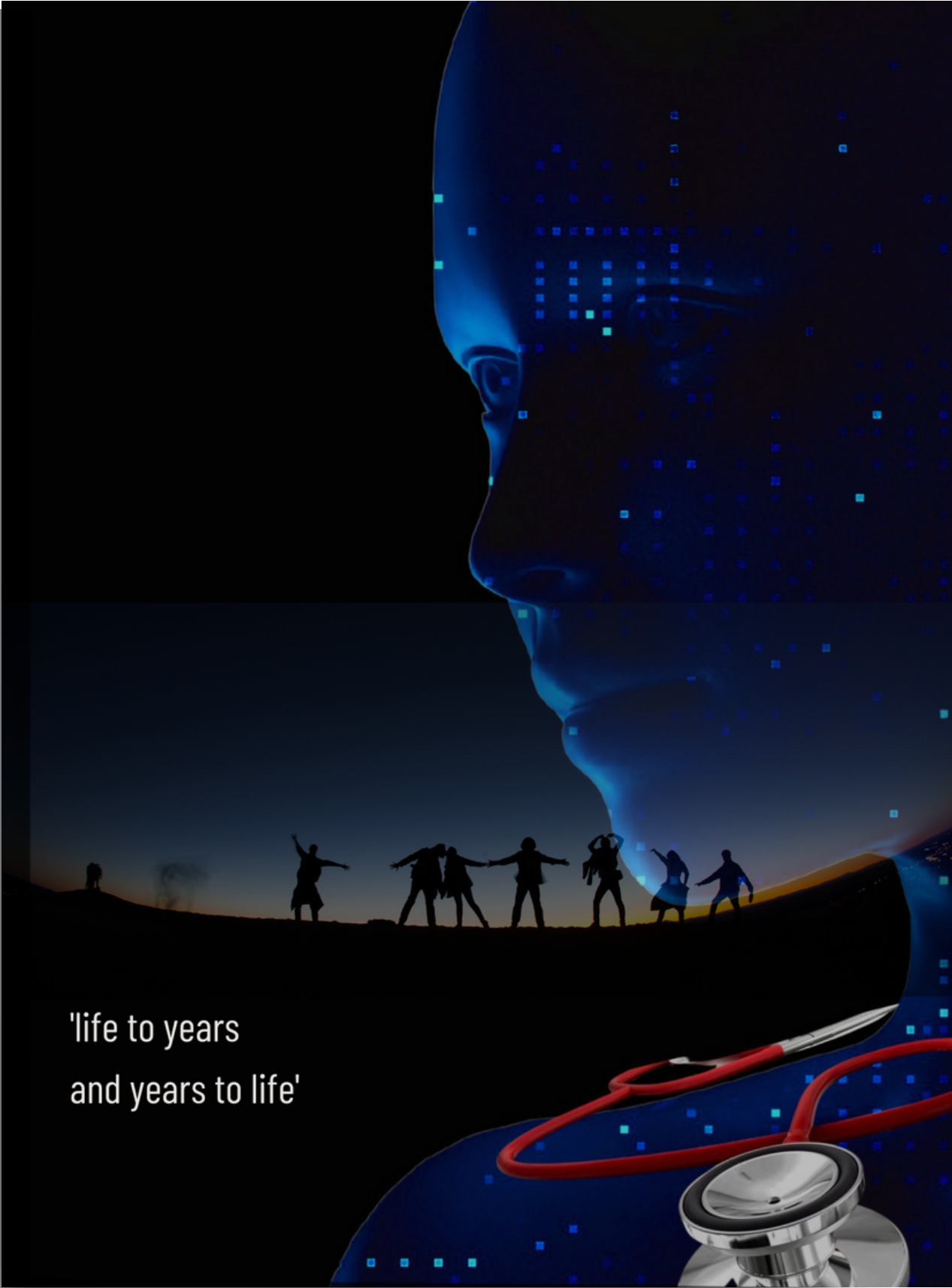
46 - 49

5. FINANCIALS

50 - 54

1 the solution





'life to years
and years to life'

The elderly population is increasing faster than other segments of the population throughout the world. Age is the leading predictor for most chronic diseases and disorders, multi-morbidity, geriatric syndromes, and impaired ability to recover from accidents or illnesses.

Instead of addressing the body as one integrated machine, western medicine adopts a component level approach to treatment of diseases.

Thus treating one ailment does not prevent the manifestation of the next ailment. As age increases, the points of failure increase leading to a reduction in mobility, degradation of the senses, loss of memory and finally, death.



Death is the ultimate leveller

Everyone dies.

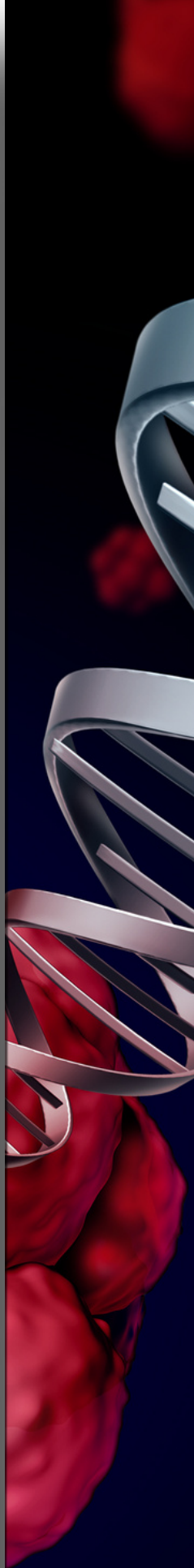
Ageing is not classified as a disease because it afflicts everyone. Put differently, it is the most widespread disease on the planet, with 100% mortality.

However, lifespan varies from person to person. So does rate of ageing. Global average life expectancy is 73.4 years. (Source: WHO 2019)

Fundamental ageing mechanisms include, among others, chronic inflammation, fibrosis, stem cell/ progenitor dysfunction, DNA damage, epigenetic changes, metabolic shifts, destructive metabolite generation, mitochondrial dysfunction, misfolded or aggregated protein accumulation, and cellular senescence.

These processes appear to be tightly interlinked, as targeting any one appears to affect many of the rest.

Ageing and degeneration go hand in hand. Degeneration leads to ageing. And at the same time, ageing is almost always accompanied by degeneration.



Tracking ageing as degeneration



Any kind of degeneration can be tracked through time series data or longitudinal studies. A spot test does not reveal a trend but an annual test result when compared across the years will clearly show trends. Trends need to be monitored to gauge both extent of degeneration and the rate of degeneration.

The body does not store past values nor does it indicate future values of any health parameter. This data has to be collected and stored outside the body for analysis.

The first step to reprogramming of the ageing process is determination of the current parameters from an ageing perspective.

This needs measurement systems that can generate time series data to track the quantum and rate of ageing at the molecular, cellular, tissue, organ, system, physiological and psychological levels.

This measurement forms the basis of determining and implementing the interventions for reversal.

Replicating the human body into a virtual machine

The human body is not static. It changes with every breath. No two humans are identical. The problem is that such a machine cannot be replicated into a static model. Over a million man hours were contributed by over 25,000 technologists to choose one of several possible approaches to do this. Out of the hundreds of possible approaches - the digital twin approach seems most practical.

The human body is not a manmade machine. Thus its design blueprints and functioning algorithm are not known. These need to be reverse engineered through artificial intelligence and deep learning. There is no available technology stack for this task.

Modelling the human body as a machine using digital twin paradigms is an engineer's task - beyond the abilities and competencies of the medical profession, It needs an inter disciplinary approach.

The problem statement for Kodoy was to create a personalised protocol to defeat illness and extend lifespan.

The target was to increase average active lifespan to 120+ years. And to do so safely, consistently, predictably and universally.

And within existing regulations.

Kodoy has adopted a unique approach to address the health-span challenge. The solution assumes that it will need to be:

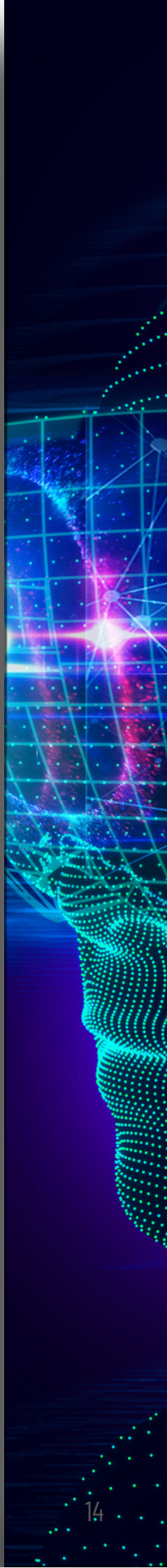
- bespoke and personalised
- based on known science
- permitted by existing regulations
- implemented under the supervision of existing practitioners and service providers
- capable of being simulated prior to being administered on the human body
- continuously tracked by digitising and measurement equipment so that the quality of simulations can be continuously upgrade
- aided by cutting edge technologies and artificial intelligence

The Kodoy solution involves creating a digital replica (or twin) of the human body at close to cellular level.

Data for creation of this twin is derived by digitising body parameters/ measurements ranging from genome sequencing and gut biome recognition to blood based liquid biopsy and radiological imaging.

This digital twin is subjected to the equivalent of clinical trials to simulate the effect of known therapies. If the simulation shows positive results, then the person can consult with healthcare practitioners to implement those interventions on the real human body. Whilst the therapy is being given, data collected is used to update the digital twin and simulate future effects for course correction of parameters such as dosage, adjuvants and diet.

Kodoy needs to create digital twins of cutting edge therapies such as mRNA, stem cells, monoclonal antibodies etc to administer them to the digital replica of the human body.



2

reprogramming ageing



Kodoy is a multi-parameter platform for creation of a digital twin and simulated testing of any body process reprogramming.

The Kodoy platform has an open API to enable independent application developers to connect to the platform.

After simulated testing on the digital twin, the reprogramming is then carried out on the human body through proteomic messaging which strengthens and accelerates the ability of the body to cure itself.

The digital twin is continuously updated and monitored to track the changes induced by the reprogramming.



Kodoy creates a complete replica

The first application for the data platform is to import data on the individual's body.

The system has to work backward from the end output (digital twin) and forward from the input (test and measurement data).

The digital replica has to present a data visualisation that is amenable to interpretation, analysis and simulations.

The AI based expert system is now ready for the specific application. In future, as an on going process, after certain time interval, as the quality of sensors keep on improving and hence input data quality improves. The system architecture is corrected and the system is trained and tested again and again with the training and testing phases for improving desired output accuracy with certain time interval. The system output becomes more and more accurate due to deep learning with large number of data points.

Once the deep learning AI based system is fully operational, the system will continuously correlate changes in body parameters to diagnose degeneration of different kinds to enable corrective action to be taken on a predictive and preventive basis using precision medicine protocols.

Several of the tests and measurements required for creation of the digital replica at close to cellular level are not available easily or are very expensive. Similarly digital wearables, though cheap and capable of real time data - have limitations in terms of accuracy and functionality. Thus the data platform has to use advanced tools to fuse data, normalise inputs and estimate certain values.

Kodoy proposes to make proven new technologies available at affordable price points by catalysing the creation of capacities, strengthening of supply chains and indigenisation of manufacturing to achieve lower costs.

Kodoy targets a 10 to 100x improvement in costs for technologies such as monoclonal antibodies, mRNA therapies, stem cell treatments, vaccines and anti ageing nutraceuticals.

This is possible because of the existing infrastructure, capacities and other resources available in India.



In parallel, Kodoy is catalysing the deployment of unproven frontier technologies which have the potential to arrest biological ageing.

These include domains such as computer vision, gene editing, biopharmaceuticals, natural proteomic extracts, stem cell & mRNA.

Kodoy is not developing the core science but working on validating existing knowledge through clinical trials and commercialising products and services that emanate from successful clinical trials.

In addition to cutting edge technologies and artificial intelligence, "existing knowledge" includes the ancient systems of medicine such as ayurveda, unani, yoga, siddha and homeopathy - which need to be subjected to scientific vigour.

Kodoy has worked closely with players in biologics, genetic medicine and other cutting edge technologies to develop digital clones of the therapies for administration to the digital twins.

Kodoy is now entering into partnerships with disruptive startups in cutting edge technologies.

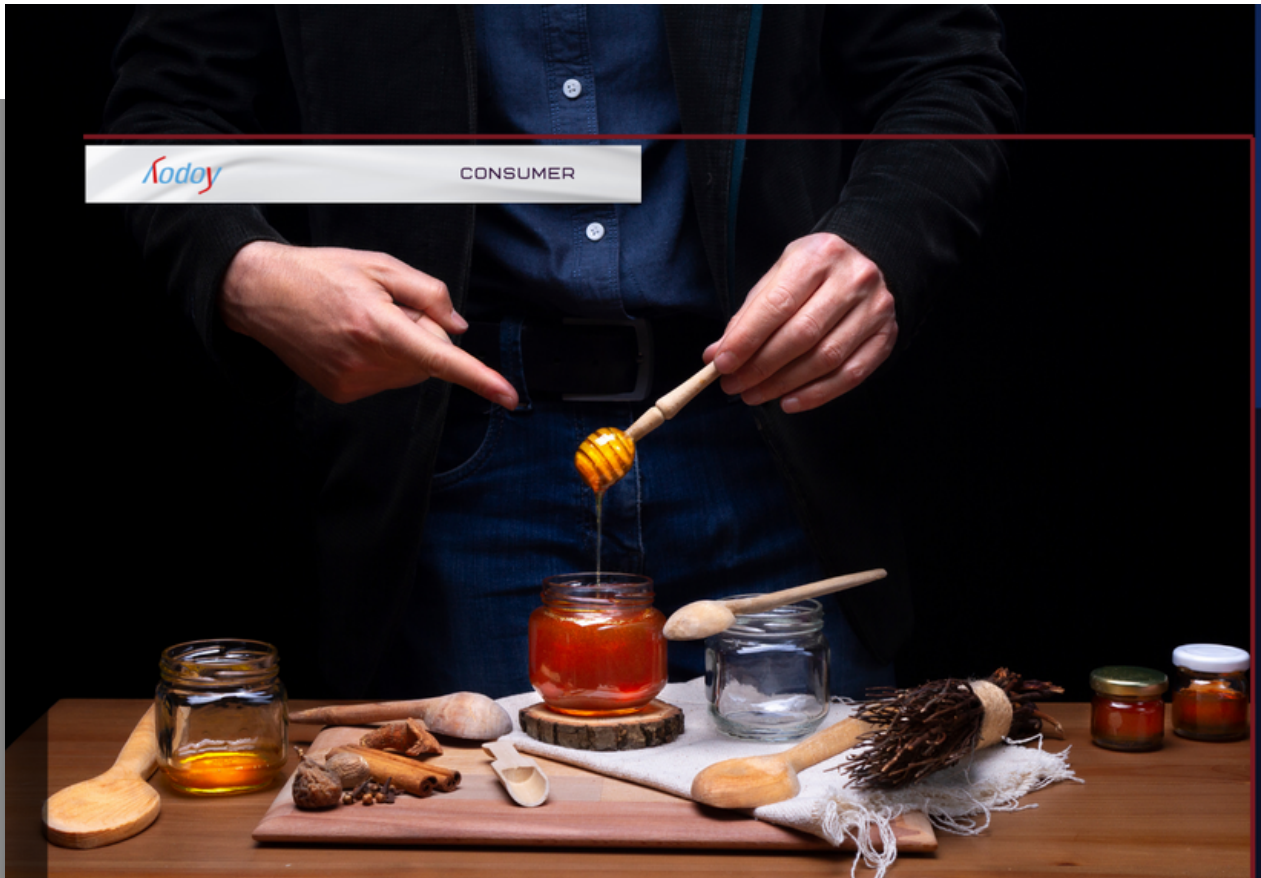
Kodoy has two partner organisations in an advanced stage of creating digital versions of real life therapies.



A close-up of a golden chain link with the word "PARTNERSHIP" engraved on it. The chain is made of thick, polished metal links, and the word is in a bold, sans-serif font. The background is a dark blue gradient with a diagonal line.

Brew. A engineered biomolecule based preventive medicine company which is curating a wide range of vaccines and other prophylactic products which may not be freely available in India.

Platinae. A biologics company which sources advanced therapeutic products in categories like monoclonal antibodies, mRNA therapeutics and advanced proteomics.



Kodoy platform is not a replacement for a doctor or hospitalisation. It is a data platform that helps diagnose any illness or identify, evaluate, simulate and monitor any treatment on a DIY basis. However the treatment per se is not carried out by Kodoy.

The Kodoy architecture being data heavy has to enable

- access to the phone home screen without going through the App/Playstore
- storing the data entirely in the cloud without using the smartphone's limited memory and storage resources.



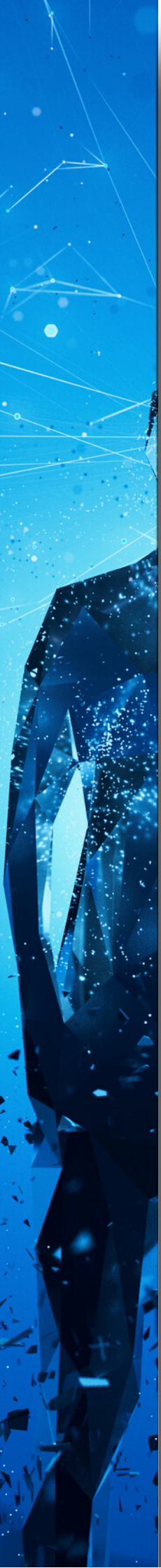
Kodoy CONSUMER

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The reprogramming is done by therapeutic interventions which use proteomic messaging to alter gene expression using personalised therapies identified from the digital twin simulations.



Kodoy works at three levels...

- it operates a born-digital, cloud hosted data platform. A user can create a digital replica at near cellular level by integrating longitudinal data from multiple diagnostic tests.
- it helps platform users to identify, evaluate, access and monitor technologies most suited to their personal longevity needs.
- it allows the user to test these personalised therapies with the digital replica to analyse their efficacy, adverse side effects etc.

To do so

- the data engine has to integrate unstructured data into a structured framework. Input data includes digital or analog images, text, encoded files etc.
- the system has to access raw data from diagnostic systems in preference to final summarised reports.
- the time series longitudinal data has to be fused and integrated with real-time data from wearables etc.
- all the fused data has to be presented visually as a 3D image of the real human body showing both the internals and surface features.

Whilst the platform is digital as is the digital twin, the human body is not. The human body is bound by the limitations of space and time. The operation of the body as a machine is not yet fully understood.

Modern medicine takes this machine as a given and adopts a component level approach to its repair and maintenance. Ancient wisdom on the other hand may not be prepared for the realities of environment damage, processed food and compromised food chain.

This makes innovation time consuming. There is no quick fix. On the other hand, there is relatively lower uncertainty in making existing proven technologies more affordable.

- Kodoy is not a healthcare provider, pharmaceutical company or insurance provider.
- the initial focus is to make proven solutions more affordable, to avoid adverse side effects and to take new technologies to market.
- the main costs in introducing new therapies is the cost of regulatory approvals, clinical trials and customer acquisition which is through healthcare providers.
- the digital twin approach collapses most of these costs.
- By using indian manufacturing, IT services and a b2c approach far lower costs are achieved for traditional activities in the discovery-to-deployment cycle.

3 mentors





Ankit Lekhra

MENTOR IPR

Ankit holds a Btech in Computer Science from IIT Guwahati batch of 2010. He is the founder of an AI-based IPR platform - Incubiq Innovations Pvt. Ltd. The top 10 startups from 1700 global startups by South Korean Govt-KSGC 2019. Grant and support by Indian and South Korean Govt. Incubatee of AIC-GIM, Goa, NITI Aayog. Selected by Founder Institute for Palo Alto Program. Among the top 25 AI Startups by RockstartAI, Netherlands-based Accelerator.

As an active volunteer of the IIT Alumni Council, generated industry-grade patent & research intelligence reports on COVID-19 disease and the evolution of the Sars-Cov-2 virus. Enabled Government institutes, Corporations, Universities and R&D organisations to understand the efforts of the global R&D and business community in COVID-19 testing, diagnostics, mRNA and delivery technologies that are essential for mRNA therapeutics and vaccines. Helped formalise and implement nationwide COVID-19 monitoring, testing, and diagnostics measures. Integrated continuous monitoring & utilisation of existing and new patents for accelerating research and potentially developing a cure shortly.

Ankit started his career with EvaluateServe, followed by a five-year stint with UnitedLex in the area of IPR. He founded Incubiq in 2017. He is an enthusiastic cricketer and was captain of the IIT Guwahati cricket team.



Anurag Agrawal

MEGALAB JURY

Dr Anurag Agarwal is the Director of the CSIR IGIB which is India's premier research institute for Genomics and integrative biology.

He has an MBBS from AIIMS, New Delhi and is trained in medicine, pulmonary disease and critical care at the Baylor College of Medicine, Houston. He did his PhD from Delhi University. He is a senior fellow of the DBT- Wellcome Trust and a recipient of the Shanti Swarup Bhatnagar Prize for Science and Technology and the National Bioscience Award. He is a vital member of the government S&T task force for Covid 19.



Arindam Bose

RESEARCH MENTOR
MONOCLONAL ANTIBODIES

Dr Arindam Bose retired from Pfizer Worldwide Research & Development in 2016 after 34 years in leadership roles in bioprocess development and clinical manufacturing. Dr Bose's final position at Pfizer was Vice-President, Biotherapeutics Pharmaceutical Sciences, responsible for external sourcing, competitive intelligence and external influencing, and executing the technical development plan for Pfizer's entry into biosimilars. He is widely recognised as a Key Thought Leader in the biopharmaceutical industry. Dr Bose was elected to the US National Academy of Engineering for innovations in biologics manufacturing. He received a PhD in chemical engineering from Purdue University, an M.S. from the University of Michigan, Ann Arbor and a B. Tech from the Indian Institute of Technology, Kanpur.

Dr Arindam Bose has been a key mentor and coach to the engineered biomolecule initiative of the IIT Alumni Council. He has advised the Council on a host of issues of both a technical and techno-economic nature. He has helped conceptualise and plan the Rs 500 crore Engineered Bio Molecule Mega Incubator (EBMI), which will include a phygital incubator, 100K square feet pilot plant facilities, a 10-acre residential training campus, a BSL3 Laboratory equipped research centre and a 100-acre biologics manufacturing cluster for biologics exports in the NCR Biologics ecosphere which includes AIIMS, CSIR IGIB, EBMI training campus, EBMI SEZ, THSTI, ICMR, AIIA, Bibcol, DBT, DST and TDB.



Ashish Chitnis

MENTOR NATURAL EXTRACTS

Ashish Chitnis has a BTech in Chemical Engineering from the Indian Institute of Technology, Bombay and graduated in 1987. He did an MS in Chemical Engineering from the University of Mississippi and an MBA from Texas A&M University. He has been involved in senior technical roles in the pharmaceutical and blood products industry and has worked with industry leaders such as Glaxo Smithkline and Pfizer. He has led engineering and construction projects, managed technical support services and supervised staff to set up global-scale projects.

He has played a key role in building manufacturing plants to produce blood plasma-derived products. He has been an active volunteer in the Therapeutics group of the IIT Alumni Council and helped the Kodoy team understand and appreciate the impact of regulatory issues on convalescent plasma therapy. These issues are primarily related to the ban on commercial blood purchases from donors and the consequent prohibition of products derived from donor blood.

He also helped the group understand the need for “virus sanitisation” of the blood using processes other than chromatography and fractionation used by the Indian industry. Based on his recommendation, the MegaLab architecture was modified to carry out concurrent testing for viruses in donor blood using RTPCR. Also, modifications were made to the Genetic testing protocol to enable a framework for creating an antibody library and characterising the antibodies to examine if one could clone part of the antibody in a cell line to get the full benefit of the antibody at a fraction of the cost. Some bleeding-edge companies in the sector have lately commercialised this approach.



Ashish Deo

MENTOR NUTRITION

Ashish Deo is a highly experienced marketer and business strategist based in London. He currently leads the work on creating demand for nutritious diets and foods in developing countries at a global nutrition NGO. Ashish has applied marketing strategies in both the private sector (at Procter & Gamble and Diageo) and the not-for-profit sector. His experience spans multiple regions and countries worldwide, enabling him to offer deep insights into similarities and differences across various cultures.

At Diageo, the leading global alcoholic drinks business, he was instrumental in transforming the Duty-Free / Travel Retail business through a consumer-centric strategy in a traditionally discount-heavy channel. Ashish has also held senior global roles in Diageo in business strategy and supply chain strategy, including Procurement. At Fairtrade, an ethical labelling organisation, Ashish managed relationships with all leading UK food retailers and many global food brand companies like Cadbury's and Mars. Ashish moved into the Nutrition sector in July 2015, joining the Children's Investment Fund Foundation (CIFF), a philanthropic donor organisation, to advise them on their strategy to partner with food businesses to improve nutrition outcomes in developing countries in Asia and Africa.

For the last four years, he has been developing a breakthrough marketing strategy leveraging deep emotional insights to motivate low-income consumers in developing countries to improve the quality of their diets, a genuinely challenging brief. Ashish holds a degree in Mechanical Engineering from the Indian Institute of Technology (IIT), Mumbai and an MBA from the Indian Institute of Management (IIM), Ahmedabad.



Mayur Sirdesai

MENTOR VENTURE CAPITAL

Mayur Sirdesai has been in the Private Equity space for the last eight years. He founded and currently runs a Healthcare focused PE fund called Somerset Indus Capital Partners focuses on investments in products and services platforms in the SME sector of Healthcare in India. The fund focuses on investments that create a tangible and sustainable impact in the healthcare sector, especially in the lower-tier markets and provide access to affordable quality healthcare in India. The fund has a strong track record of making several successful investments across Pharma, Lifesciences, Medical Technology, Diagnostic Products and Services, Healthcare Delivery, Primary Care, Nutrition and Wellness and is currently investing from its USD 100 million second fund.

Mayur has over 25 years of experience in Healthcare/ Pharma and FMCG and has worked in various roles like Private Equity, on the Advisory Board of SINE (IITB Incubator) as a mentor and is a key member of the Healthcare Special Interest Group (SIG) of the IIT Bombay Alumni Association. He has also served on the Board of Directors of the IIT Bombay Alumni Association.



Ranjit Shahani

MENTOR CLINICAL TRIALS

Ranjit Shahani is a Chemical engineer from IIT Kanpur with an MBA from Jamnalal Bajaj, Mumbai University. He started his career with ICI, where he went on to head the pharma operations. He then headed Roche Products in India. He subsequently spent twenty years with Novartis, finally as Vice Chairman and Managing Director of Novartis India.

Ranjit has extensive hands-on expertise in pharmaceuticals, vaccines and other healthcare products, services and devices. He is widely considered one of India's foremost experts in areas such as patents, clinical trials, product identification and distribution.

Over the last few years, he has played a seminal role in the evolution of private sector universities. He is a mentor to Mumbai's first private university dedicated to skill development.

Ranjit is an eminent citizen of Mumbai and is active in the IIT Alumni circuit. He is a widely sought-after mentor in the pharma space and has recently started work in the longevity domain.



Sandeep Nigam

MENTOR MENTAL HEALTH

Sandeep is a Yog teacher, Mindfulness coach and a professional with 28 years of varied experience in the Information Technology and Engineering sectors, having worked for reputed organisations such as Adobe Systems and Tata Steel.

Sandeep specialises in teaching Yog in its true essence, with the Mind-Body integration that elevates mindfulness and brings about physical wellbeing. He is also very well versed in the practical aspects of Yogic philosophy. He brings a unique perspective to his sessions by interweaving the philosophical teachings with the Yogic practices.

He counsels people with mental health issues. The Yogic practices augment the teachings on mindfulness. This unique combination has been very effective in improving the state of mental health. What he teaches is essentially based on his very own experience of healing his mind and body.

Sandeep has a BTech from IIT Kanpur and an MTech from IIT Bombay. He started his career in Tata Steel and spent nearly two decades at Adobe in Quality Engineering.



Satish Agnihotri

MENTOR INFRASTRUCTURE

Satish Agnihotri joined the Indian Railway Service and has held various leadership roles in the Indian Railways. He last served as the Managing Director, National High-Speed Rail Corporation Ltd. He holds a Bachelor of Engineering (Civil), 1982 and Master of Engineering (Structures), 1984, both from IIT, Roorkee and was conferred the Distinguished Alumnus Award in 2013 by IIT Roorkee.

Satish has more than 20 years of experience implementing mega rail infrastructure projects. He has worked as Chairman & Managing Director, Rail Vikas Nigam Limited (RVNL), a schedule 'A' CPSE under the Ministry of Railways, for nearly nine years. He also held the position of Chairman, High-Speed Rail Corporation Ltd (HSRC), a wholly-owned subsidiary of RVNL. HSRC was the Indian-side counterpart agency for carrying out various high-speed studies, which were undertaken on a Government-to-Government basis with China, Spain etc. He led and completed feasibility studies of 5 high-speed rail corridors.

During his tenure as CMD/RVNL, RVNL completed 7000 km of project length, including 3000 km doubling/3rd line, 880 km conversion of metre gauge track to broad gauge, 3000 km railway electrification, 85 km new line, six factories and many vital bridges. In a new line project in Andhra Pradesh, a 7 km long tunnel was also completed in a record time of 25 months.



Shantanu Bhattacharya

RESEARCH MENTOR
MICROFLUIDICS

Professor Shantanu Bhattacharya is an eminent academician who has served the Indian industry for 7 + years and the academia for 13 + years. He is the recipient of the prestigious Abdul Kalam Technology Innovation National Fellowship of the Indian National Academy of Engineering. The fellowship recognises his outstanding contributions to microfabrication, nanomaterial synthesis/applications, and microfluidic/nanofluidic systems. Prof Bhattacharya has been a mentor and guide to the team of volunteers at the IIT Alumni Council, and the credit for using microfluidics in the MegaLab for concurrent multi-pathogen testing goes solely to him. To date, no commercial approved system uses microfluidics concepts with sample volumes almost in the nanoliter scale for covid testing samples as collected using swabs.

Dr Bhattacharya owns several US patents for some PCR and RT-PCR systems. He holds a PhD from the University of Missouri-Columbia, Missouri, an MS degree from Texas Tech University, Lubbock, Texas and a BE from Delhi College of Engineering. He has a vast research experience of over two decades in micro/nanosystems engineering, biomedical microdevices, Micro/Nano-fluidic systems etc. He has authored around 80+ papers in peer-reviewed International Journals, 10 + patents (comprising of 4 granted US patents), and about seven books and many peer-reviewed conference papers. He has won several prestigious national awards like the NASI Reliance Platinum Jubilee from the National Academy of Science of India, the Er. M.P. Baya National Award, the IEI Young Engineers Award, the NDRF design award etc., from the Institution of Engineers of India, the ISSS Young Science award from the Institute of Smart Structures and Systems etc. Dr Bhattacharya is a fellow of the Institution of Engineers of India (IEI), the Institute of Electronics and Telecommunication Engineering (IETE), the International Society of Energy Environment and Sustainability (ISEES) and is a senior IEEE member.



Srivatsa Naidu

RESEARCH MENTOR
EPIGENETICS

Dr Srivatsa Naidu is a faculty member and Head of the Center for Biomedical Engineering (CBME) at IIT Ropar. The Centre was created to nurture interdisciplinary research in biomedical areas among the faculty and students at the institute. The mission is to carry out collaborative research in partnership with other medical, pharmacy, science institutes, and industries in India and abroad. The overall objective is to bring synergy between fundamental and applied sciences, engineering, and medicine to meet the challenge of providing affordable healthcare to our nation.

Currently, the Centre is actively engaged in cutting-edge research in the following areas: Biomedical Imaging, Medical Devices, Cancer Diagnostics and Therapy, and Biomaterials and Tissue Engineering. The centre is offering BTech (minor, restricted to BTech students of the institute), MTech and PhD in Biomedical Engineering degrees. It also organises the Biomedical Engineering Seminar series throughout the year and supports several summer interns/research projects for students at the institute and outside of it.

Dr Naidu holds a Ph.D from Justus-Liebig University, Giessen, Germany. He has conducted Postdoctoral research at Dr Joost Zomerdijs Lab, Centre for Gene Regulation and Expression, University of Dundee, and the U.K.Cancer Research UK- Manchester, U.K.



P. Venugopal

MEGALAB JURY

Dr Premnath Venugopal is the Head of NCL Innovations at the National Chemical Laboratory.

He is a Chemical engineering graduate of IIT Bombay with a PhD from the Massachusetts Institute of Technology. He serves as Director of Venture Centre, Pune. He is a part of the leadership team at the National Chemical Laboratory where he is Head of Innovations, Intellectual Property Group, and an active Polymer Science & Engineering member and has been a former Director of CSIR Tech.



Vikesh Mehta

MENTOR PROJECT FINANCE

Vikesh Mehta is a senior Chartered Accountant with 30 years of experience in the advisory space, mainly in the Development sector. He is an alumnus of St Xavier's College in Mumbai. Having articulated at Arthur Andersen, he helped set up Grant Thornton in India in 2002.

He has worked extensively on government and infrastructure and social sector projects of multilateral and bilateral agencies in India and abroad. He has served on various advisory committees of Grant Thornton International and currently heads the Not For Profit business unit, which provides CSR and Sustainability Services to corporates and Governance-related services to the not-for-profit sector, including social enterprises.

Vikesh serves as an Independent Director on the Boards of several companies and non-profits. He is an independent director of the Pan IIT Social Venture Fund and the Cheekotel Development Catalyst Social Venture Fund in the social space.



Vinay Juvekar

RESEARCH MENTOR
INTERFACIAL ENGG

Professor Juvekar has had a significant impact on the chemical engineering community as an outstanding teacher, gentle mentor, excellent researcher, and, above all, a very warm and generous person. He has published highly insightful work in many research areas, with many of these manuscripts appearing in several Industrial & Engineering Chemistry Research publications.

Prof. V. A. Juvekar obtained his B. Chem. Eng. and PhD. Tech at the University Department of Chemical Technology (UDCT) Mumbai. He then worked as an Associate Lecturer and Lecturer at UDCT, Mumbai (now ICT, Mumbai). Prof. Juvekar then worked in the chemical industry from 1977 to 1984, first as a Senior Chemical engineer and then as an R&D manager in Industrial Processes (Maharashtra), Ltd. He served as a Full-Time Consultant at Herdillia Chemicals. Professor Juvekar started his academic career at IIT Bombay in 1984 (Assistant Professor, 1984–1990; Professor, 1990–2017; IIT Bombay–Emeritus Fellow, 2017 to present). He has been bestowed the Fellowship of the Indian National Academy of Engineering. He was also a recipient of the Moulton Medal from the Institution of Chemical Engineers UK, the Herdillia Award for excellence in basic research in chemical engineering, and the L&T Chair Professorship.

As far as his research areas are concerned, Prof. Juvekar has focused broadly on four regions: heterogeneous chemical reaction engineering, electrochemical engineering, colloid and interfacial engineering, and electrohydrodynamics. He has graduated 30 PhD and 72 Master's students (M.Tech. Dual Degree and Foreign Nationals).

4 comparators



Digital Health Mission

National Digital Health Mission (NDHM)

In his address to the nation on India's 74th Independence Day, the Prime Minister announced the launch of the NDHM. The Mission aims to create a management mechanism to process digital health data and facilitate its seamless exchange; develop registries of public and private facilities, health service providers, laboratories and pharmacies; and support clinical decision-making as well as offer services like telemedicine. NDHM has the potential to make the health system more evidence based, transparent and efficient.

The digitisation push by the Government will not only enable patients to share their health profiles with providers for treatment and monitoring purposes, but also access accurate information about the credentials and pricing of services offered by various health facilities, providers and diagnostic laboratories.

The Kodoy platform is built ground up to be compatible with NDHM and related Digi locker infrastructure.

Global players in related areas

Altos Labs, USA

Biotech research | YYYY | funding \$ 3 B

Cellular rejuvenation programming to restore cell health & transform medicine

SelfDecode, USA

Biotech research | YYYY | funding \$ 8 M

AI software that provides health recommendations based on genetic & health data

Domestic players in related areas

Twin Health, USA & India

Biotech research | YYYY | funding \$ 198.5 M

"Invented the Whole Body Digital Twin™ to help reverse and prevent chronic metabolic diseases."

MedGenome, USA, India

Biotech research | 2013 | funding \$ 135.5 M

AI driver Genetic Testing, Genomics Research and Drug Discovery Solutions

Emerging players

There are small localised players working in similar domains who could constitute acquisition deal flow for Kodoy. One such example is SelfDecode which is a personalised health report service enabling users to acquire detailed information and reports based on their genomes. This is one of the several startups competing in the Kodoy space.

SelfDecode | USA

- Miami, Florida, United States
- 80+ employees
- Equity Crowdfunding
- Private
- www.selfdecode.com
- Founded in 2017
- Reports \$2.5 million in revenue over the past year
- SelfDecode claims to have received \$ 8 M funding.
- DNA testing is priced at USD 149 and USD 399
- Provides a home kit and health insights, including health reports, lifestyle analyser and health regimen recommendations.

The company aspires to develop an integrated AI platform that provides personalised health recommendations based on a combination of DNA labs, and environmental factors. They also aspire to make precision health affordable by empowering other players to build precision health products using their bioinformatics infrastructure.

5 financials



Kodoy is a social venture which places purpose over profits. None of the data is monetised or used for any commercial purpose. The company revenue solely comprises of annual subscription fees.

The Kodoy Platform is being architected to cater to ten million subscribers with upto 250 GB of secure data per subscriber. Data can be in the form of pdf files, photos or Microsoft Office compatible files.

Kodoy is building a community of well informed, privacy conscious and digitally literate longevity seekers. The one-time customer onboarding fee is estimated at Rs 5,000 and the annual subscription fee is pegged at Rs 10,000 pa based on the likely costs of hosting and managing the service.

kodoy platform subscription



Kodoy Card*
Onboarding fee and an
annual subscription.

2022-23 targets

In the current year, Kodoy is pursuing:

- Growing the community to 25,000 members in NCR, Mumbai Pune and Hyderabad Bangalore belt.
- Subsidising some of the advanced diagnostic tests.
- Acquiring stakes in startups in cutting-edge areas like regenerative medicine.
- Building the central control-and-command centre for Kodoy in NCR.
- Setting up a medical team in NCR for analysis of test reports.
- Initiating clinical trials in UK, USA and Singapore in addition to starting trials in India.



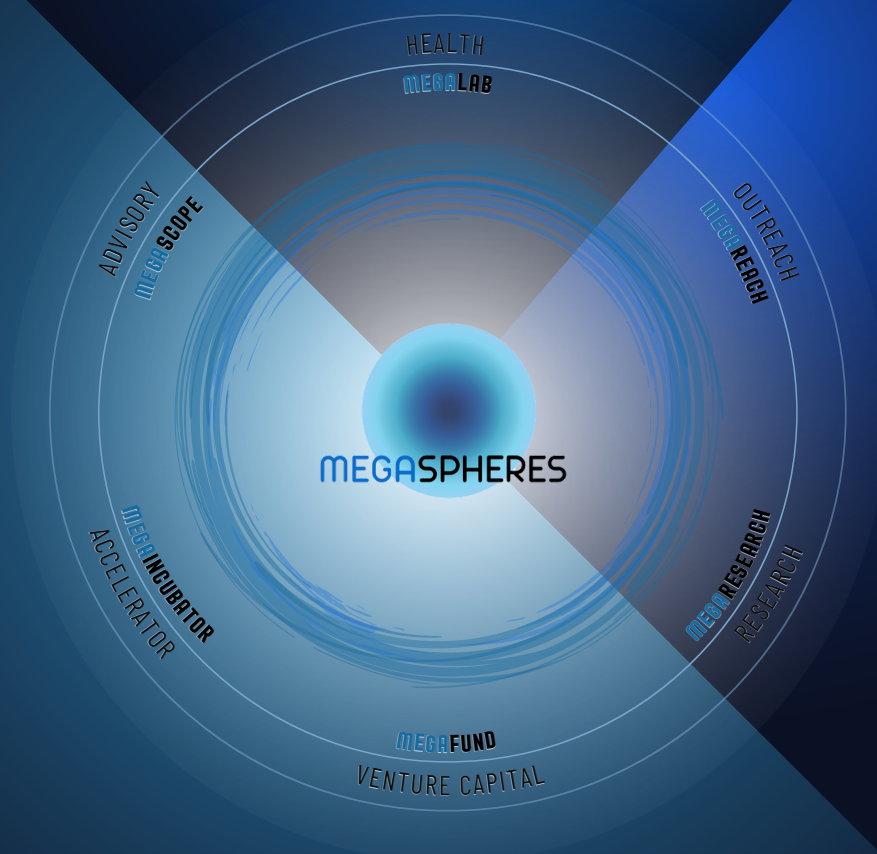
Kodoy is structured as a commercial company with the stated objectives of being listed on a stock exchange. However, this is not a conventional company as it targets impact over profit. It is unlikely that the company will make any profits in the medium term. The company's focus is to help its shareholders and members live a long and healthy life. While monetising sickness is possible, it is tough to monetise good health and longevity. The company's intrinsic value is thus only a function of the spend value of its community - which would be captured by service and product providers and not by Kodoy directly. Whilst Kodoy aspires to identify and invest in some of these companies at an early stage; it is highly unlikely that all or even most of them will be profitable investments for the company. Any investments in Kodoy must thus be considered highly risky investments with very high uncertainty of returns - either through dividends or through capital appreciation. They are therefore only meant for highly qualified investors with the ability and appetite for the inherent risk in the same.

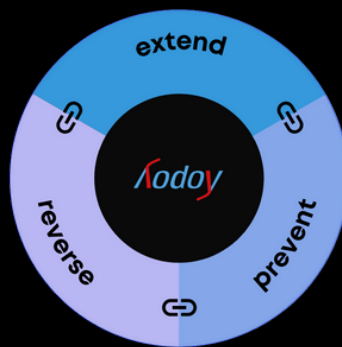


Megaspheres is the quality of life initiative of the IIT Alumni Council.

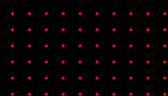
Megalab mission is the healthcare mission of Megaspheres.

Kodoy is the anchor organisation of the MegaLab mission.





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