Volume 5 • March 2021

iitmadras

E-SUMMIT 2021
Sustain To Attain

A SNEAK PEEK
INTO DEEPTECH

ENTREPRENEURSHIP INSIDER

3 INTERVIEWS
IN THE WORDS OF THOSE
WHO'VE BEEN THERE, DONE THAT

2 STARTUP FEATURES
THE INSIDE SCOOP ON
REVOLUTIONARY STARTUPS

E-Cell IIT MADRAS
Powering Entrepreneurship at IITM

E-Cell IIT MADRAS

Powering Entrepreneurship at IITM

ADVISOR'S WORD

- DR. ASHWIN MAHALINGAM

(Dr. Ashwin Mahalingam is a Professor at the department of Civil Engineering IIT Madras. He currently serves as the faculty advisor of E-Cell IIT Madras)

2020 was a difficult year for most people all over the world, and especially for entrepreneurs. Entrepreneurship is a challenging endeavor at the best of times and is doubly difficult when access to markets is cut off. However, as we all know, adversity often breeds innovation. World over we have seen how resilient entrepreneurs have been in the face of the Covid-19 pandemic. Some entrepreneurs took advantage of the opportunities that the pandemic offered, engaging in online/virtual offerings. Others learned to safeguard cash, reduce expenses and perhaps pivot their offerings to ride out the pandemic. As the smoke clears and the world attempts to return to some semblance of normalcy, entrepreneurs continue to stand tall. This ability to sustain their efforts through extremely tough times – a hallmark of good entrepreneurs – is the motivation for the theme of this year's E-Summit 'Sustain to Attain'.

This year, IIT-Madras' E-Cell too has turned adversity into opportunity by putting together the first-ever virtual E-Summit, that promises to surpass its predecessors both in terms of the quality of the events but also the geographical breadth and diversity of speakers, panelists, and attendees. With a spectrum of events and conclaves that appeal to experienced entrepreneurs and novice alike, and participation that is truly pan-Indian, E-Summit 2021 will shine the spotlight back on entrepreneurship – after all, it is entrepreneurship that will steer us into the 'new normal' in 2021 and beyond.

I would like to congratulate this year's E-Cell team on putting together a stellar event and am sure that E-Summit 2021 will provide an enriching experience to all of our participants. I wish you all the very best in your own entrepreneurial journeys.

HEADS SPEAK

AYUSH TOSHNIWAL & AKSHIT BAGDE
STUDENTS' HEAD, E-CELL IIT MADRAS

The entrepreneurial buzz at IIT Madras has been at its peak in recent years. We see a significant rise in student entrepreneurs on campus, more individuals taking the road of entrepreneurship, and a surge in students pursuing entrepreneurship after graduation.

Despite a global pandemic, making the students stick to their homes for most of the year, Entrepreneurship Cell curated opportunities for individuals to immerse in entrepreneurship. During 2020, we hosted talks on the premise of sector-agnostic battling of COVID-19 and numerous events topped with an endless period of activities and competitions. The two semesters witnessed the budding freshmen getting a flavor of entrepreneurship through E-Buddy. The researchers fetched motivation for an entrepreneurship-driven research environment through the Thinker-to-Tycoon series, and entrepreneurs grabbed the opportunities to interact with the experts through the Startup Series.

This year also saw the launch of the Startup Services Program, an exclusive initiative for helping the early-stage startups of IIT Madras by providing various essential services which are crucial for accelerating their growth. Along with this, the team took over the massive responsibility of establishing and nurturing 12 Entrepreneurship Cells across the country through Entrepreneurship Development Drive. Our this year's PR Campaign - "PANKH" had a focus on enabling growth for the Indian MSME ecosystem and empowering MSMEs to build sustainable business models. The campaign attempted to highlight and resolve sector-specific challenges while engaging the Indian youth through case-study, policy-making competitions, and skill development workshops.

Finally this time, we feel immensely proud in hosting the sixth edition of E-Summit in an online setup for over 10 days. The merger of entrepreneurship and unmatched ambitions defines this celebration, and this edition is aptly themed as 'Sustain to Attain' keeping in mind the unforeseen circumstances, and the resilient minds toiling harder than ever to sustain through it. The vision to instill the never give up spirit to wade through thicks and thins, converting not so appealing occurrences into opportunities to excel and grow. With over 50 events and numerous talks, E-Summit 2021 aims towards curating a better attendee experience through four conclaves - Youth Conclave, Innovators' Conclave, Startup Conclave, and Growth Conclave.

We hope that readers of this edition of Entrepreneurship Insider will gain a more nuanced understanding of entrepreneurship, which will, in turn, help them as they grapple with existential questions that entrepreneurship often brings about. Hopefully, they will be prepared for the challenges that lie in wait, and successfully overcome them to push the prevailing innovation and entrepreneurship ecosystem to even greater heights.

"If Opportunity doesn't knock, build a door"
- Milton Berle

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FROM THE EDITORS DESK

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It has been almost four years since the release of the first edition. Each Year, the Entrepreneurship Insider entraps the budding entrepreneurs, the coffee-table readers, the ingenious investors, and the comic fans in the magical world of thoughts, poetries, discussions, and spirit.

The past editions have covered topics from the entrepreneurial ecosystem of IITMadras to undiscussed avenues of an entrepreneur's life, from the social aspect of entrepreneurship to the unconventional paths and niches.

The magazine's theme is "DEEP-TECH," especially emphasizing Blockchain Technology, the trending topic in this new decade. The fifth edition has a trivia corner to quench your thirst for quizzing, dozens of illustrations to haunt you.

We believe that this magazine will inspire people to lead an entrepreneurial life or provide them with a constant source of inspiration to think entrepreneurially.

We would like to thank everyone who was involved in the making of this magazine, Our team of writers & Illustrators, We also thank Graphics Design and Media Team, especially Chayya Sharma, for designing this edition.

We thank E-Cell Heads for the continual motivation, the E-Cell family for the constant support.

Our special thanks to Divyanshu Kumar for taking the initiating step in 2017 to publish Entrepreneurship Insider and Arvind Pujari, K Shivani, Shreyas Shandilya, Sarah, Prajeet Oza for continuing the Insider.

Happy Reading!
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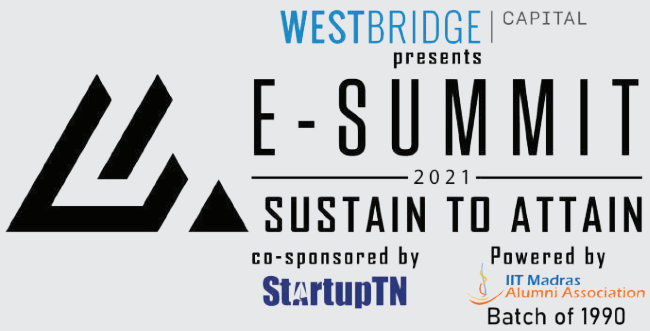
CONTENTS

SUSTAINING TO ATTAIN THE ENTREPRENEURIAL WAY!!

E-SUMMIT 2021



Every single year E-Summit comes back with a bang to raise innovation and to abet the transformation of India into an Atma Nirbhar Bharat by instilling startup culture in the leaders of tomorrow. After a grueling year of unexpectancy, E-Summit is back to aggrandize the entrepreneurship ecosystem in India and revitalize the economy, perhaps more indomitable than before. Covid has definitely been catastrophic, but the will to sustain has triumphed, and E-Summit's policy of investing in human resources stood the test of time.'Sustain to Attain', what better theme for a year where persistence mattered the most and unwavering spirit to attain came through.

We aim to showcase worldwide experience to our audience by eminent experts from government, industry, and academia, as well as various successful startups operating and changing the dynamics of this new virtual world we all live in via E-Summit. With this grand motive, E-Summit 2021 will have 4 conclaves which include Youth Conclave, Innovators' Conclave, Startup Conclave, and Growth Conclave along with the social campaign Pankh.

Youth Conclave:

The tagline of the Youth conclave is "Launching leaders of tomorrow." Youth Conclave is a multi-faceted confluence of engaging competitive and networking events that help an individual unlock their latent potential and skills in business and entrepreneurship. It is envisioned to promote entrepreneurial spirit and aptitude amongst the next generation of graduates.

Innovator's Conclave

Envisioned towards providing aspiring entrepreneurs with intensive mentoring and workshops from industry experts, Innovators' Conclave promises to be the one to nurture entrepreneurial mindsets and offer the opportunity to challenge oneself and to test one's capability in this marathon of innovation through the plethora of competitive B-planning and comprehensive case-study events.

Startup Conclave:

Aiming to accelerate startup growth, Startup Conclave is concentrated on providing networking and experiential learning. It is a platform for founders, investors, and startup enthusiasts for providing extreme networking experience, insights, and knowledge on various important topics and ensuring you meet the right people, in the right business atmosphere.

Growth Conclave:

A set of workshops are organized under Growth Conclave for participants to grow & learn new things which will further bolster their entrepreneurial journey. Bringing together industry experts at the Growth Conclave, we aim to provide the best learning opportunities on our platform to upskill oneself and one's startup. Immersive post-workshop tasks and activities will be included to increase the overall engagement factor in a virtual platform.

We would like to extend our deepest gratitude towards the IIT Madras Alumni Batch of 1990 who have been extremely supportive of our vision and cause of E-Summit by generously contributing to the event since time immemorial.

The social campaign of E-Cell IIT M "PANKH" will also be active during the E-Summit 2021. "PANKH" focuses on enabling growth and Opportunistic support for the Indian MSMEs, Empowering MSMEs to build sustainable business models, Highlighting and resolving the challenges of MSMEs whilst engaging the youth.

E-Summit 2021 is a destination for anyone & everyone who is intrigued by entrepreneurship & has an interest in learning & growing in the entrepreneurial field!!

Blockchain Revolution in Banking

-AYUSH SINGH

”Privacy is one of the biggest problems in this new electronic age.” – Andy Grove.

Isn’t it true?. We hear a lot about cybercrimes, people’s bank accounts getting hacked, etc. Although our current banking system is very safe but there are certain loopholes which are exploited by the hackers & it can be used to hack accounts & leak personal data of the subject. Now one may wonder what can be a possible solution to this problem? Blockchain can be a viable solution to these problems.

Now we need to understand how blockchain works in a banking system. Blockchain technology is an open, distributed ledger that records transactions between two parties efficiently and permanently. A blockchain consists of individual blocks of data that involve a series of related transactions, linked together in a specific order. All of the involved parties can share a digital ledger across a computer network without needing a centralized authority or intermediaries. That’s why processing transactions through blockchain is faster.

Blockchain helps in many ways to improve current banking technology. Some of the major advancements that blockchain brings are:

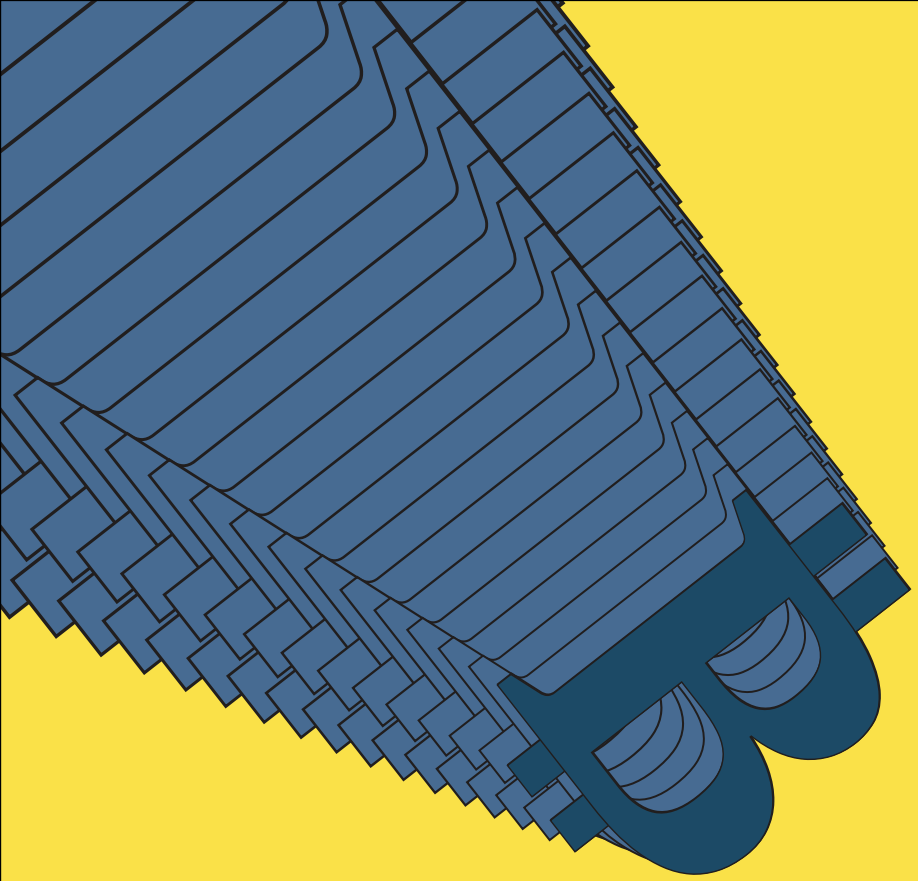
Faster Payments: Since in blockchain there is a centralized database for payments and lower the fees of processing them. By offering higher security and lower cost of sending payments, banks could introduce a new level of service, bring new products to the market, and finally be able to compete with innovative fintech startups.

Buying and selling assets: Since blockchain removes the middleman and asset rights transfer it lowers the asset exchange fees and reduces the instability of the traditional securities market. According to researchers working on blockchain, moving securities on a blockchain could save from $17 to $24 million each year in global trade processing costs. Buying and selling assets like stocks, commodities, or debts are based on keeping track of who owns what. Financial markets accomplish this through a complex network of exchanges, brokers, clearinghouses, central security depositories, and custodian banks. Now since all of these different parties have been constructed around an outdated system of paper ownership, the system is not only slow but riddled with errors and prone to deception.

Digital identity verification: We know that banks wouldn't be able to carry out online financial transactions without identity verification. However, the current verification process consists of many different steps that consumers don't like. It can be face-to-face checking, a form of authentication (for example, every time you log into the service), or authorization. For security reasons, all of these steps need to be taken for every new service provider. With blockchain, consumers and companies will benefit from accelerated verification processes. That's because blockchain will make it possible to reuse identity verification for other services securely. And thanks to blockchain, users will be able to choose how they wish to identify themselves and with whom they agree to share their identity. They will need to register their identity on the blockchain only once. There's no need for repeating that registration for every service provider – as long as those providers are also powered by the blockchain. Naturally, storing this type of information on a blockchain also ensures its security.

Now that we have looked at how blockchain brings a lot of technological advancements to current banking systems, let's look at how blockchain can reduce frauds. There are many factors that complicate financial transactions: the need for collateral, the time required for settlements, differences in currency denominations, third-party mediation, and more. Multi-step processes, especially ones that require human interaction, are prime targets for fraudsters. With blockchain, information can be shared in real-time, and the ledger can only be updated when all parties agree. This can reduce time, costs, and opportunities to commit fraud. And with lessened time to completion, it is less likely a party won't be paid.

The banks play a pivotal role in the economic status of a country. Thus, the government should also collaborate with banks to bring blockchain techniques into the banking system. Although blockchain is still in its initial phases in India, we don't know what are the shortcomings in blockchain techniques. But still, blockchain should be introduced in the Indian banking system as it will reduce frauds, data leaks, and corruption to a great level. The Indian banking system can also take inspiration from foreign banks that have already introduced blockchain in their banking system. Blockchain is considered the next revolutionary technology that can change the banking system drastically, hence I think Indian banks should definitely have a look at blockchain technology!!



BITCOIN

-ABHIRAM PAVITHRAN O

The most famous digital cryptocurrency has been making headlines very frequently, and we wondered how it had impacted the entrepreneurship space. This article will try to explain the story behind bitcoin and demonstrate how it works.

Our story starts in 2008 when a mysterious person(s) named Satoshi Nakamoto authored the bitcoin white paper (the OG shit :P) and deployed the original reference implementation. Satoshi is a pseudonym, and the real identity of the creator of bitcoin still remains anonymous. Pretty cool, huh.

Bitcoin's breakthrough was because it solved a complicated problem; the Double Spend problem.

What is the Double Spend problem, you ask?

Digital money is akin to a computer file, and hence the risk of counterfeiting is high. Banks keep track of money in people's accounts (through a ledger) so that nobody could spend money twice. When it comes to Bitcoin, the solution is different. Bitcoin makes all accounts and transactions public. Yes, you heard it right. Wouldn't that violate privacy norms, you ask? No, because Bitcoin does not reveal private details like your name. Since the balances are public, it would be easily detectable if someone used the same money twice, and hence easily preventable. This is achieved by the use of blockchain technology (I'll explain what this means later).

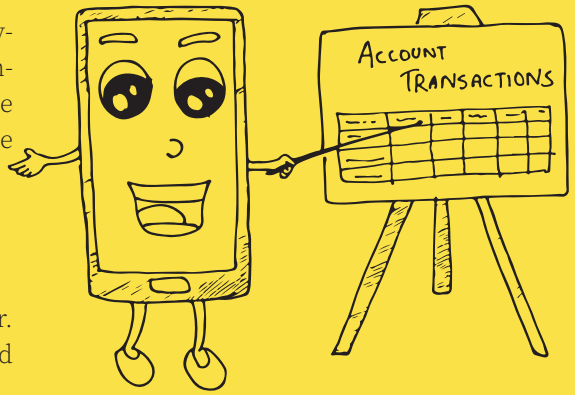
Moreover, this eliminates the middleman (like a bank) which makes the transaction faster, cheaper and more secure. In fact, our mysterious Mr. Nakamoto had effectively reinvented the way how money works through the unique solution to the Double Spend problem. Now, that's what I call DISRUPTIVE!

Features

Bitcoin is completely digital – it can be used by absolutely anyone, anywhere, making it a truly universal currency.

- It is decentralized – there is no single entity such as a bank or government that controls bitcoin. It is run by the community of its users. This effectively makes bitcoin very powerful. You could say that bitcoin provides the benefits of a bank without needing a bank. This is revolutionary because anyone with a smartphone and internet access can trade bitcoins.
- Bitcoin is pseudo-anonymous. That is, everything is open, transparent, and trackable, but who sends what to whom is difficult to determine.
- Bitcoin has a fixed, limited supply. There are only 21 million coins in the world. There can never be more of it. Hence, the value of each coin increases over time. There is no threat of inflation because, well, you can never have more bitcoins.
- Bitcoin is divisible; that is, it can be spent in smaller amounts called Satoshis :P. This makes it useful for smaller purchases.

• Bitcoin uses cryptography to send payments. Cryptography basically uses complex math functions to protect the account and secure transactions. Hence Bitcoin is a cryptocurrency



Some Jargon :')

There is some jargon I've left out so far. Let us take a look at what Blockchain and Bitcoin Mining mean.

The bitcoin blockchain is a continually growing list of records linked and secured using cryptography. Each record is called a block and contains a hash pointer, a timestamp, and transaction date. In other words, blockchain is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way." There are many many many copies of the Blockchain that is held by various users around the world. All these are kept in sync by the system that runs the blockchain. Hence each copy is identical.

So if all copies match, then our transaction gets approved. But if any of the copies differ, the network rejects the transaction.

Since the blockchain is a record of all past transactions, it is also a record of where all bitcoins currently are. This makes bitcoin extremely powerful because you always have a record of who owns what, unlike traditional money. This method of comparing the records is called finding a consensus, and the algorithm used is referred to as Bitcoin's consensus algorithm.

Okay. Understood. All that makes sense. But how do I use bitcoin in my daily transactions?

Bitcoin is stored in digital wallets. The wallet gives you access to your bitcoins which are recorded on the blockchain. You will have a bitcoin wallet address, much like a bank account number. To send bitcoin to a wallet, you need to authorize the transaction, which is done through a "private key," that is, a password.

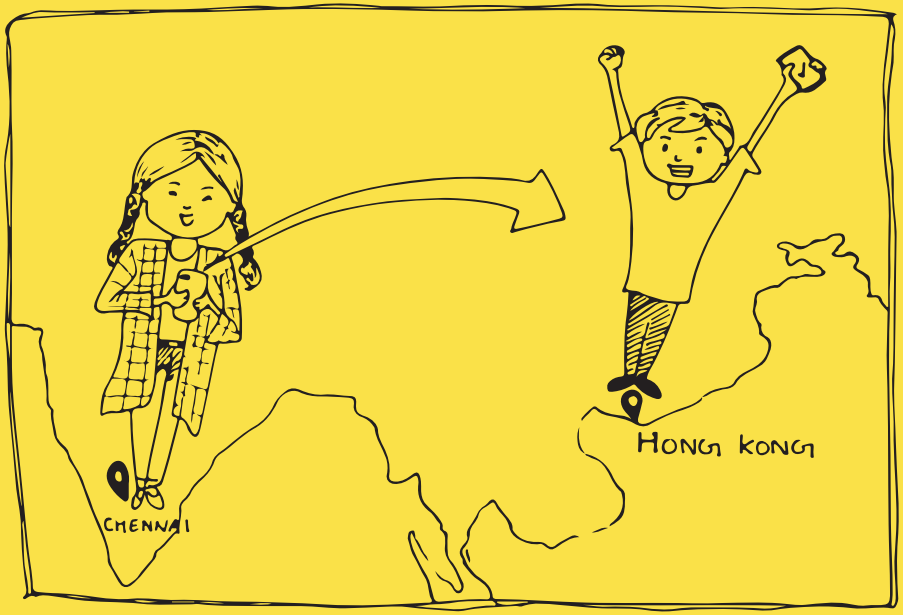
So if I want to send some "satoshis" to my boyfriend who lives in, say, Hong Kong, I can open my wallet and type his bitcoin address, enter my password, and hit send. When I hit send, I announce to the bitcoin community that I want to send bitcoins, and then the community verifies my request using the blockchain technology. And yay, My boyfriend gets the "satoshis" I sent him!

Now we get to an exciting part. The bitcoin transactions every 10 minutes are bundled, and each bundle is called a block, hence the name blockchain.

These bundles are processed by "bitcoin miners" who bundle transactions, verify them and add them to the blockchain.
Why would a "miner" do all this work, you ask? Well, actually, a miner gets paid in bitcoin for every block they add. That's how new bitcoins are newly born! But there are only 21 million bitcoins in the world, right? So how does this make sense?

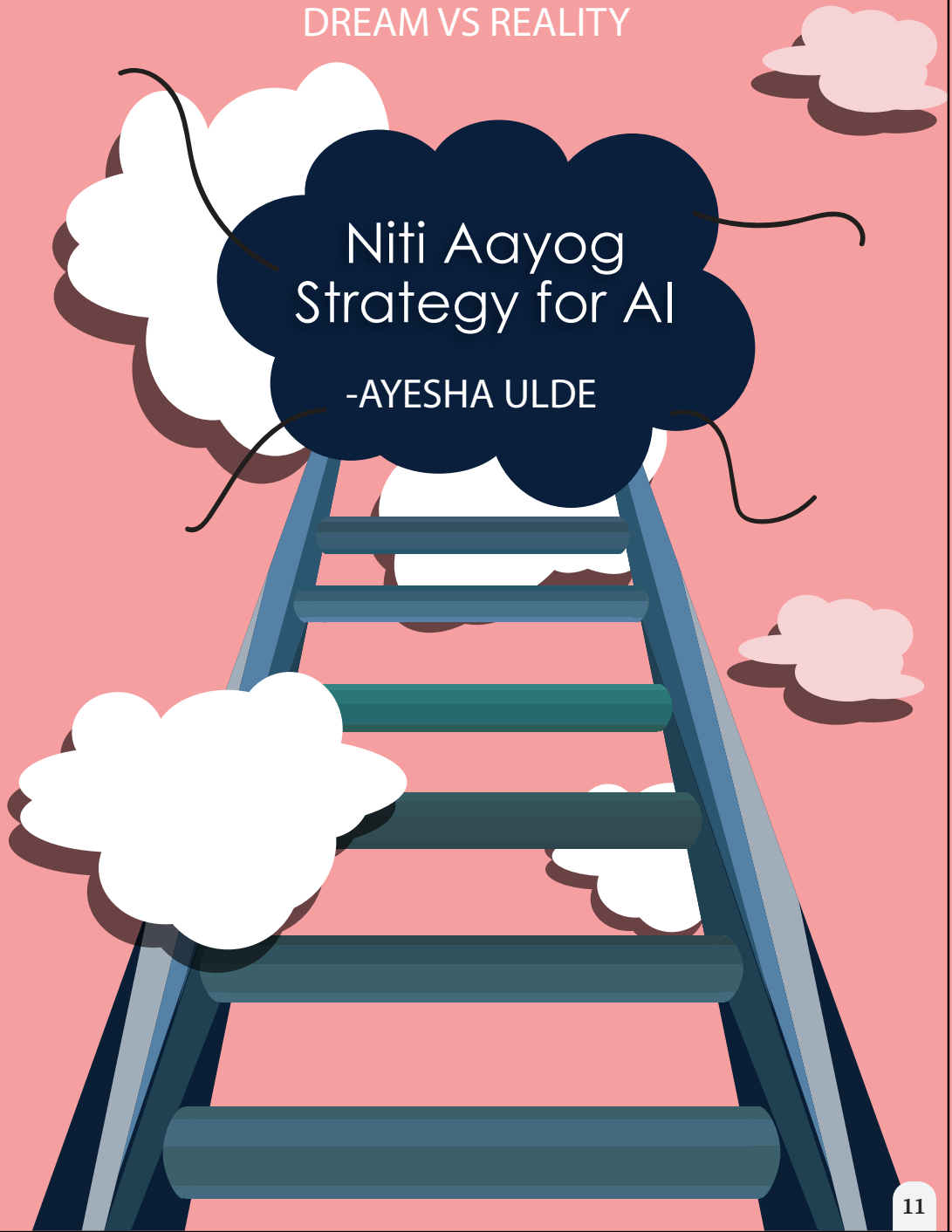
Well. This process of creating bitcoins will continue until 2140, when all the 21 million bitcoins get created. After that, miners will get small transaction fees but no new bitcoins.

Bitcoin, however, is not the only cryptocurrency out there. There are other alternative cryptocurrencies (shortened to altcoins) such as Ethereum, Ripple, and even a Dogecoin (named after the internet meme sensation "Doge" themselves).



#AIFORALL

DREAM VS REALITY



About two and a half years ago, Niti Aayog published a discussion paper on the National Strategy for AI. This paper highlighted the necessity, challenges, and potential methods to promote the deployment of AI-based technologies in various sectors of the economy, mainly agriculture, healthcare, education, smart cities and infrastructure, and smart mobility and transportation. The aim was to create and foster #AIforAll - technology leadership for inclusive growth.

While the tech giants that immediately come to one's mind on hearing the words "Artificial Intelligence" and "Deep Tech" have a significant contribution to India's stake in the AI revolution, AI-based start-ups are the ones who will tip the scale and lead India towards inclusive growth in the overall economy. Startups bring to the table technologies that are accessible, affordable, and more widely available to everyone, including the people involved at the grassroots. In addition to that, these technologies are compatible with the diverse requirements of sectors in the Indian economy. This is crucial because India's diversity is also reflected in the challenges faced, resources available and skill set of the people involved in a particular sector.

Quite often the challenges faced by a sector in the Indian economy are unique and cannot be addressed by tech giants as efficiently and effectively as Indian startups. This can be vividly observed in the agriculture sector, which contributes to more than 50% of our economy. One of the most important determining factors of the output of agricultural activity is climate change.

This means that farmers need to be aware of the climatic conditions as well as the agriculture risk involved. Assessing the agriculture risk is an expensive and time-consuming process and obtaining real-time updates of the climatic conditions is generally not feasible. Satsure, a Bengaluru-based agri-tech startup, provides technologies that measure the risk involved by analyzing the data collected from satellites in combination with commodity prices and other such relevant information and enable the farmer to make better decisions.

Another instance, where startups are more suitable, is conversational AI. Billions of people living in India speak multiple languages and are verbose in

their native language. Niki, by Niki.ai headquartered in Bengaluru, is an artificial intelligence-powered chatbot that works as an intelligent personal assistant. It provides a chat-based natural language user interface, which leverages natural language processing and machine learning, where they can interact with it in their native language making it personalized and user friendly.

Needless to say, startups are the backbone of the AI revolution in India. During April 2020, Empowered Group 6 and Niti Aayog collaborated with Indian startups to combat COVID-19 by leveraging their new innovative, low-cost designs, applications, and equipment. Amongst these, the startups which leveraged AI are

Qure.ai:
The start-up developed AI-enabled analysis of Chest X-Rays (CXRs) with a capacity of processing 10,000 CXR images per day. Their Natural Language Processing (NLP) based AI chatbot was also utilized for monitoring COVID-19 symptoms.

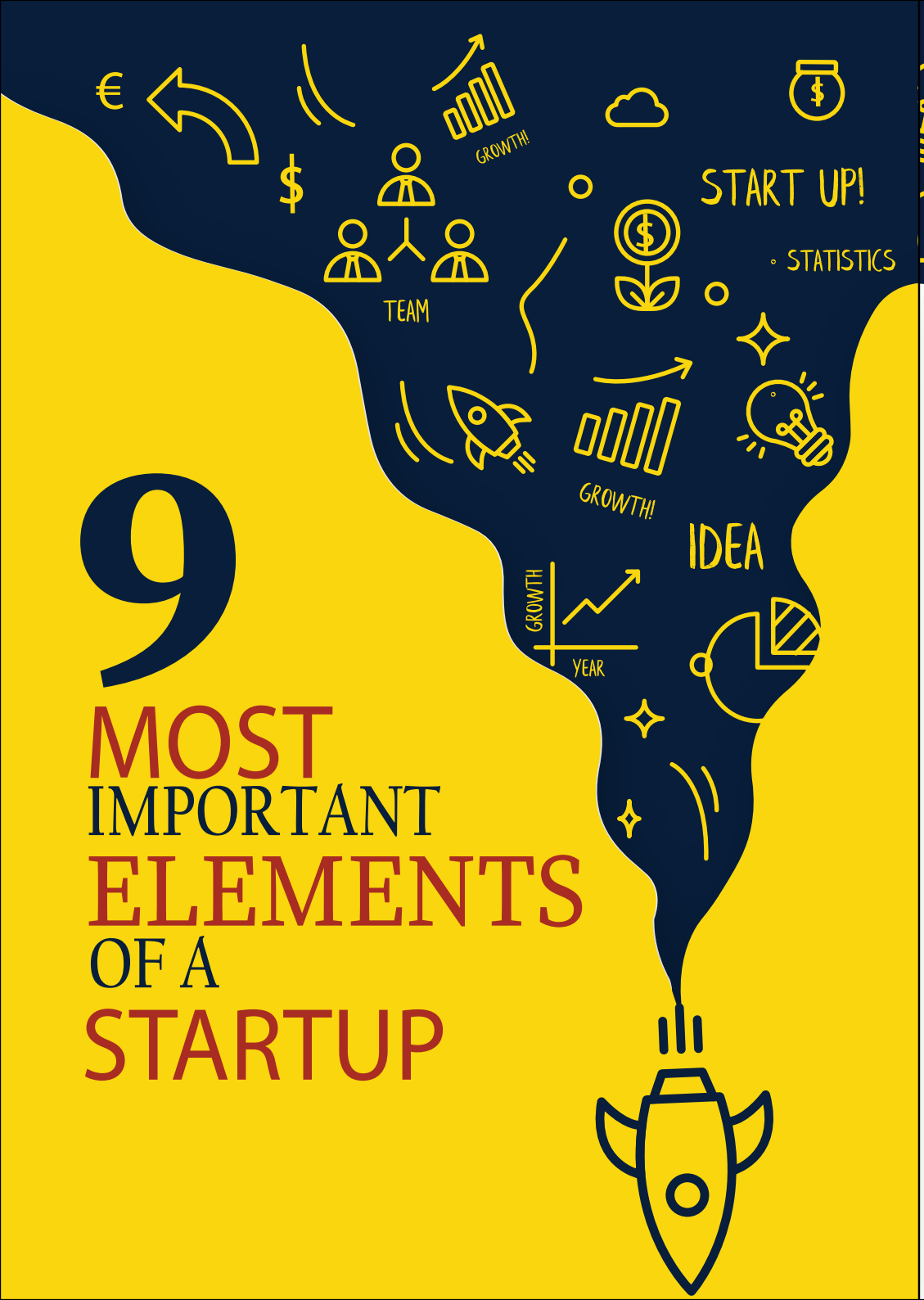
Staqu Technologies:
The start-up developed Joint AI Research For Video Instances And Streams (JARVIS) which has a thermal imaging camera for screening. They worked with the authorities in Punjab and Uttar Pradesh to generate e-pass for essential services and citizens in need.

DronaMaps:
The startup operates an AI-powered platform that creates and analyzes 3D maps to develop cities, villages, and neighborhoods with pipeline planning, precision agriculture, and flood mitigation. The geospatial data collected from these drones were used to create 3D maps of cities in India to track COVID-19 hotspots.

Mfine:
It is an artificial intelligence-powered online doctor consultation and telemedicine platform and can connect diagnostics labs, pharmacies, etc. The platform also supports a video tool for doctor consultation.

Although, in recent years, India has progressed and significantly increased its contribution to the global AI revolution, has #AIforAll been truly established? The answer is quite obvious, no not yet but with the efforts from our innovators and entrepreneurs, we are headed in the right direction. This gives rise to another question - when will India establish #AIforAll? While this question may not have an accurate answer, it is going to be quite interesting to see how the collated efforts of innovators, entrepreneurs, researchers, tech companies, and the Government of India come to fruition.

> THE FUTURE BELONGS TO THOSE WHO SEE POSSIBILITIES BEFORE THEY BECOME OBVIOUS.



9 MOST IMPORTANT ELEMENTS OF A STARTUP

Find the word in the puzzle!

Words can go in any direction.

Words can share letters as they cross over each other.

S E I T I V I T C A Y E K Z O N I Q C S
W Q J J I X S U B Z V V F I O S N Q U R
D S H M F Z A S A M H V N I J O N U S E
O I Y P F J U X Z O C L T T W F A X T N
V G U Y S L M H P I X I B G L T U R O T
H E C U S T O M E R S E G M E N T S M R
V C V L W O R W S O N D D F H C M P E A
K Z Y V W E B K P D M T B O O A P L R P
S A G H K K E O E S A R R S E Q I L R Y
H E H Y A Y R B Q T N E T R Y S K I E E
H X C Y W P G P H O M S T U Q B L R L K
V L M R E C N C X A T S Y Z W N V J A K
R D W U U L H Q Z R E V Q E E J U O T G
X J L D Q O A A U U W Q D N I F I I I G
G A Q Y C R S C N K X D Z R E L N M O G
V G G P J W T E B N E A J M J W I U N S
I F J L Q U V Q R F E H L M F Q R S S H
Q V K C R E M K O Y K L Z U E U T P H W
P B L E R X C Y Q C E L S M D U Q R I W
M U G E C U P G M X A K S F G W J T P E
Q I W O T H B T J E I Y K O D S V Q S E

Answers:

ValueProposition,
CustomerSegments,
Channels,
CustomerRelationships,
CostStructure,
KeyActivities,
KeyResources,
KeyPartners,
RevenueStreams

Tamil Nadu Start-up and Innovation Mission (TANSIM)/StartupTN is being formed as a section 8 company by the Govt. of Tamil Nadu. Startup TN aims to build a conducive startup ecosystem in the State by joining hands with every Stakeholder. The Vision of the company is to attract entrepreneurs and investors from across the globe and make the State as the "Knowledge Capital" and "Innovation Hub". Entrepreneurship Development and Innovation Institute(EDII) is the nodal agency to promote and facilitate startups in the State.

Tamil Nadu Innovation Grand Challenge (TNIGC) initiative that has been successfully supporting startups with seed grants of INR 5 Lakh each for the last three years. TNIGC was designed to not just be a grant disbursement program but to be a platform for Startups to interact with experienced startup community members and expert mentors while competing amongst themselves. TNIGC has had three cohorts with a total of 16 Startups till date and more than 75 Startups have been trained during the bootcamps.

Tamil Nadu Seed Grant Fund (TANSEED) by the Govt. of Tamil Nadu, TNIGC is repackaged and scaled up.TANSEED is implemented as a Grand Challenge, supporting upto Ten Startups with a seed grant of Rs. 10 Lakh each.

S2G Sandbox is an initiative proposed by StartupTN to deepen the engagement between the Govt. of Tamil Nadu and the Start-up Ecosystem, as envisaged in the Tamil Nadu Startup and Innovation Policy (2018-23). It aims at providing test beds for Startups with innovative solutions that benefit Governance and address key social, technological and economical issues.

As part of our continued support to the Startup Ecosystem and the Incubators, that play a crucial role in the success of startups in their early formidable years, we bring Scale Up, in association with Headstart and Startup India.

Scale Up is a structured Incubator capacity building program, with a series of workshops to help incubators build a solid understanding on how to scale up their performance. Mentors would help incubators shape their plans based on the learnings from the workshops. Top incubators from the program would be receiving grants from StartupTN and strategic support from Headstart to help implement their plans.

While being the warehouse of support for startups, it strives to create newer and better avenues for startups and innovation.

For further details you can visit our website:https://startuptn.in/

INTERVIEW WITH

SATISH SALIVATI

Satish Salivati was a talent assessment and analytics specialist, and blockchain enthusiast turned co-founder of InteliTix. His startup InteliTex now develops blockchain solutions for companies and clients from across the globe. He talks about his career in blockchain and the future of blockchain and entrepreneurship in India.

INTERVIEWED BY AYESHA ULDE
EDITED BY AVANI MALVIYA

You come from a commerce background, as in your qualification is in the commerce field. So how did you get fascinated by blockchain?

That's a great question. By qualification, I graduated in commerce and I did my post-graduation in social work, which is a completely different field. And then I got into HR. And I have always been involved in the HR tech space. So tech has always been something that I have been interested in.

So how I got into blockchain was this; we were actually trying to solve an HR tech problem, and blockchain was the perfect solution for it. So while we were looking for a solution for that particular problem; I'm talking about the problem of background verification; so we were trying to look at a very good solution which can solve this problem. While there were solutions available for most HR problems, a tech solution for something like this was never there. So most of the HR heads that I met kept asking us if we could think of something.

That is when we explored blockchain. That is how we got into blockchain. And this was about four and a half years back, so very early days for the technology itself. And because we were in that space in those early days and we were able to build capability, we are now industry agnostic. That means we don't just do blockchain for HR; we develop products and solutions across industry segments.

Can you give us a little more detail about what the scenario of blockchain was when you started out?

About four and a half years back, blockchain was in a very, very nascent state. The technology itself and the protocol itself was still developing. And there was no support for developers working on blockchain solutions; there was absolutely no support. So whatever you had to do, you had to find your own answers, find your own solutions. It was very difficult. So building a product or a solution on blockchain four years back was very difficult.

Today there are a lot of advantages because there are a lot of support systems that are available. You have components that people are making available, and essentially it is open source. So you have a lot of people who have done a lot of small projects, components which you can use and build your own solution. So building a blockchain solution today is probably not even half as difficult as it was about four years back.

And that's a big change that we have seen. So from ease of development point of view, it has become very easy now. But the matter of 'where to use it' and 'how to use it' and 'how to implement, it is still something where you need expertise. So that is where slowly people are coming up the curve.

Speaking of changes, what changes do you wish to see in the blockchain arena?

So there are two-three things that, as a company that is into blockchain we would like to see. One is, knowledge or understanding of blockchain to the common person is important. So anybody and everybody should try and get a better understanding of it. So one of the basic reasons why we do a lot of these knowledge sessions and why I teach blockchain is basically because if I talk to you and you know about blockchain today, you can go and talk to four other people.

As an end-user, as a citizen of this country, there are a lot of benefits that we as individuals can get. Once we know how blockchain is going to benefit us and how we can start using it, people will start knowing about it.

Generally, there is this misconception that blockchain is actually a cryptocurrency. So that misconception has to go. And that will only happen with knowledge sharing and awareness. So we need to first differentiate between cryptocurrencies and blockchain. Blockchain is the actual technology on which even cryptocurrencies are built. So Bitcoin is probably the first use-case of blockchain. So blockchain itself is the larger tech platform.

Number two is, we need to have very clear guidelines, regulations, and policies in place, for which the governments have to help. So today, we're finding that whether it is the Tamil Nadu state government or the central government, there is a lot of action happening in terms of coming up with the policies. So as we speak, there is a National Blockchain Policy draft that is being put together by the National Institute of Smart Governance. It's open to the public; any of us can log in, download that document, read it, and add our suggestions.

So eventually, the idea is that you build a standardized system. You'll have rules, regulations, protocols that people will follow. That will make it easier for people to develop and offer these solutions to a wider audience.

As an entrepreneur, what are some of the changes that you wish to see in the The entrepreneurial ecosystem in India?

I think there is a lot of change from when I started off about five or six years ago. There's a lot of change that I see, especially in young entrepreneurs. So I see a lot of college students; I remember this specific example when I was in college. Typically when you are passing out, and I'm talking about say about twenty years back when you passed out, the only option you had was to get a job. Nobody ever thought of entrepreneurship as an option.

Now it's been twenty years down the line, and when I go to college, any small college even in a remote area in Tamil Nadu, for example, and I go and ask students, "How many of you would like to explore entrepreneurship?" You have a big percentage; at least 25-30% of them want to explore it. So that itself is a big change.

Second is the support that they get from their college and parents. So the risk-taking appetite has increased, and the support systems are much better. Today you have the confidence of identifying a problem and building a solution around it. And that solution having commercial value is a lot more possible today. While the competition is also there, at least the fact that if I have a decent idea and good tech skills, I can actually come up with a solution that can actually be marketed. The earlier you start, the better it is.

The big change that I have seen in the last 8-10 years is that the environment now is encouraging entrepreneurship, which is good. And what we need to build are the skills for entrepreneurship.

At a young age, teaching students about entrepreneurship is not easy. They all think that a startup is about getting funds. So the minute you start something, you get a round of funds and that is the end of it. You have to realize that getting funds is the start of something big, and you have to plan it properly. So education of entrepreneurship skills is what we have to focus on.

During your journey as an entrepreneur, you faced a lot of challenge & obstacles. So what are some of the ways that you deal with that?

Being an entrepreneur, you are in a lonely place. There are no two ways about it. What I have done, for example, is that I have been fortunate enough to have a community of entrepreneurs who help each other out. Otherwise, it can be tough.

Even your family members find it very difficult. For example, I used to do very well in my career, so even now, my parents find it difficult to understand why somebody would be an entrepreneur. And I am a first-generation entrepreneur. All the previous generations in my family have always been in government service or employed in positions in India or abroad. So for them to have someone come out of this and try something, is a lot of risk. So to be able to convince your own people is a big challenge.

That's why you need that community around you who are doing similar things and facing the same kind of issues. And having a network of entrepreneurs and communicating, and making sure you have each others' backs is very important. Because you find a lot of entrepreneurs also committing suicide, and that number has gone up.
So we need that support system. So we have regular meet-ups, we have WhatsApp groups where we help each other out, and it is a very collaborative kind of effort. And that's what helps us support each other.

Starting up with Deep Tech

-INDRANEEL CHAVAN

Computers are useless. They can only give you answers.
- Pablo Picasso

Ever tried thinking on the lines of this quote of Picasso? It's only after you read it twice, you'll know what this crazy artist really meant to say. Computers, like many other machines, are known to provide solutions to the toughest problems, but what is the use of such innovations if they aren't utilized for real-life problems. This is exactly what Deep tech does, it uses engineering innovations and scientific discoveries to solve problems. These technologies have a profound impact on people and society in general. Further in this article, we try to look at the current scenario of deep tech in regards with startup ecosystem of India.

The obvious question that comes to one's mind after reading this definition of deep tech is that - 'Aren't all tech companies driven by these principles?'. The answer to this is partial yes and partial no. Today, many successful tech companies are based on unique business models and offline to online business transition. For example, cab services like Ola and Uber are based on concept of sharing economy. Whereas, Deep tech companies focus on providing tangible solutions based on engineering innovations and are trying to solve the big issues faced by society.

Now that we have understood the basics of this technology, let's look at the scenario of the utilization of this technology in Indian startup ecosystem. The situation is quite diverse here, because traditional business models do exist and these models too have proven to be of the most important determining factors of the output of agricultural activity is climate change.

This means that farmers need to be aware of the climatic conditions as well as the agriculture risk involved. Assessing the agriculture risk is an expensive and time-consuming process and obtaining real-time updates of the climatic conditions is generally not feasible. Satsure, a Bengaluru-based agritech startup, provides technologies that measure the risk involved by analyzing the data collected from satellites in combination with commodity prices and other such relevant information and enable the farmer to make better decisions.

Another instance, where startups are more suitable, is conversational AI. Billions of people living in India speak multiple languages and are verbose in triumphant. But when it comes to scalability, it is not possible without integration of innovative techs (like AI, IoT, Blockchain, Virtual reality, etc) to the business models. Currently, such ventures are leading the startup space. Deep tech startups in India at this point of time are blooming with Bangalore and Hyderabad being the leading tech

hubs. Huge number of techies of the country are actually implementing scientific innovations in all industrial sectors and the result of this being that India has become the third largest AI startup ecosystem as suggested by recent reports.

Though these startups are gaining traction but the real issue for them is getting funding because for obvious reasons, it is very hard to explain the complexity of their ideas to investors. There is huge difference in funding opportunities for deep tech startups in India as compared to Silicon Valley.In Silicon Valley, investors never back down from supporting such innovative ventures based on the merit of their technology whereas in a country like India, investors are very hesitant to pump money in ventures with no revenue. Though, some investors do take this risk nowadays but still, it is not sufficient because, more is the funding to these ventures, more interesting stories will be created. India has produced 27 unicorns but none of them is based on deep tech and so there is a desperate need of success stories of deep tech startups doing wonders.

I was fortunate enough to hear from Mr. Pradeep Janakiraman, founder of Drive analytics, a very successful deep tech venture, in one of the talks of 'Thinker to Tycoon' series organized by E-Cell team. He too had quite similar views about the deep tech sector. According to him, its hard to earn the belief of people in India as they don't have a good notion about self made hi-tech products.

Coming to the conclusion, deep tech is still much of an untouched sector for new ventures to begin. And looking at the existing MVPs based on deep tech, this sector has very huge potential for developments. Currently, the domain of sectors where in this technology is bringing reformations is very huge. From dairy supply to defence, computing power and data processing techniques have made the machines very smart. So, its an ideal sector to begin a startup idea as a lot of new ideas can be thought of utilizing these engineering methods. There will be definitely obstacles in the path as mentioned above. But the silver lining is that the scenario is changing a bit as the investors are slowly converting and have begun to believe in the ideas. Some of the VC firms are supportive to deep tech ideas to the extent where they only invest in deep tech startup ideas. Hence, 'Starting up with Deep Tech' is actually a very good career option for the bright minds of this country.

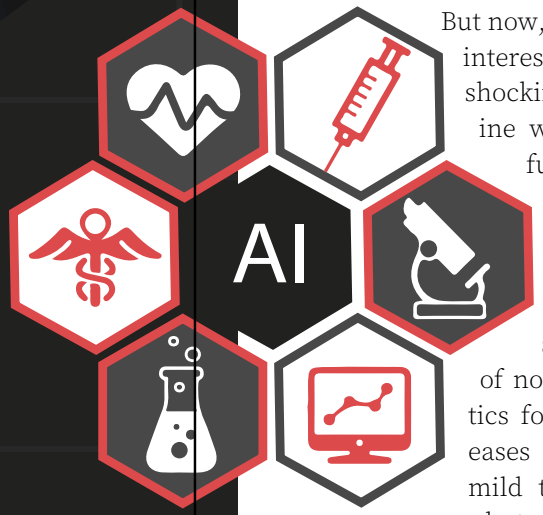
THE GREAT GROWLING ENGINE OF CHANGE - TECHNOLOGY

SHAPING REALITY THROUGH DEEP TECH AND COVID AS IT'S BREAKOUT!

-SHRIHARI AGRAWAL

Deep tech, such a fascinating and visionary word it is. Whenever we think about deep tech some cool practises and mind boggling set of words strikes our minds.

So firstly what is deep tech, “Deep tech” describes companies working with technologies such as advanced material science, artificial intelligence, deep learning, data analytics or biotech to bring completely new scientific discoveries or engineering breakthroughs to businesses. Deep tech has a plethora of practical use in discrete industries around the world which transforms our daily lives and activities.



But now, here comes an interesting cum shocking thing, imagine what if in near future doctors are partially replaced by a technically mechanized system capable of not only diagnostics for different diseases varying from mild to even severe ones but also treatment and medication according to it. Moreover, consulting even after treatment makes it a full fledged automatized “personal” doctor. Till now you must have got the extraordinarily new revolution taking place in the advancing technological world now.

Talking of the healthcare industry "it is one of the most influential industries for an individual and especially for the development of the country as whole ". A proper infrastructure in this domain with efficient and innovative ways could make it a "super power". Incubating deep tech in the healthcare industry is one of the major steps towards this revolution. The question is why it's of such importance and how can it contribute to the same.

The answer is simply complicated.

The conception of disruption is nothing new. And the healthcare sector is certainly no stranger to the idea, particularly over recent years. The effect that digital technology has had on patients and clinicians is evident, and it has definitely altered the way care is both accessed and delivered. Using disruptive technologies of deep tech makes the task easier and more efficient, and it conquers over those techniques which are beyond the capacity of human brains.
Current technologies eventually block progress and deep tech is the un-blocker. Deep tech describes the radical new solutions that break open these bottlenecks. Medical Science is majorly about research and remodeling the resources and tactics used. Deep tech is the most viable for it, especially Artificial Intelligence as coined is the turning point for today's healthcare dome.

Developments in deep tech startups are shining a light on the future of what’s possible. Nowhere is this more evident

than in the healthcare sector, where precision medicine is allowing us to develop highly personalized treatments for individuals, while also gathering more accurate health-related data for analyzing and giving desired results on it.
The wide variety of technologies and their applications cover everything from cancer treatment to enhanced AI diagnosis capabilities to everyday heart-monitoring tools . Extensive use of Deep Tech could potentially provide helpful information for your doctor especially if you're having symptoms outside of the doctor's clinic. It indirectly depicts an instant diagnosis. Many cases arise around the world every year in which due to lack of timely diagnosis patients lose their lives. Through the arising technology not only time is saved but also precision is achieved for the proper treatment.

Many existing and upcoming startups use AI capabilities to provide detailed reports on an individual's genetic makeup. Using this information, they can provide tailored nutritional, training and health advice.

Some deeply oriented techniques towards it could be Imaging , As AI legend "Geoff Hinton" famously declared in recent years , "People should stop training radiologists now. It's just completely obvious that within 5 years, deep learning is going to do better than radiologists." Examining a medical scan to determine whether a tumor, a skin lesion, a retinal disease, or some other indication is present is a clear-cut example of object classification, exactly what deep learning excels at.

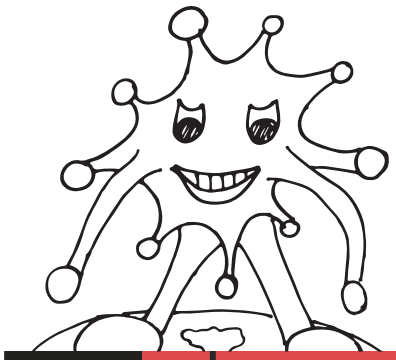
Patient Intake and Engagement is also a critical part of the healthcare journey. Recent advances in natural language processing have made possible AI-based conversational interfaces that can automate patient screening and care navigation. Patients can share symptoms and questions via text message and receive automated clinical guidance in response. Using AI to automate these interactions can dramatically reduce costs and democratize access to healthcare by making expert health guidance available without the need for human physicians' expensive time. Remote health, precision medicines, administration in hospitals, In-hospital etc. are more such areas where deep tech marks it's need to make them a level up.

How startups in India are dealing with it

One in 17 women in the world are likely to develop abnormalities in the breast that can lead to cancer if not detected early, according to WHO. But regular screening with mammography is expensive and unavailable to many. As a result many patients die across the world even though this is one of the most curable forms of cancer. So here comes a shot of deep tech introduced, bangalore-based startup Niramai has an alternative: non-invasive thermal imaging that shows lumps in the breast when analyzed by artificial intelligence. The start-up has two US patents for its methods of detecting breast tumors, and eight more are pending.

Some companies around the world are working and launching an emergency hemostat – a device designed to stop bleeding in minutes. Axio based in Bangalore is one of the successful startups to achieve it . The certified and patented Axiostat is now part of the Indian army's field kit. How many benchmarks are crossed via this, think about it!

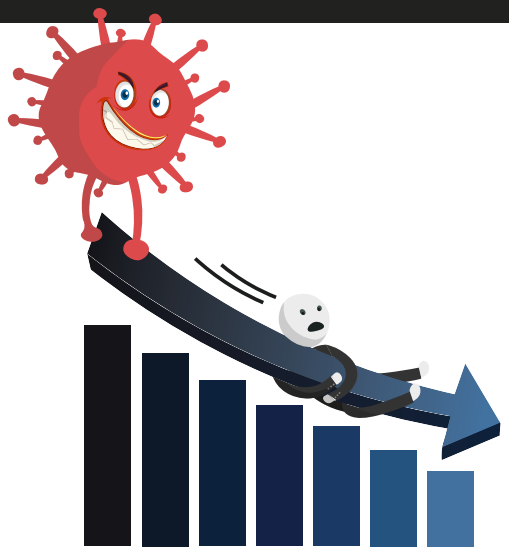
Again as talking about India diagnostics is a major area for tech intervention, given that there's just one doctor available for every 1,700 people. In specialist care, that gets even more compounded. One of the areas here is usage of ECG. The reason why four out of five doctors do not own an ECG machine is because the skill to read an ECG is tough. The waves are complex to read. To resolve this Tricog, established by a cardiologist in Bangalore, tackles the problem of access with cloud-based analytics of ECG data and introduces techniques to make it more accessible for normal doctors and even specialists.It use advances in deep tech (computer science, communication, algorithms) and the cloud to amplify the work for the doctors.



COVID AS A BREAK OUT FOR DEEP TECH CAPABILITIES

COVID-19 has become an unprecedented disruption to all facets of the healthcare industry in a very short amount of time. Deep Tech in healthcare, as well as other important technologies, are critical to resolving the crisis and for generating future growth.

Artificial intelligence plays a critical role in the fight against COVID-19, including areas like pandemic detection, vaccine development, thermal screening, facial recognition with masks, and analyzing CT scans. BL an application developed by a company from Toronto, Canada, was a major pioneer in early warning systems for identifying pandemics such as COVID-19. BlueDot was the first to publish a paper that predicted COVID-19's spread worldwide. Bluedot's system scans over 100,000 media sources worldwide in over 65 different languages daily to ascertain dangerous outbreaks in nearly real time.
For developing new vaccines the goal is to include strongly immunogenic viral components that cause a response from the immune system. With machine assistance, immunologists have identified over one million fragments of proteins on a cell's surface that are discoverable by T-cells.



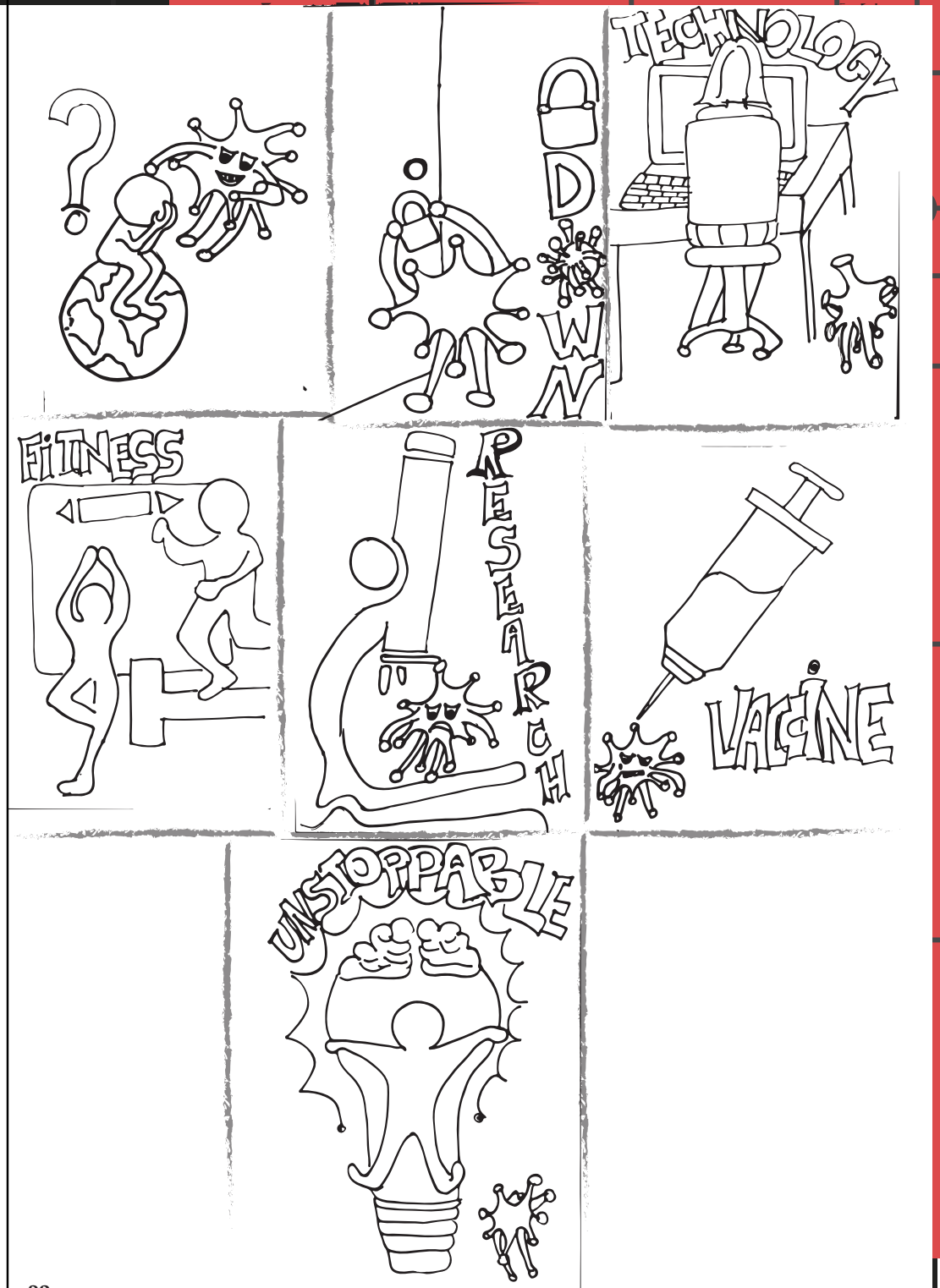
SYGFQPTNGVGYQPY, a fragment from COVID-19, could be a fragment with these desirable qualities. However, without machine learning assistance, humans alone won't be able to tell for sure. Thanks to machine learning, COVID-19 vaccine development is continuing quickly.

In thermal screening , AI can quickly parse through many people at once to identify people with high temperatures. This can help to identify symptomatic individuals.
Deep learning systems in facial recognition technology have improved enough that they can identify individuals with masks with accuracy of up to 95%.

Human error is a problem in CT scan analysis. Artificial intelligence can detect pneumonia caused by COVID-19 in chest CT scans via multinational training data for machine learning.

By combining IoT with telemedicine and telehealth technologies a new term is coined "Internet of Medical Things" which in turn helps to measure common and advanced medical terms of the user such as skin temperature, glucose level, blood pressure readings etc.
And there are ample more of new deep tech innovations contributing to the pandemic very crucially and completely transforming the healthcare industry. It's just a matter of spark and desire to change the world and make it a healthy place to live.

Healthcare is an intimate part of our personal and family lives in a way that no other sector of the economy is. It is therefore particularly troubling how dysfunctional the healthcare system is today.
No technology can be a silver bullet for a system as complex as modern healthcare. Deep Tech in it offers the potential to rewrite the rules. When deployed thoughtfully, It can reconstruct the relationship between cost, accessibility and quality "one that today is badly distrubed" .
Thinking of starting your healthcare company?
If you have the potential this is the time where we can give explorer ourselves deeply in healthcare industry and boost our Indian health economy through our contribution like this.



Fantastic Materials and Where to find them ?

-PRAJEET OZA

Looking back onto the past decades, the progress by humankind has been nothing less than astonishing. The electronic gadgets are economically viable, cloud computing is a reality, energy systems are more efficient than yesteryear, and the list can be longer than some infamous filibusters. Technological advancement is a cherishable point, and everyone likes an improved set of gadgets. But this economic viability of gadgets and technology would be a far-fetched dream without some brave minds' entrepreneurial efforts. Nevertheless, the contributions from the scientific community to develop the technology should not be forgotten. It is this collaboration that pushes the world into the unseen future.

Reviewing the scientific community's contributions, it is easy to spot the difference in the palette of materials accessible humans — many on the verge of exhaustion, and some improved alternatives. And with the current trends, it won't be long when the materials procurement methods will revolve around the resurrection of the exhausted ones from scrap, or to explore the materials domain for more alternatives.

The exploration approach certainly has a cool vibe attached to it, like the Polynesian and European explorers sailing the rough tides and raging storms. Materials exploration is an adventure sport, but it is undergoing transitions to accommodate human addiction for speed. Adapting to this transition will require some preparation of databases and deep tech approaches such as Artificial Intelligence (AI) which can interpret the data and predict useful properties.

But the question is, how and when to start the preparation? Or has it already started?

Materials Design

Exploration of materials is not a brand new concept. Humans have explored and tested materials and replaced them with better alternatives for centuries — a gradual change with a trial-and-error process. Even though this exploration is still in practice, it does not align with humans' ever-changing needs which demand quicker solutions. This brings the approach of designing materials to the tailored applications, but combinatorial feasibility is questionable with the current (computing) resources.[1] The merit is not all lost, and there is progress in exploring materials with AI approaches — especially over the last decade.

The Materials Genome Initiative (MGI) was started in 2011 during the presidency of Barack Obama. Before MGI, researchers had made efforts in materials design, but this initiative was a big push ahead. As a part of this initiative, a chain of databases for various material types was initiated with predicted properties of known and unknown materials.[2] Today, they have developed into huge collections scaling into millions of materials and element combinations and still growing. One such database is The Materials Project. This database not only provides open access to everyone but also equips the user with powerful analysis tools.

With these extensive databases, it is logical to implement machine learning or properties and applications for unfound materials — and this is already being implemented in projects like Polymer Genome by Dr Rampi Ramprasad and his group based in Georgia Institute of Technology. Data from ab-initio calculations, MGI databases and experiments have played an instrumental role in improving the material-based property prediction. But it is still a long route to designing materials based on the property requirement — and a way to process the predicted materials.

Extension to Materials Design

Atoms (and Lego bricks) are the building blocks of matter. They combine to form materials with varying complexity, and this complexity demands varying levels of attention while studying the materials. Some are amorphous, while others show crystallinity; some are mixtures, and others are well-blended solutions. In all, these designed materials need to be characterized before a pathway is designed for their processing.

But when the characterization steps are beyond the feasibility barrier? Simulations can help reduce the search space and bring back the characterization task within the feasibility barrier. One good example is the problem of determining the crystallographic information for newly discovered materials. There have been several attempts at solving the problem, but the success rate has dramatically differed. Of all the attempts, the USPEX code developed by Dr Artem Oganov and his group has

consistently given high success rates. The code is a novel application of genetic algorithms, with a basic stoichiometry input for the materials.

The above deep tech applications are just the tip of the computational materials science iceberg. As the world moves towards interdisciplinary research, this area is bound to grow. But it requires some entrepreneurial effort to disrupt the conventional practices in the industry.

Enter the Entrepreneurs

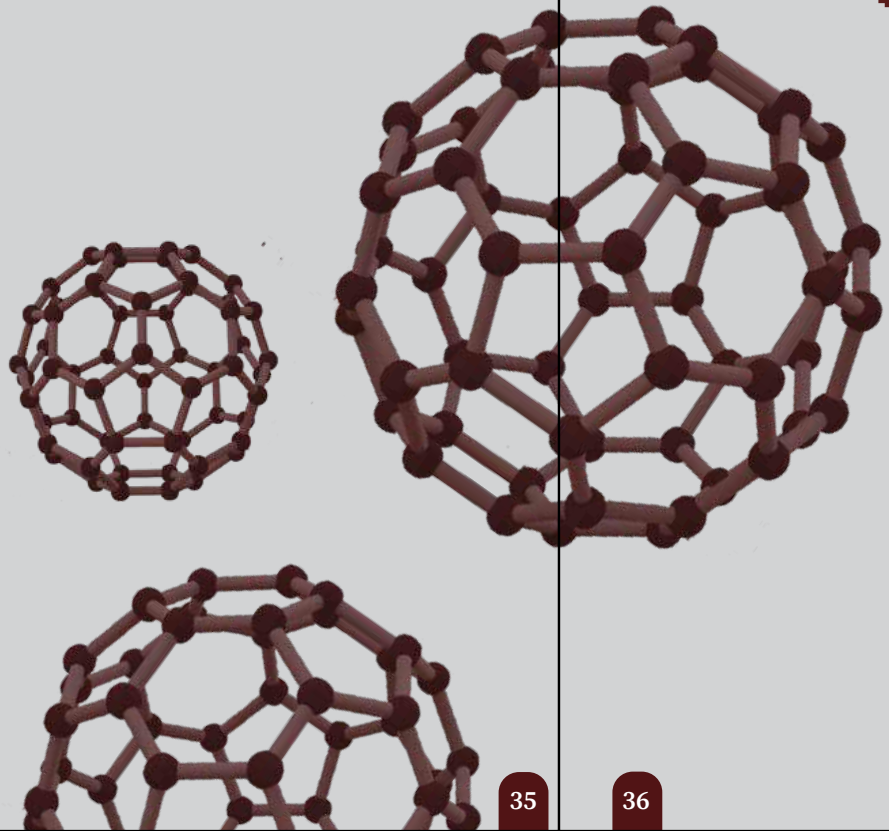
With sufficient time and investments, technologies that seemed obsolete or uncommercial grew to revolutionize the world — electric vehicles and aeroplanes are examples. Today, the former is one of the fastest-growing industries, and the latter handles a fair share of passenger travel and cargo shipments. The area of materials design holds a similar potential to disrupt several industries — defence, energy systems (like batteries), smart textiles, manufacturing and many more. So, it is just a matter of time when the R&D phase reaches a point where commercialisation and industrialisation of this technology are viable.

As other deep tech ecosystems, materials design too requires collaborative work from the researchers, entrepreneurs and occasionally from the government. The two pillars of this ecosystem are standing tall, though they need some more work, but it is up to the budding entrepreneurs to notice this niche.

Footnotes

[1] All elements are not equally useful. Of the 118 known elements, a reduced estimate of 70 elements would give more than 4000 binary and more than 0.3 million ternary combinations without considering the stoichiometry. More complicated combinations hold some possibility. But, hopefully, the advancements in quantum computing will be a substantial boost to materials design capabilities.

[2] The properties are predicted using ab-initio first principles or Density Functional Theory calculations.



IT'S NOT LENGTH OF LIFE, BUT DEPTH OF LIFE

CYMORG

An Education Technology platform with a difference

When one thinks of Education Technology, one typically thinks of schools and colleges. But education plays a crucial role in how every organization operates — and how employees of all ages learn to succeed in a digital-first future.

The biggest differences between education for students and that for working professionals, is that the former is almost always about imparting skills, knowledge and abilities in a structured way, while the latter is often about influencing employee behavior in ways that are likelier to lead to optimal outcomes in complex, unstructured situations.
In the case of students, the attempt at education may be deemed successful when the student passes an exam, but in the case of corporates, education is only successful when the trainee is able to apply what they learnt, in their day-to-day work. Judging by that standard, most corporate training programs are failures. Yet organizations in the US alone spend over $87 billion on corporate training programs.[1]

Based in New York, Cymorg is an original attempt to disrupt this inefficient and ineffective market.

The founders of Cymorg, Sriram Padmanabhan and Prasanth Samavedam, are both alums of IIT Madras – graduating in 1993 and 1995 respectively. Both of them have held positions of managerial responsibility across 3 continents over decades of experience in technology companies. As practitioners and users of corporate education technology, they have a clear focus on the practical, contextual, and experiential – and share their end-users' healthy aversion to the theoretical and text-bookish approaches currently prevalent in industry. They realized that none of the training programs they were exposed to actually helped them while having to make difficult decisions while managing clients, large teams, tricky projects or new market initiatives.

Organizational leaders learn decision-making, not systematically through corporate training, but by making lots of decisions and anecdotally observing which ones worked. This is dangerous, as managers often learn the wrong lessons from such casual observation. Yet organizations have so far been unable to offer their employees a systematic 'sandbox' environment to try different decisions.

Out of that insight came the idea of Cymorg: a “flight simulator” for developing market-facing decision-making.

Of course, unlike flight simulators which cater to a limited number of plane makes and models, every organization is unique, and context is hugely important. There’s a huge difference between selling microchips and selling potato chips, or even in the definition of the same competency exhibited while selling one or the other.

So the co-founders of Cymorg decided to build not one – or a small number - of off-the-shelf simulations, but a platform on which any organization can quickly assemble its own unique simulation, for developing its talent.

Cymorg is built around two simple premises, both validated by academic studies decades ago:

1. People remember something they tried on their own and how it turned out, far better than they remember something they read or watched.
2. People are able to apply in the real world, things that they have learned in the context of their real jobs.

Thus, Cymorg is hyper-personalized to the context of the participant, experiential, dynamic and adaptive, AI-led and analytics-rich. The education technology industry has been talking about each of these traits for the last few years, and now, in the post-COVID world, they may even be the only effective way to train managers.

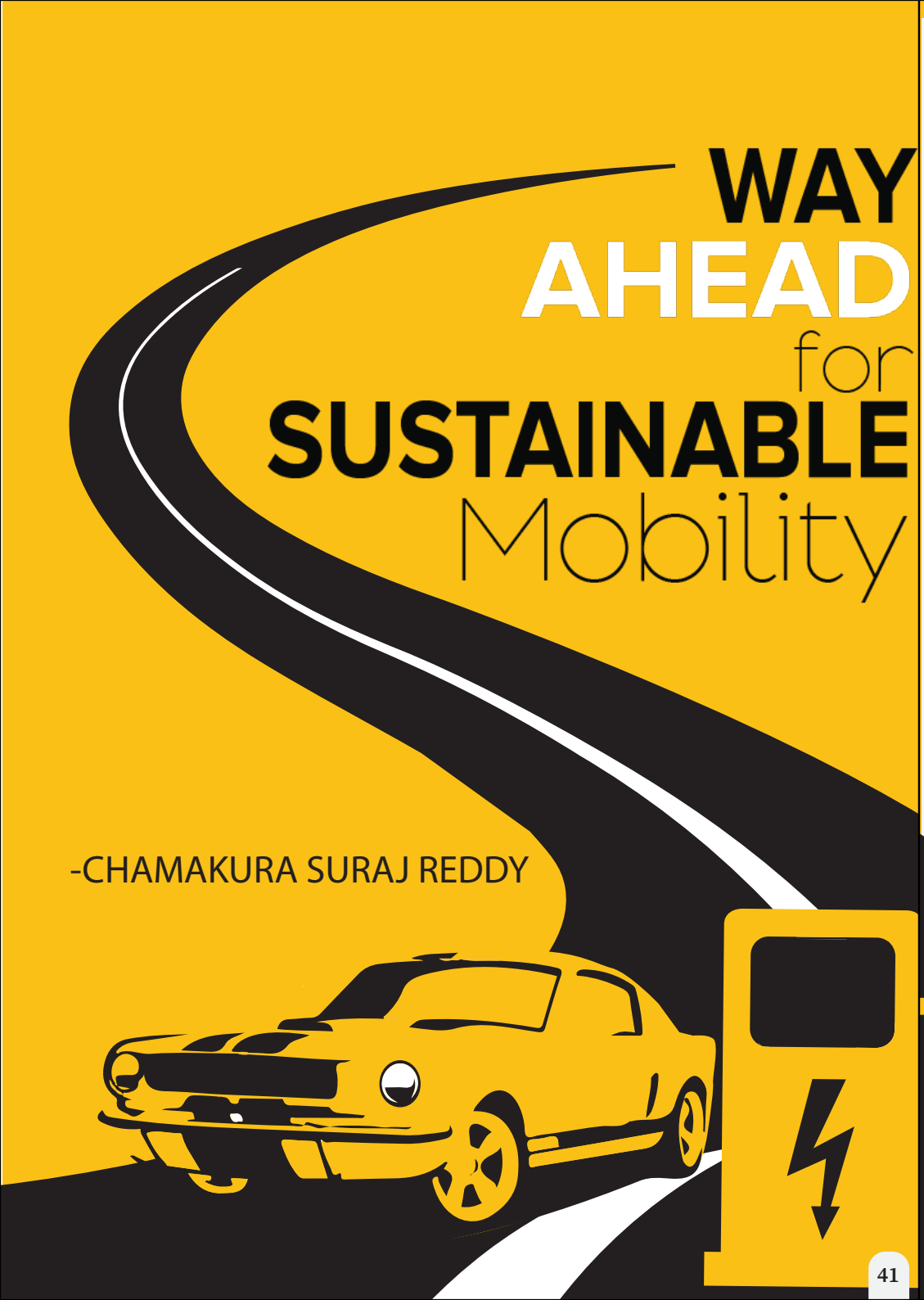
If management education gets progressively more unstructured and complex as one goes up the hierarchy, entrepreneurship training is the theoretical limit for managerial education, where one’s actions are least bounded by processes, policies, precedents or hierarchies.

Cymorg is sponsoring the Start Up Challenge at E-Summit 2021, where participants are asked to navigate a tech start up, and achieve tough goals, in a simulated environment. Here, too, there are certain decisions that are likelier to lead to success, and others that are not. This makes it a fascinating realm for simulation-based insights, and a great learning experience for the participants.

Historically, cultures have used parables and folklore as ways to teach appropriate behavior in society, because narratives and story-lines leave a far more powerful impression on people than lectures and rules. Cymorg is a 21st century attempt at plugging into the same technique.

WAY AHEAD for SUSTAINABLE Mobility

-CHAMAKURA SURAJ REDDY



All around the world with huge interests from governments to transition towards carbon zero economies, we are seeing most of their initial focus on transportation and energy generation sectors. Here, let's look more in detail about the transportation sector on how it would evolve in the next few decades which would ultimately enable a lot of new markets to emerge.

So currently in the transportation sector, most of the focus and attention is on electric vehicles built using Li-ion batteries. And if we look at the trends of Li-ion battery prices then most of us will be certain that Li-ion batteries are the future. But now let's look at it from a holistic view on how the market would evolve in decades to come.

With more amazing advancements to happen in Li-ion storage technology in the next two decades, most people around the world would transition to electric vehicles, but then the drastic declining availability of Lithium and other metals used in it comes into the limelight with its prices soaring and would need very efficient, profitable and large scale recycling of these batteries making it economically a very challenging task.

These problems with Li-ion batteries bring in the necessity to also have very tangible alternatives that miss daily headlines because of everyone's affection for Tesla and few other electric companies. So, amid all of these Li-ion batteries, hydrogen energy seems to be the most potential alternative and I would even say Lithium batteries will enable a faster transition to cleaner modes of mobility but hydrogen energy as a fuel would be making it a more sustainable transition and takes up the major share of mobility at the end.

This is majorly because hydrogen energy can be used easily as gasoline and the only compound emitted out of it is water vapor. Hydrogen fuel energy also has another advantage that its production is possible in a variety of ways and hydrogen is also the most abundant element in the universe. It is possible to even produce it in the later process of carbon capture of carbon effluents from various toxic industries and also from captured carbon dioxide present in the environment, which means it will also reduce carbon dioxide in the process from the environment, which is the major reason for global warming. So it is just a matter of time to have more advanced breakthroughs in producing hydrogen energy as a fuel at an affordable cost which makes it the potential technology enabler for transition to sustainable carbon emission free mobility.

INTERVIEW WITH

ISH GOEL

Ish Goel is the CEO of Somish & founder of GovBlocks. He has led the delivery of multiple blockchain products globally & has been involved as a key speaker at blockchain conferences across 10 different countries.

INTERVIEWED BY SUNDAR RAMAN P
EDITED BY HARI CHARAN K

How did you get so inspired by this blockchain field in general? So, you are mentioning an accident which occurred during your talk. Can you explain a bit more about it?

I've been an entrepreneur for more than ten years now. I started way back in 2006-07. I was exploring the London fintech ecosystem way back in 2015, and That's when the whole term blockchain kind of thing happened to me for the first time. So, it was actually an accident which happened. I was attending a workshop in a conference where I had some scheduled meetings, and eventually, those meetings didn't happen. And I ended up speaking to a guy who has asked me about whether I know about the intersection of systems, people's devices, and how blockchain technology could actually work together. So that was my moment, and that's when I started getting fascinated by this whole thing.

According to your survey, 48% of Millennials want to start up. So, what is your view on this number?

I think it's excellent. And the way India is coming up in terms of the start-up ecosystem is fantastic. I see a lot more people now are concerned about building value companies and not vanity companies. So, by that, what I mean is that people are not running behind money. They actually want to solve problems first, and then they want to go back and try to monetize that whole scenario. So, I think that's an excellent development which has happened in the place.

So blockchain, which makes decentralization socially scalable, has got a lot of recent additions for security as we have a lot of questions in cybersecurity too. Still, there's a considerable cost involved in the proof of work concept that needs to be done in order to add a block to the chain, and it's facing quite some skepticism in terms of the computation power and so on. So what is your view on it? And will it be solved in some more time?

Yeah, it's already getting solved. I mean, proof of work was the first attempt at building something which is decentralized. To see the issue, security decentralization and privacy and scalability cannot come together at one go, at least up till now that has been the problem but you know, for example, look at what is Ethereum doing?, so they're now moving away from proof of work and coming towards proof of stake, Ethereum2.0 has already started coming in. So there are many techniques by which they are trying to achieve and solve that problem. I think sooner or later; it's gonna be done. There are the best people in the world who are actually working on it and I'm quite bullish about this getting solved as soon as you know, well I think by 2020 itself, there should be a lot many other solutions which will come up.

What do you think about deep tech start-ups particularly in India who are focusing on deep learning or blockchain in general?

I think, in general, my opinion is that India is excellent at Applied Innovation. So what I've seen here and there's nothing wrong with it, I think as a country we have big problems to solve and if we use the Innovation which is being done in the west and if we apply them to solve our biggest problems, I think that's what even the Deep Tech startups are also trying to do. There are many people who are also trying to innovate, but I see a lot of value in actually not trying to build or, you know, try to reinvent the wheel again, but instead use something which has already been invented to solve the problems that we face today because that's more important. At the end of the day, you use platforms like Ethereum to solve problems. I would say that any of the technology which is available and invented, why can't we just use it to solve our problems.

How important the role of WhatsApp and Facebook play in the growth of startups?

Excellent question. So I am not on Facebook. First of all, Let me give that disclaimer (ha..ha). So, I'm not sure, but yes, I think WhatsApp has a big impact on the kind of data acquisition powers that WhatsApp gives you as a business; it is amazing on the ground. You don't have to invest in tools and technologies to get data acquisition on the ground because almost everybody has a WhatsApp account these days, so it does have a huge impact and it's something that you can't forget about when you are building a new idea because any idea in the tech space eventually is a function of how you acquire data. And I think tools like WhatsApp play a big role in that.

Will smart contracts help us someday with replacing the booth elections in India?

There are some countries in Europe that have already tried voting using this Technology. Blockchain and the way smart contracts gather information from the citizens is such that it's tamper-proof. Definitely, I think that's one use-case that can have a massive impact on how election decisions are made. There are issues around scalability, but I think it's sooner or later it's going to be resolved, and it's going to happen.

Do you think there is no issue with security as it's tamper-proof?

It depends on which blockchain do you work on. for example, As you know, I was talking in my talk that if you work on a permission blockchain, which is controlled by The government then the whole purpose is lost. But if you work on something like an Ethereum blockchain where the government also doesn't have the control, yeah, that's a different case but having said that the problem is with identity management,

How do you map your card numbers or your voter ID cards to a digital identity on the blockchain and that's what is going to enable voting. So before we talking about the security issues, I think the bigger issue is the identity problem to solve.

Will India consider experimenting in the blockchain ecosystem? So are we investing enough? Is the government doing enough work to incubate start-ups that are working on blockchain and use the research work that is being done?

I think India is definitely ahead of the curve when it comes to experimenting with blockchain in the government sector. My problem is that the government is not liberal with the whole crypto seen in India, which is a little worrisome for me, Look at what China has done which is very intelligent I would say they've come up with their policies of how to regulate this entire space and that opens up and an array of innovation coming in from people like us, right? Right now, I see a lot of brain drain happening, and good minds are going out there setting up their forms outside just because they want to be in a more comfortable jurisdiction, which is not precisely excellent because it's a loss for India. So yeah, I would say some more liberal thinking in the government would be very helpful.

What will be investor's perception when they hear some startup about blockchain in general? Is it on a positive or a negative sign?

I think Money is cheap. So one must never think too much about money. Eventually, if you're solving a problem, all investors love you, like for example, if you go to them and you say that hey I'm using blockchain and they'll be like, so what?. It's eventually if you go to them and you tell them that "hey listen to me, I'm solving this problem, I've done this pilot". This will make the difference at the end of the day. I think all investors love that "it's never about the technology element of the startup, It's always about the problem element of the startup."

To coding enthusiasts out there, Would you recommend building on Ethereum the applications if they want to build libraries or tokens from the scratch ?

If something is available, try to start learning from that and then try to solve the problems that the tool-set is having, Ethereum is permissionless, It's not like it belongs to some specific company. why would you not go and experiment with something which has existed and then eventually, you start to build something of your own?

Because if you try to start from scratch, you wouldn't know what were the problems of the previous platform. First, try to understand what the problems were and then eventually solve the problems.

What would be your advice for general public assets? So how can they get into this blocked ecosystem more comfortably?

I think blockchain, even today is not for the general public. The general public, in fact, should never even get to know that they're interacting with something which is driven by blockchain. Blockchain is a back-end. It's something that it's the backbone of the new business model that will eventually emerge. From an end-customer perspective, I think they are only going to attract the mobile phones or the voice search, which is coming these days. I don't think they should even bother to see what's happening behind the scenes.

Your project gov blocks have won a lot of applause around the globe. So, can you explain more about the Gov blocks?

So, GovBlocks, It's actually an open-source initiative that we started. The idea of Govblocks was to build a toolset for decentralized governance. And this is something which I am personally quite excited about the idea of getting communities together to allow them to make decisions at scale. It is something that we've been doing, and Gov blocks have an Enterprise version which is actually called Data exchange framework which we are doing now data exchange framework. As the name suggests, It makes you allow Enterprises to exchange their data between multiple stakeholders while making sure that the data is only available to the right people and it's immutable, and there is a flow that is maintained in this. I think I am quite excited about the impact, which we hopefully end up creating.

You're also a Ted-Ex speaker. And you also like playing musical instruments. So, how do you find to fit in this orbit in your busy schedule?

So Ted-Ex happened to me in 2019. I think it was one of the best things that have happened to me, and I got a lovely chance to speak about my journey on Ted-Ex.

Music has been in my blood since the beginning. My father was a musician, and he taught me a lot of instruments. So it's been a wonderful journey.

All of us have mobile phones right now, So how do you think distributed computing in general, not just for block-chains, is going to influence all of us. So, two individuals are going to be the future, as it's often been said. But then how do you think the Computing which is distributed to mobile phones in general, as all of us have it currently and the existing on-network infrastructure not just for blockchains, but for any other application which is focused on distributed computing is going to revolutionize the future.

I think distributed computing is the Logical Next Step. Eventually, because as I mentioned in my talk before that the centralized powerhouses, which have been created in the past many decades....

Cloud computing, for example...

Cloud computing for example, eventually, also realizes that to achieve that scale in a world that is driven by Freedom. You need to make sure that you are not mis-utilizing the information of the end customer and that is one of the biggest things of a distributed Network. Because the power of the data remains in the hands of the owners and not exactly the owners of the network. So I think it's the next logical step to do; there are many startups and enterprises investing in this space. So I'm quite bullish about this being the next big thing with respect to Computing going forward.

What will be your advice to the technology entrepreneurs out there, in a line or two?

Yeah, I think, guys, build value SAS. Don't build vanity SAS or for that matter build value forms and forms which are driven by Investments. Solving the core problem is what it takes to do a valuable business, and yeah, that's what my advice is going to look like.

BLOCKCHAIN PUZZLE

Designed by Abhiram and Aarya

Clues:

Across

3. The creator of bitcoin

6. The maximum number of bitcoins that can ever be created is ___ million

7. A block in the blockchain can never have more than one parent block- true or false?

9. Blockchain forms the bedrock for _____ like Bitcoin

11. What is the first distributed blockchain implementation?

12. The process of reaching consensus in blockchain networks is called

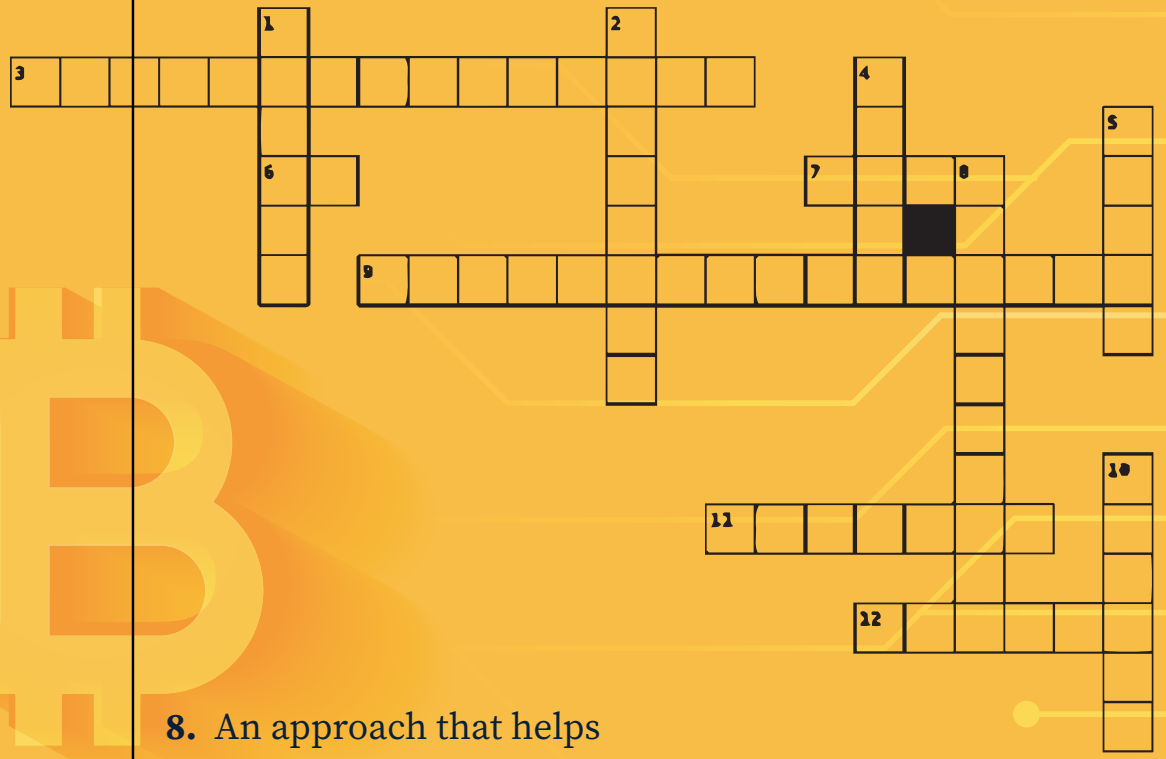
Down

1. Which hashing algorithm does Blockchain use?

2. Name the cryptocurrency created after a famous meme character

4. Number of different types of Blockchains on the basis of user type

5. Blockchain is the same as bitcoin - true or false?



8. An approach that helps organizations to keep their data secure

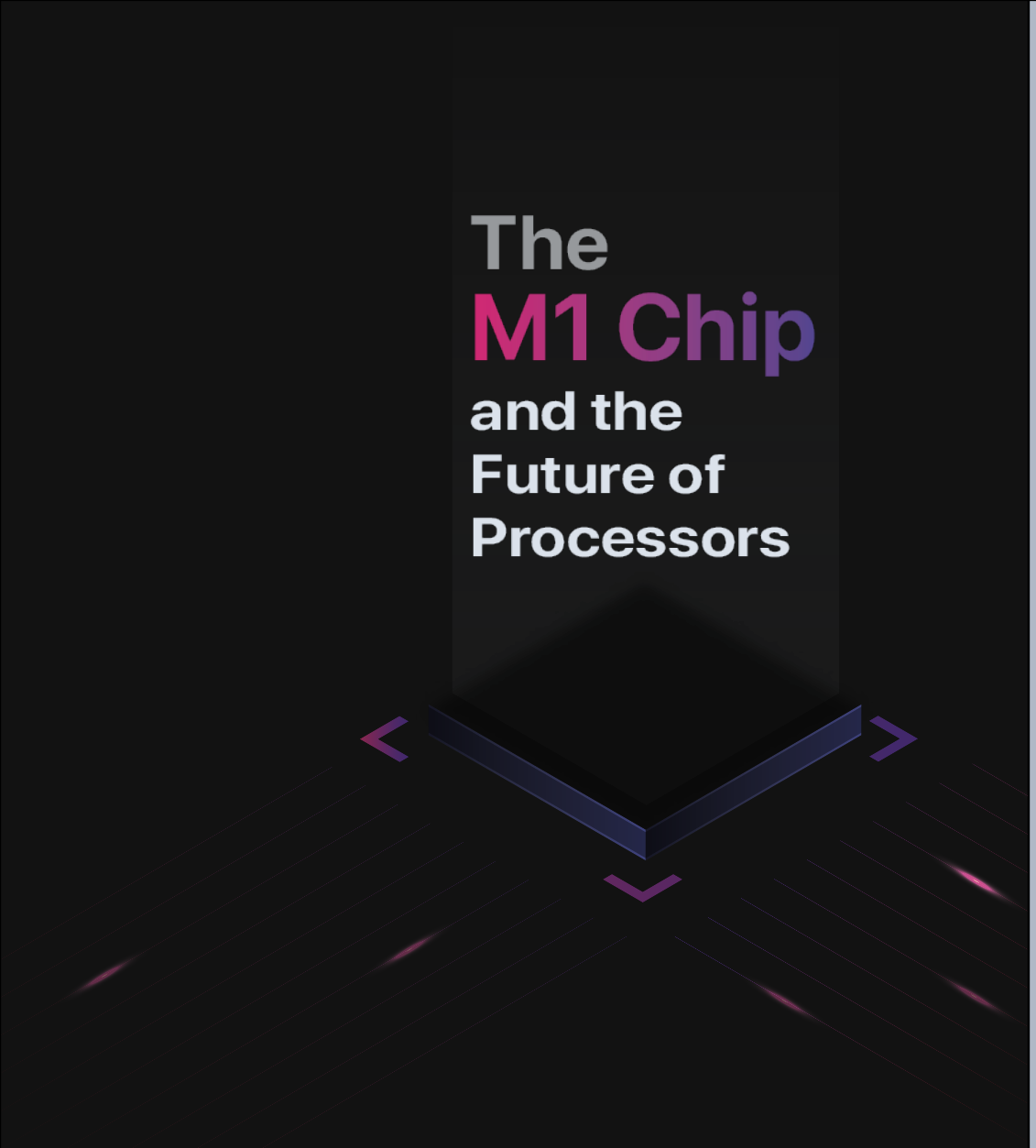
10. A file that keeps a permanent record of all the transactions that have taken place between two parties on the blockchain network is called

Answers:

Across
3. Satoshi Nakamoto
6. 21
7. True
9. Cryptocurrencies
11. Bitcoin
12. Mining

Down
1. SHA-256
2. Dogecoin
4. Three
5. False
8. Encryption
10. Ledger

The M1 Chip and the Future of Processors



- SUSHANTH SHENOY

In November last year, Apple unveiled the M1 chip, sending tech enthusiasts into a frenzy. The chip was described as path-breaking, revolutionary, and disruptive, among other things. After all this hype, one might think Apple would have invented something new. Well, no. Apple just used a mobile phone processor in a laptop. Sounds crazy, right? Not quite.

Traditional desktops run on CPUs having X86 architecture, while the new M1 chip has ARM architecture. The ARM architecture has been used in CPUs made for mobile devices for a long time. However, this is the first time that a powerful ARM processor has been developed for PCs. But how are ARM and X86 chips different? To understand this, we have to delve deeper into CPUs.

Central Processing Units or CPUs are the brains of computers. They do all the billions of calculations a second that make our devices run. CPUs run on instruction sets. The difference between ARM chips and X86 chips is in how these instruction sets are executed. In the 80s, X86 chip manufacturers started adding several complex instruction sets that made the chip's functionality bloated. These chips also used more power. This type of chip architecture came to be called Complex Instruction Set Computing or CISC. Meanwhile, Acorn computers, a UK-based company, pursued their Acorn RISC Machine (ARM) project to develop another chip architecture called the Reduced Instruction Set Computing or RISC. These chips could perform only simple instruction sets and were found to be extremely power efficient. power, are less efficient, and produce more heat. However, since Intel's chips were used in desktops that were anyhow plugged in, power efficiency was not a major consideration at that time.

With the advent of smartphones, ARM chips were in high demand due to their superior efficiency and low power consumption. In fact, Apple had called on Intel to develop processors for its iPhone, and the offer Intel passed on. This would be a decision that would come back to haunt Intel in the coming years. Apple went on to develop its own ARM chips after licensing the technology from Acorn.

In 2012, Apple released their first fully custom-designed CPU, the A6 used in the iPhone 5. Apple then led the way in adopting the 64-bit architecture in their A7 chip, beating ARM's own CPU team by more than a year. By the time 2020 rolled around, the Apple A14 chips in iPads were performing better than Intel's chips in MacBooks. Intel's flagship chip, the Core i9- 10900K, which costs upwards of $3000, uses 125 watts of power while Apple's A14 CPU, costing a mere $700, not only performs better but also uses only 5 watts.

The rapid advancement of the ARM architecture technology, combined with a lack of significant progress in the X86 technology, pretty much forced Apple to abandon Intel processors and develop their own CPUs for future Mac-

Books. In November 2020, Apple unveiled its newest processor to take on the PC- the M1 chip. Apple claims the M1 to be the fastest CPU in the world- a claim that most in the tech community concur with. However, this shouldn't have come as a surprise. The world's fastest supercomputer- the Japanese Fugaku, which is three times faster than the 2nd fastest one, is built using processors with ARM architecture.

"But why is this such a big deal?" you might wonder. After all, not everyone needs high-speed processors. But while needing a more powerful computer isn't relevant to everyone, having more efficiency and less power consumption is. And ARM processors lead the way in both power and efficiency, making them the obvious choice for consumers.

What about Intel, the company once known for its path-breaking innovations in CPU technology? While Intel will continue to be the market leader for the next few years, due to familiarity, inertia, and multi-year purchase agreements, it is the medium to long-run prospects that do not look encouraging. Its rival x86 manufacturer, AMD, is making a serious play for overall market leadership. At the same time, Intel faces several ARM-based competitors: Qualcomm and Apple in laptops and Amazon, Ampere, Nuvia, and all other Neoverse-based products in servers.

What does this mean for the future of processors? Similar to events subsequent to the launch of the iPhone when Apple revolutionized the mobile phone industry, we can expect more manufacturers to follow Apple's lead and move to ARM processors. Microsoft recently announced that they would be developing their own chips based on ARM architecture for use in their Surface line of personal computers. AMD is also said to be working on its own ARM processor. Nvidia, a company known for its graphics cards, recently acquired Arm for $40 billion, indicating their intention of getting into the CPU business. As consumers, we can only be excited for future laptops that have incredibly long battery lives and have the CPU power of desktops while also being economical.

THE REAL LIFE OF DEEP TECH ENTREPRENEURS

-SARAH

One of the few lighter aspects of the pandemic has been the entertainment renaissance that it has sparked. During this time, I came across a documentary on the lives of deep-tech entrepreneurs of Switzerland. It was a far cry from Aaron Sorkin's witty banter in "The Social Network", which has painted the popular narrative of startups as fast-paced theatrically inspiring stories. The six startups featured in the documentary "Startup: The Real Life of Deep-Tech Entrepreneurs" are inspiring in their own right. But, in the absence of a coherent voice-over, the viewer is left to draw his insights about Switzerland's deep-tech startup arena.

"Startup" is an observational documentary by Manuel Stagers. It follows young entrepreneurs working on artificial intelligence, drones, 3D printing, cleantech and biotech. The existing portrayals of entrepreneurship have pushed forth the glamorous perspective of starting a company, one where a founder is often a lone gladiator putting a dent in the universe. It is fun to watch, but it is awfully deceptive and harmful. As a result, the mainstream world remains aloof of the real grunt work that starting any company entails.

"The camera follows the founders at work in their labs and shines a light on innovation and entrepreneurship without hype."- says Stagers. "(The documentary) start-up gives you an idea what it looks like inside a deep tech startup and lets you discover startup life on your own terms."

The opening scenes of the documentary are chaotic, featuring people attending a conference at ETH Zurich. The scenes skip between different conversations setting the format of the entire documentary. The moment of coherence arrives as one of the speakers at the conference points out that Switzerland is one of the top countries on the International Innovation Ranking Index. Naturally curious, I found this index ranks 110 countries, looking at both the business outcomes of innovation and the country's government's ability to encourage and support innovation through public policy. Sure enough, Switzerland ranks third on this index. India ranks forty-sixth.

The startups featured stress on the social impact that they are creating. They consistently talk about green technology and reducing emissions through their products.

The social impact that deep tech startups communicate is often more convincing to investors than the economic impact. This is because deep-tech startups have a long gestation period. This translates to a higher risk for a long period of time. Deep tech companies have a longer lifecycle before they can scale and become commercial successes. Leading with a lasting social impact, rather than complex details of technology helps in securing funding from the "patient" investors.

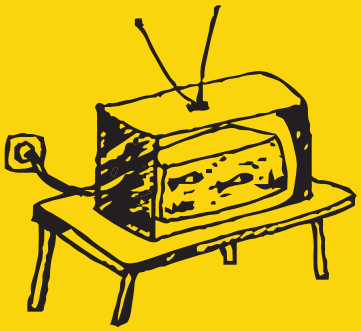
One of the most surprising parts were the extensive scenes in laboratories and

factories. In my head, I am accustomed to thinking of deep tech as largely software-based enterprises. However, it makes sense because deep tech is a tool that has applications beyond analytical services. It has a far reaching impact on design and hardware-based products too. Perfecting the latter involves extensive experimentation, which all the more means deep tech can't flourish without hefty funding.

The documentary on a whole proceeds at a snail's pace. It has surprisingly long shots of fishes swimming in an aquarium, making me question if I am missing a metaphor here. The way I interpret it was that startups are very very slow endeavors. When a new cure is made available, when rocket launches happen or a startup reaches an astonishing following, the whole world revels in the collective joy that ripples from these successes. But the daily work of scientists and entrepreneurs is invisible to the public. It is both grounding and humbling to have this backdoor into this series of small steps forward stretching across months and years on end.

This time period is only more pronounced in deep tech startups. They require venture capitalists who are versed in technology commercialization models and have the foresight to interpret the startup's IP assets. On one hand, there is no dearth of investors willing to support companies that are just starting out, but access to larger investors are largely restricted. The small size of the Swiss market is also a constraint on the growth of these startups.

When the founders in the documentary were asked about their reasons to startup, we find most of the founders were Ph.D. students coming out of ETH Zurich who wanted to see the technology that they had built in their labs, to make its way as a product in the field. Knowledge transfer is a pivotal service that universities offer to societies. But the road from labs to market is fairly complicated. India ranks 6th when countries are ranked according to their R&D expenditure. When compared to its 46th position in the Global Innovation Index, we understand something has gone terribly wrong in between.



Deep-engineering based products in India are in a nascent stage. But for the few companies that do have a market-ready product, India does not have a mature market to buy these. Founders tend up finding customers in other countries. But India has tremendous echnological prowess and a wider space to foster the expansion of deep-tech markets. With time and strategic policies in place, deep tech startups would soon be flourishing all over the country.

HOW SMART ARE SMART CONTRACTS?

-SAUMYA MATHUR

Rachel, a busy journalist wants to take an urgent flight. Due to this urgency, she makes a manual contract with the airlines in which she is to be refunded her money in case of flight delay exceeding 2 hrs. Unfortunately, the flight got delayed by more than 2 hrs. and Rachel had to ask for the refund. But because the contract was manual, she had to put in lots of efforts to make the airlines pay. Now consider another scenario, Rachel has a smart contract about these terms with the airlines that is fully automated. The contract tracked her flight and as soon as the delay exceeded 2 hrs. the refund amount got automatically transferred to Rachel's account. Simple right?

Now a question that arises is what exactly are these smart contracts?

Generally, when two parties want to make a contract, regarding any financial or non-financial issue, they need help from a third party that can be a lawyer, government or some other organization. For this the first two parties must "trust" the third one, something that is difficult in today's world. Now what smart contracts do is that they reduce the need for this third party by using codes and algorithms that are committed to the blockchain. By doing so it not only reduces our efforts and expenses but also are way more secure and ensure full transparency.

These smart contracts perform three major functions that are storing, verifying and then self-executing rules. They can be thought of as very secure vending machines. Like every vending machine stores rules such as required amount for the snack of your choice. Then it verifies the amount put in by you and finally you get to eat your favorite snack.

Smart contracts can be useful in many different areas. In today's times when youth is so influenced by the entrepreneurial or commonly called the startup culture, especially in India, people will agree that collecting funds to start is one of the most difficult tasks. But smart contracts make these crowdfunding a lot simpler. A smart contract is created by the project team to get their project funded and is programmed such that a minimum goal for funds is set. Now, people who believe in their projects put their money in that contract. If the project is successfully funded then the money goes to the project team but if project does not get funded fully then, money automatically goes back to the respective funders.

This effectively cancels the need for the intermediate fundraising platforms like Kickstarter and not only saves the expense but also, prevents us from trusting such third parties with our money.

Now why should we trust these smart contracts? There are two major reasons for this. First one being that these are immutable. This means that once a smart contract is created it can never be changed. So, no one can go behind

your back and tamper with it. Second major reason is that these are distributed or decentralized. It means that a transaction has to be validated by all people on that blockchain network. So, a single person cannot force to release the funds if the minimum goal is not met because other people on the network will spot this and mark it as invalid.

Smart contracts also have various other uses that are more prominent in day to-day life like being used in government voting systems and for storing healthcare records of patients with only a private key. These healthcare records, stored on a blockchain can be automatically linked with the insurance companies' database to ensure full transparency. This technology is also a boon for the supply chains as it bridges the gap between physical and virtual markets.
Every coin has two sides thus, smart contracts also have some limitations of their own. Generally, in manual contracts that are used by individuals for example a rent agreement contains some vague terms. These smart contracts are unable to consider these vague terms. Also, the property of them being immutable also has a negative impact as after it is employed to execution any changes that are mutually agreed by both of the parties or corrections of any loopholes can be time consuming and expensive. Also, although such contracts seek to eliminate third parties it is not possible to do so completely. Generally, a developer is needed to write such contracts because in most of the cases both the parties do not possess the technical knowledge to write one.

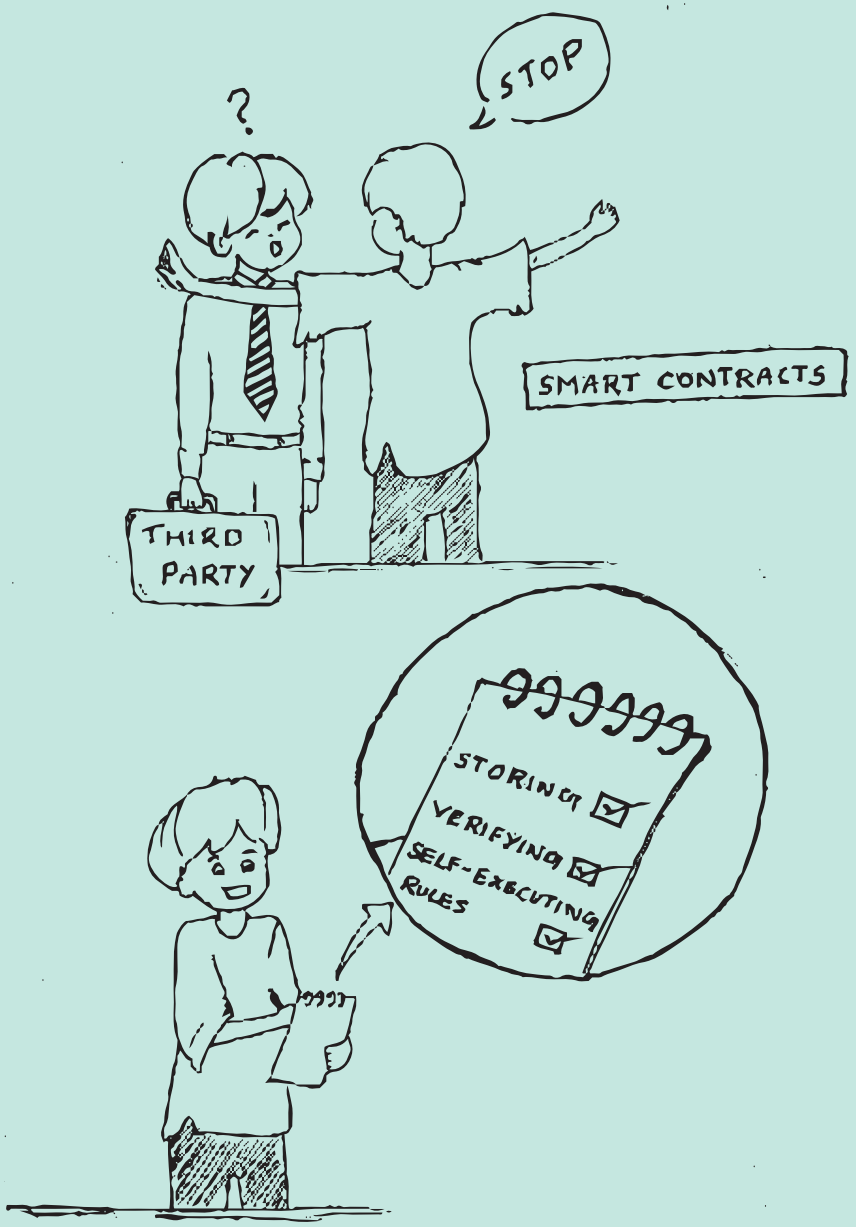
Now, the question arises that by which platforms can we actually write a smart contract.

Today, there are a lot of general-purpose smart contract platforms which can be used to write them. Ethereum is the most common one among them. It is the second generation blockchain technology after bitcoin blockchain.

Let us suppose that Jack has to pay Rs. 1 lakh to Elsa for building his companies website. For this he makes a smart contract with her using Ethereum as a platform. Firstly, developers code the agreement of smart contract using "solidity", the coding language used by Ethereum to deploy smart contracts which has its basis as the java script. Once the code is written it is uploaded on the Ethereum virtual machine and a copy of this contract is given to all the concerned parties. Now, Elsa submits the work on Ethereum for evaluation.

Each node then evaluates and confirms whether the work done by her is as per the coded requirements. After her work passes this test, the smart contract is then self- executed and Elsa is paid in "ether" which is the cryptocurrency of the Ethereum blockchain. All the transaction and in-process charges are also paid to developers in ether only.

Now, blockchain technologies like cordano are also available and are being considered as the third generation blockchain technology. Such technologies are helping the smart contracts become smarter. Thus, all in all, smart contracts are the need for the future and make our work much faster, simpler and cheaper.



INTERVIEW WITH

AJAY KAUSHAL

Ajay Kaushal is a Director and co-founder of BillDesk, one of India's largest electronic payment platforms. He is on the Board of Trusteesof the Charities Aid Foundation India (CAF India). Prior to setting up BillDesk, Ajay has worked with SBI Capital Markets and Arthur Andersen. Ajay graduated in Electrical Engineering from IIT Madras and completed his PGDM from IIM Lucknow.

INTERVIEWED BY ISHAAN
EDITED BY DHRUV BAWA

Billdesk, founded by you, MN Srinivasu and Karthik Ganapathy, is an online payment gateway company, so how did you stumble upon this idea?

We didn't stumble; we wanted to do this(laughs).

We were all part of consulting and financial services. At that time, many people were setting platforms for iballs and getting advertising, so we thought of transaction-related payments, especially recurring payments, so we began with bills. So we tried to build a business where people make a payment towards the bills every month and hence we should offer a platform to the banks so that the customers of banks can pay their bills electronically.

Founded in the 2000s, how was the market for online banking and transaction system back then?

There was nothing online, and we were among the first ones to come up with this idea and build a model where everybody in the chain could earn something. The main focus was to create the product and create a good commercial model around that idea, and it did well for us, and that's what I think was one of our key success factors.

Also, I have heard and read many times that a crucial aspect of a company's start is to find the right co-founders. So how did you guys meet each other?

We all worked at Arthur Andersen LLP and had common entrepreneurial interests, and we used to discuss, meet often, and liked each other. So eventually, we developed a relationship amongst us, and the equation struck between us. In the end, it worked out for us.

For someone starting afresh, has an idea, and wants to build a company, how do you think they can make the team and find the right co-founders?

Firstly, co-founders and your team are two different aspects of your company. Co-founders are essential as they stand on one side, rest all on the other side of the line. You can have investors, employees, and various peoples, but the two-three people will remain with you on the same page. That's where you need the equation and, mutual respect and faith for each other come into play.

The Indian online market is growing at a booming rate of 50% a year. What do you think is the reason for this unprecedented change from paper currency to online digital currency? Adding to it, do people question this system's safety, and how do companies convince them regarding the same?

Firstly, I think it's a simpler, faster, efficient, and convenient way for transactions. Coming to the second part, you have seen all the banks, the RBI cautioning people not to part with their passwords, their OTP, Security pins, etc.; that's what makes it safer. Also, India has the least % of fraud, and here money moves the fastest, money moves the cheapest, and there is no fraud which harbors this safe ecosystem.

Even though many people are not so well educated, the RBI, the government, and the participants have created an entirely predictable and robust ecosystem!

The startup scenario has changed a lot since when you started, and as it is now, what are the differences you see and think are important to notice?

Like you rightly said, there are so many people who want to do a startup, fund, sell services, so there is a big ecosystem around this; hence to leverage this eco-system, one must be a part of that ecosystem. Take the example of google cloud to provide free storage space. Similarly, Microsoft may give some other free service because they want you to pay them as they grow. So I think everything is conspiring towards creating more startups. But finally, a startup is a business, so you need to see that it moves from a startup to a business and will that business add value and maybe be commercially successful.

Because you can always be a feature for somebody else, like a feature for a phone, for a sale source, quality for oracle, or you might create technology that others can buy and make better use of. Or it can simply be a strategy to start a business.

You did your Electrical engineering from here, IITM.So how did the culture here help you in any way get you where you are today?

I think coming here and meeting new people, engaging with those people, living together with them in hostels, and making it work with people. According to me, a hostel teaches you to deal with people; it makes you humble enough to make you know that you're not cats -whiskers, and when you see enough smart and good people around you, know your place in the institute. It's important to be humbled because all people we meet on our way up and down, and we should learn to deal with them.

After completing your Electrical Engineering at IITM, you went on to complete MBA from IIM. What brought about that change? Also, what is the difference you see between IITs and IIMs?

I always wanted to do an MBA. I found investment banking an exciting thing, and for that MBA was necessary.

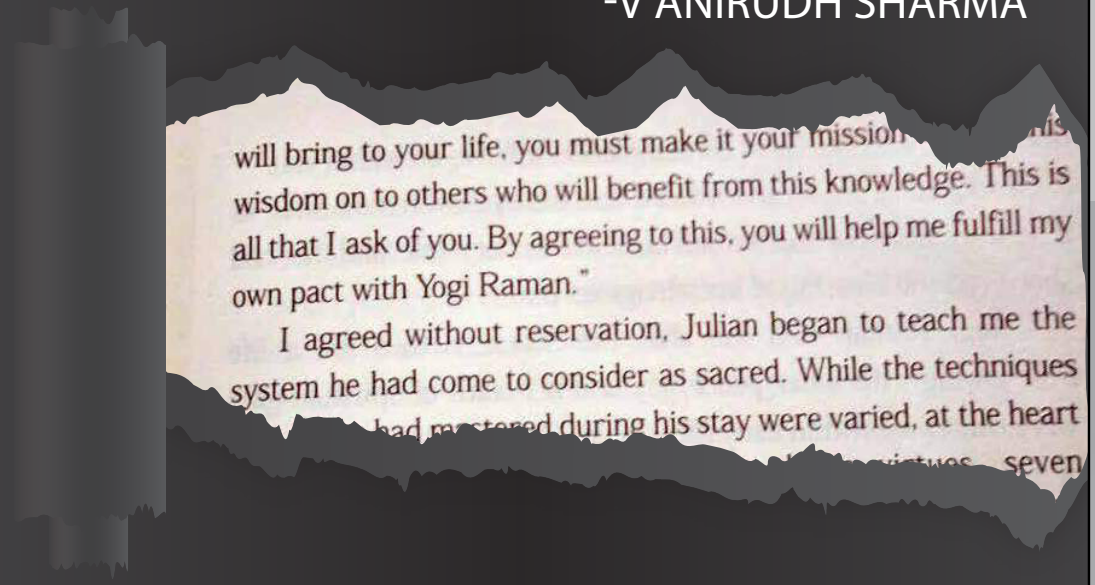
At IITs, you find longer-term friends. The people here in IITs have some passion, theoretical physics, electronic circuits and may go for Ph.D. and research in those fields. In contrast, at MBA Lvl, there is no such thing... because an MBA program is a commercial activity, a program created to be sold – like you can pay the university, and you could be hired by the consultants(laughs). In the end, it's an incestuous cycle, but that's how the world works.

Any message you want to share with students ?

Work hard but also make sure you keep your relationships, your technology, and your passion alive and make all these things come together because there is no one line to success, it's a mix of everything, and it just so happens that you need that mixture to make it work!

BOOK REVIEW

-V ANIRUDH SHARMA



will bring to your life, you must make it your mission [illegible] wisdom on to others who will benefit from this knowledge. This is all that I ask of you. By agreeing to this, you will help me fulfill my own pact with Yogi Raman."

I agreed without reservation, Julian began to teach me the system he had come to consider as sacred. While the techniques [illegible] had mastered during his stay were varied, at the heart [illegible] seven

The Monk who sold his ferrari

BY ROBIN SHARMA

A Fable About Fulfilling Your Dreams & Reaching Your Destiny

Introduction

Julian Mantle, a hotshot litigator, collapses during a court session due to a massive heart stroke. He takes this event as a wake up call, auctions away his worldly possessions and heads to India in search of spirituality and answers. His journey leads him to a cult of Himalayan sages. He learns their techniques for leading the best of life and lives with them for a while, in exchange for a promise: to return back to the western world and teach their ways to those in need. He returns to his homeland, and decides to meet his ex-apprentice, John, a younger-brother figure, and bless him with the ancient knowledge of the Sages of Sivana. These teachings are the core content of the book.

The Fable

After setting up the scene from chapters one to five, the core content of the book begins. In chapter six, Robin Sharma presents an extremely short fable that, without context, makes no sense. Each event of the fable represents a virtue; a segment of the Sivana knowledge. This fable is the condensed content of the whole book and the rest of the book is all about explaining each event of this fable.

Each chapter from here teaches the importance of a virtue and techniques to emboss them into our life.

The Virtues

Chapter 7 employs a green garden to metaphorize the human mind and teaches us the importance of being the master of our mind and techniques to take care of our thoughts. Robin Sharma presents a beautiful and thought provoking point of view at the working of the human mind, preaching that each thought is a physical entity that can be controlled with practice, and we can't afford even a single negative thought.

Chapter 8 is about finding and following the purpose of our life, explaining

the importance of setting goals and quoting that the purpose of life is life of purpose. The author provides a broader, unique and logical meaning to “setting goals”. The author urges the readers to take risks and pursue small passions and hobbies in order to realize our purpose.

Chapter 9, the lengthiest and the most influential chapter of the book is about being the best version of oneself by constant self improvement, or Kaizen, as the japanese named it. Robin Sharma presents The 10 Ancient Rituals of Radiant living, which when practised for a month can truly be life changing. I personally followed these and have seen drastic changes in my thought process and improved sense of satisfaction and happiness. The author also talks about constantly pushing ourselves outside the comfort zone to become a better person, everyday.

Chapter 10 talks about the power of discipline and will-power and Chapter 11 talks about the importance of time and balance of life.

The content of these chapters is what we find in almost any self-help book.
The author professes that our ultimate purpose here on earth is to help fellow beings and the quality of one’s life ultimately comes down to their quality of contribution to the world. He explains that embracing the present and savouring every moment is the key to perpetual happiness. These are the final two virtues elaborated in the book.

Review

The content of the book could be simply put into a few pages of rules for good life, but the narration, elaboration and explanation provide the motivation to embrace the ideas and techniques. Throughout the book, Robin Sharma does what he does best; motivating and teaching the readers to become their best, in the best way. Regarding the story of the litigator-turned-monk, it is not one of success, but of the failure caused by obsessive pursuit for success and the success that realizations from this failure paved the way to. It invokes the readers to retrospect their own journey and state, and feel an urge to improve. For young entrepreneurs, who could easily get lost in their endeavor and forget themselves, this book would be a friend who would constantly remind the need for balance and happiness in the intense and non-linear journey of entrepreneurship.

TL;DR.

1. All about how to lead a happy and contented life, narrated relatably.

2. Highly effective techniques have been mentioned.

3. Convincing motivations and explanations provided for each technique.

4. Written to be easily remembered

5. Chapters 7 and 9 make this book unique.

6. A perfect book that teaches aspiring entrepreneurs to lead a life of balance, happiness, discipline and purpose.

7. Worth multiple readings.

About the Author

(from robinsharma.com)

Robin Sharma is one of the world's premier speakers on Leadership & Personal Mastery. For nearly 20 years, many of the most well- known organizations on the planet, ranging from Nike, GE, Microsoft, FedEx, PwC, HP and Oracle to NASA, Yale University and YPO have chosen Robin Sharma for their most important events. Sharma's books such as The Leader Who Had No Title have topped bestseller lists internationally. He is a global phenomenon for helping people do brilliant work, thrive amid change and realize their highest leadership capacities within the organization so that personal responsibility, productivity, ingenuity and mastery soars. Sharma has been ranked as one of the Top 5 Leadership Experts in the World in an independent survey of over 22,000 businesspeople and appears on platforms with other luminaries such as Richard Branson, Bill Clinton, Jack Welch and Shaquille O'Neal.

The more we can break
the rules,
the better off we are going
to be.
-Indira Nooyi

Designed by Ananya Sangeetha

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