BRIGHT tcet IT ENGINEERS

tcet
THAKUR COLLEGE OF ENGINEERING & TECHNOLOGY
Estd. in 2001

ACM TCET"S

EZINE

2023 14th EDITION
VOLUME 2

FIND INSIDE

- BLOCKCHAIN 3.0
- CYBERSECURITY
- ROBOTIC PROCESS AUTOMATION
- WAVE OF ENTREPRENEURSHIP

ACM TCET

GRADUATE ATTRIBUTE

1. **ENGINEERING KNOWLEDGE:** Apply Knowledge of Mathematics, Science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

2. **PROBLEM ANALYSIS:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

3. **DESIGN / DEVELOPMENT OF SOLUTIONS:** Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.

4. **CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS:** Using research based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.

GRADUATE ATTRIBUTE

5 **MODERN TOOL USAGE: Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.**

6 **THE ENGINEER AND SOCIETY: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.**

7 **ENVIRONMENT AND SUSTAINABILITY: Understand the impact of professional engineering solutions in societal and environmental context and demonstrate knowledge of and need for sustainable development.**

8 **ETHICS: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.**

GRADUATE ATTRIBUTE

9 **INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.**

10 **COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation,make effective presentations and give and receive clear instructions.**

11 **LIFE-LONG LEARNING: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.**

12 **PROJECT MANAGEMENT & FINANCE: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects inmultidisciplinary environments.**

PROGRAM SPECIFIC OUTCOMES

PS0-01

To develop the culture of augmenting existing technologies to create scalable IT solutions.

PS0-02

To combine various technologies like IoT, Cloud and Analytics to provide integrated solutions to real time problems of government or industries.

PS0-03

To master in moulding any problem into a web or internet based solutions.

PROGRAM EDUCATION OUTCOMES

PE0-01

To prepare learners with a strong foundation in the area of information technology required to solve real life problems arising through software technology. [Knowledge]

PE0-02

To prepare learners to be knowledgeable of the ethics, professionalism and cultural diversity in the work environment to meet applicable standards with continued motivation for research and development. [Skill & Professionalism]

PE0-03

To prepare learners to understand the need for lifelong learning with effective written and oral communication skills and to be able to readily adapt to new software engineering environments. [Attitude, Presentation and Growth]

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DEPARTMENT OF
INFORMATION TECHNOLOGY

ABOUT THE DEPT:

The department of Information Technology, started its journey in the year 2002 and is committed to deliver the program with rigor and with active industry participation. Department has 120 seats intake at first year and 24 seats as lateral entry at 2nd year for engineering diploma students. The department believes in student centric approach. Its dedicated team of faculty members inculcate relevant knowledge, skills and attitude in students to become successful professionals. The U.G. programme is accredited by National Board of Accreditation (NBA), New Delhi for three years w.e.f. 16.09.2011. UG Programme has been re-accredited for 3 years b by NBA w.e.f 1st July 2016. Also t the programme is permanently affiliated with UOM since AY 2015-16 onwards.

MISSION:

The IT department is committed to enrich students by rigorously implementing quality education with focus to make them industry ready, while imbibing in them professional ethics and social values to become responsible citizens.

VISION

"The department of IT will strive to be at the top position among the renowned providers of IT education".

FOREWORD

Dr. Kamal Shah

Vice Principle, Dean, R&D Cell

In today's fast-paced world, rekindling the flame of invention and encouraging curiosity in young brains is critical. The Department of Information Technology publishes Ezine, which attempts to incorporate student ideas and encourage active engagement in the learning process. Ezine has established a significant benchmark in showcasing students' hidden inherent talent by providing them with an unrivalled opportunity and an excellent platform to not only express their ideas and creative potentials, but also to voice out their personal opinions on topics that are of utmost importance in the lives of students. A departmental magazine is designed to not only disseminate information, but also to introduce a whole new intriguing and thrilling arena of content in which students can explore their hobbies and feed their curiosities. Unlike previous technical journals, Ezine has expanded beyond science and technology to include other important fields, giving students the opportunity to investigate inter-disciplinary aspects of themes and to excite their natural curiosity. The Editorial Committee has made excellent use of the platform offered to them in harnessing the talents of all of the energetic students. I want to express my heartfelt gratitude to the entire Editorial Board for bringing us this muchanticipated college magazine, which meets not only the stringent standards of punctuality but also curates information of the highest quality

Dr. Sangeeta Vhatkar

Associate Professor, I/C. .HOD-IT
ACM Branch Counsellor.

"All of us do not have equal talent. But, all of us have an equal opportunity to develop our talents" - APJ Abdul Kalam

The E-ZINE Magazine is Published by the Department of Information Technology at Thakur College of Engineering and Technology. This is not a just Technical magazine but it speaks about overall growth of student personality. We encourage our students to think and write and thus help them in developing their writing skills and talent. Magazine also help them in developing their power of thinking and strengthen their imagination as well.
This year the E-zine magazine focuses on current trends in technology like Cybersecurity, Blockchain, RPA and Entrepreneurship. Apart from the department magazine E-zine we are also publishing Newsletter describing the events that occurred this semester and a Bulletin highlighting the achievements of students and faculty members.

My Heartiest Congratulations to TCET-ACM Publication Head and Congratulations to entire editorial team for creative work. I hope that E-zine magazine will Provide platform for Overall development of Stakeholders.
I am thankful to Management of Thakur College of Engineering & Technology for providing State-of-Art Infrastructure and all Possible Support in caring out multidimensional activities and Event. I am also thankful to our Principal, Dr. B.K. Mishra, our Vice-Principal, Dr. Kamal Shah, for encouraging us and providing us with a fabulous platform like E-zine 2023 to express our ideas and thoughts.

KRISHI CHAURASIYA

ACM PUBLICATION HEAD

Ezine's mission is to provide a platform for students,researchers,academicians,parents and other to share,showcase and exchange profound ideas and knowledge about technology,research,innovation and development.

We are back with another new edition!

The 14th edition,Volume 2 has arrived!!

Ezine is published by the department of Information Technology,which incorporates student ideas and encourages active learning by participating in the process.

It not only provides information but also introduces a lot of new exciting content for students to sate their curiosity.

Ezine is also an important platform for students to voice out their opinion on topics that are of utmost importance to the growth and learning of students.

You'll be provided insights on various technical aspects along with a few additional non-technical works showcasing literary talents of our students.

I'd like to express my utmost gratitude to the Management of TCET,our HOD Dr.Sangeeta Vhatkar and faculty for providing us an transparent platform like Ezine to open up and express ourselves to the people.

I'd like to thank the authors for their time and articles we used to provide you all with plethora of bountiful knowledge.

I'd also love to thank our Ezine Creative team who have worked hard for this magazine and completed the work with utmost precision and care.

Pleasant reading!

ARTICLES

BLOCKCHAIN TECHNOLOGY

THE BEGINNING OF POPULAR TECHNOLOGY

Blockchain 3.0 refers to the latest version of blockchain technology, based on the advancements made by the first and second generation of blockchains.

One of the key features of blockchain 3.0 is its emphasis on scalability, interoperability, and sustainability. This is achieved through the development of new consensus mechanisms, such as proof of stake, sharding, and plasma, allowing for faster and more efficient transaction processing.

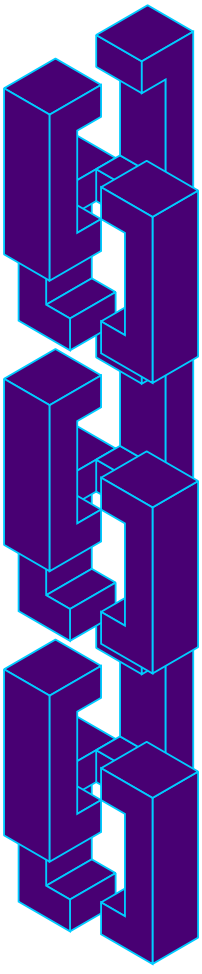
Additionally, blockchain 3.0 seeks to enable seamless communication and interoperability between different blockchains, allowing data and value to flow freely between them. This is achieved through the development of cross-chain protocols such as Polkadot and Cosmos.

Overall, the goal of blockchain 3.0 is to create a more resilient and robust blockchain infrastructure that can support a wider range of applications and use cases, from decentralized finance and games to management. supply chain and digital identity.

BLOCKCHAIN TECHNOLOGY: CHAINING DEVELOPMENT

Abstract

Blockchain technology has taken the world by storm since it was first introduced in 2008. In this article, we will take a closer look at what blockchain technology is, how it works, and its potential implications. So, the first question that arises in our minds is what exactly is blockchain and how does it work? To answer that let's first see –

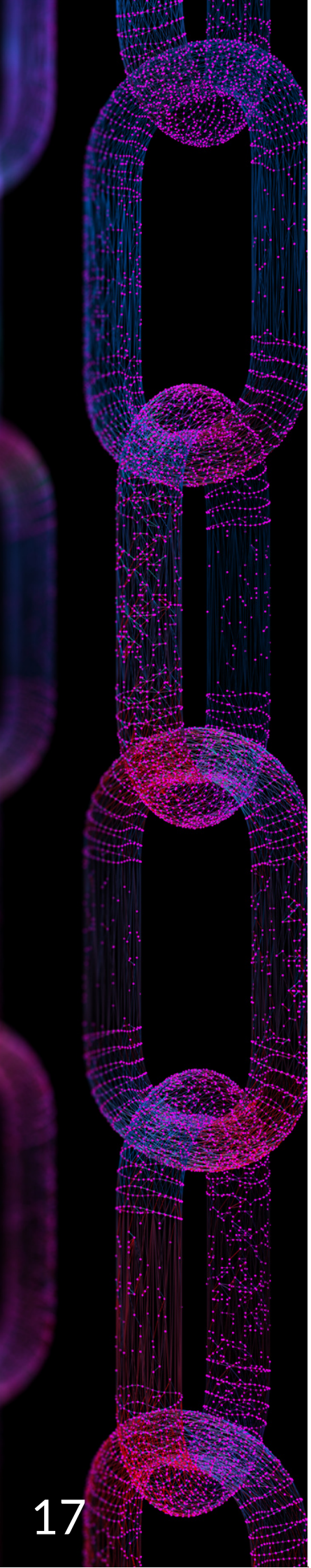


What is Blockchain Technology:

In simple terms, blockchain technology can be defined as a distributed ledger that records transactions in a secure and transparent manner. Each block in the chain contains a set of transactions that are verified by a network of nodes, and once a block is added to the chain, it cannot be altered or deleted. This makes the blockchain immutable, transparent, and highly secure and eventually the current best choice for cryptography. It was first introduced in 2008 by Satoshi Nakamoto, the creator of Bitcoin. It has been described as a revolutionary technology that has the potential to transform various industries, including finance, healthcare, supply chain management, and more.

How does the Blockchain Technology Works?

The blockchain technology is based on a decentralization system that allows participants to transact without the need for a centralized authority to carry that forward, such as a bank or a government. Transactions are validated by a network of nodes, each of which has a copy of the blockchain data. When a transaction is initiated, it is broadcasted to the network, and the nodes work together to validate the transaction and once the transaction is verified, it is added to a block, which is then further added to the chain.



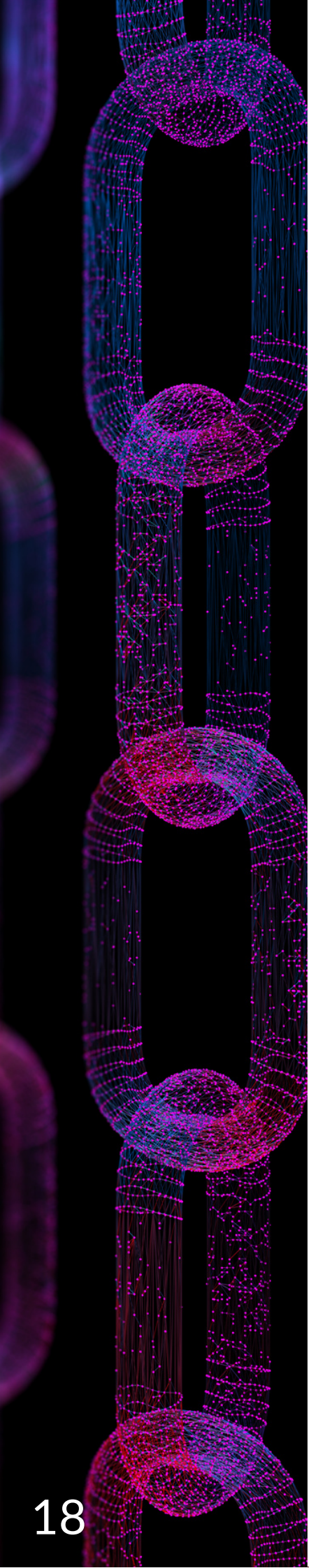
One of the key features of blockchain technology is the use of cryptography to secure transactions. Each block contains a unique cryptographic hash that links it to the previous block in the chain. This creates a chain of blocks that makes it highly resistant to tampering or hacking. In addition, the use of public-key cryptography ensures that only the owner of a specific private key can initiate a transaction and no one else.

Implications of Blockchain Technology:

Blockchain technology has the potential to disrupt various industries by providing a secure, transparent, and decentralized platform for transactions that enhances the security of the systems. Here are some of the potential implications of blockchain technology:

- Finance: Blockchain technology can revolutionize the financial industry by providing a secure and transparent platform for transactions, eliminating the need for intermediaries and reducing transaction costs. Blockchain enables more open, inclusive, and secure business networks, shared operating models, more efficient processes, reduced costs, and new products and services in banking and finance. It enables digital securities to be issued within shorter periods of time, at lower unit costs, with greater levels of customization. Digital financial instruments may thus be tailored to investor demands, expanding the market for investors, decreasing costs for issuers, and reducing counterparty risk.

- Healthcare: Blockchain's distributed ledger technology facilitates the secure transfer of patient medical records, strengthens healthcare data defenses, manages the medicine supply chain and helps healthcare researchers unlock genetic code. The technology is already being used to do everything from securely encrypting patient data to managing the outbreak of harmful diseases.



- Supply Chain Management: Blockchain makes global supply chains more efficient by allowing companies to complete transactions directly and without third parties. It also facilitates increased integration of financial and logistics services, enabling greater data collaboration between stakeholders. Blockchain technology can providen an efficient and transparent platform for tracking products and goods through the supply chain, reducing fraud, and improving supply chain management.

- Voting: Blockchain technology can provide a secure and transparent platform for voting, reducing the risk of election fraud. The blockchain voting system is decentralized and completely open, yet it ensures that voters are protected. This implies that anybody may count the votes with blockchain electronic voting, but no one knows who voted to whom and many other fields where blockchain can be used.

Conclusion :

Blockchain technology has the potential to transform various industries by providing a secure, transparent, and decentralized platform for transactions. While it is still in its early stages, the technology has already shown its potential in areas such as finance, supply chain management, and healthcare and many more. As more companies and organizations adopt blockchain technology, we can expect to see more innovative applications in the future. This growing technology can soon be used in almost every field of interest.

Sakshi Singh
IT-B

BEYOND BITCOIN: EXPLORING THE FEATURES OF BLOCKCHAIN 3.0

INTRODUCTION:

Since the beginning of its existence more than ten years ago, blockchain technology has advanced significantly. Blockchain 1.0, often known as the initial iteration of blockchain technology, was largely utilized for cryptocurrency transactions. Decentralized apps (dApps) and smart contracts were concepts presented in the second iteration, Blockchain 2.0. Blockchain 3.0, the next significant advancement in blockchain technology, is about to arrive. So, what is Blockchain 3.0 and how is it different from earlier versions? Fundamental characteristics of Blockchain 3.0 include interoperability, scalability, sustainability, privacy, and governance. Let's examine each of these characteristics in more detail and discuss their implications for the development of blockchain technology

INTEROPERABILITY:

A key component of Blockchain 3.0 is interoperability. The capacity of several blockchain networks to communicate with one another is essentially what it refers to. This implies that regardless of the underlying technology or protocol, data and assets can be smoothly exchanged between other blockchains.A fully decentralized ecosystem, where several blockchains can cooperate to accomplish shared objectives, requires interoperability

SCALABILITY:

Since its conception, scalability has been a significant obstacle for blockchain technology. The majority of blockchain network's low transaction throughput has posed a key obstacle to their widespread adoption. By offering new scaling technologies that can handle much more transactions per second, Blockchain 3.0 seeks to address this problem. Sharding, sidechains, and layer-two protocols are a few of these methods.

SUSTAINABILITY:

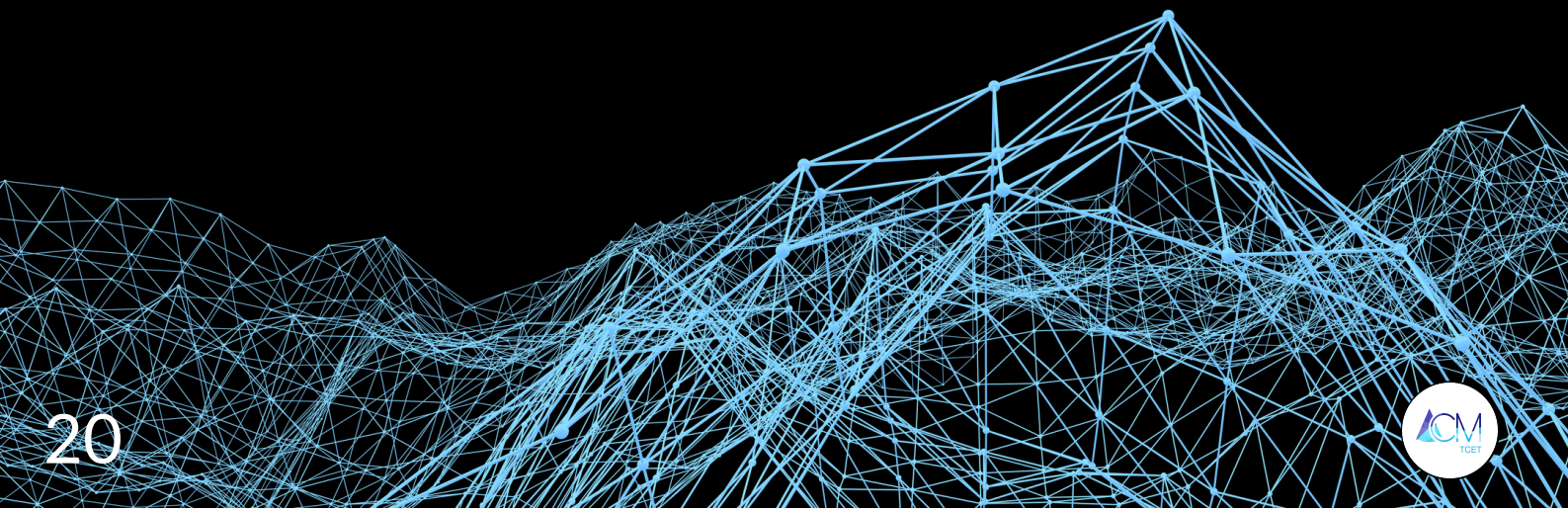
Since its conception, scalability has been a significant obstacle for blockchain technology. The majority of blockchain network's low transaction throughput has posed a key obstacle to their widespread adoption. By offering new scaling technologies that can handle much more transactions per second, Blockchain 3.0 seeks to address this problem. Sharding, sidechains, and layer-two protocols are a few of these methods.

PRIVACY:

Any blockchain ecosystem must have privacy as a core component. New privacy-enhancing features included in Blockchain 3.0 enable users to transact on the blockchain without disclosing their identity or previous transactional history. These technologies include, among others, stealth addresses, ring signatures, and zero-knowledge proofs.

GOVERNANCE:

Any decentralized ecosystem must have effective governance. New governance mechanisms that support more democratic decision-making are introduced by blockchain 3.0. These models include, among others, liquid democracy, quadratic voting, and delegated government.



THE PROSPECT OF 3.0 BLOCKCHAIN:

Blockchain 3.0 has the potential to completely alter the way we view blockchain technology. Blockchain 3.0 will enable greater collaboration and creativity, more efficient transactions, and a more democratic decision-making process because of its focus on interoperability, scalability, sustainability, privacy, and governance. Various industries, including finance and healthcare as well as supply chain management and social media, will be significantly impacted by this.

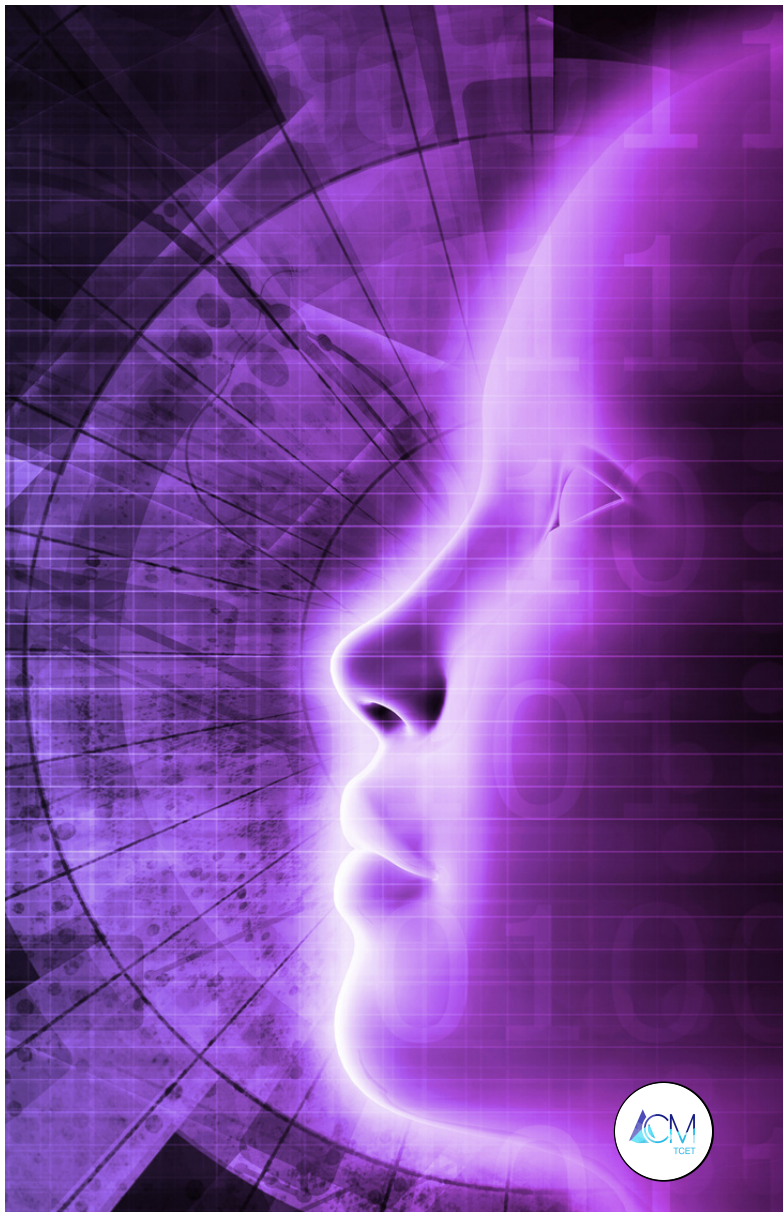
In conclusion, Blockchain 3.0 is the next significant advancement in blockchain technology. With its emphasis on interoperability, scalability, sustainability, privacy, and governance, numerous industries will experience even more innovation and upheaval. It will be fascinating to see what new use cases and applications appear as the technology develops.

Adhish Kaushal

POTENTIAL OF AI IN BLOCKCHAIN

Artificial Intelligence (AI) and blockchain are two emerging technologies that have the potential to transform various industries. AI can help blockchain systems to become more efficient, secure, and reliable. Here are some of the ways in which AI can be used for blockchain:

- Predictive Analytics: AI can help in making predictions about the future behavior of a blockchain network by analyzing past trends and data. This can help in optimizing the performance of the blockchain network and identifying potential vulnerabilities.
- Smart Contracts: Smart contracts are self-executing contracts with the terms of the agreement between buyer and seller being directly written into lines of code. AI can help in improving the accuracy and reliability of smart contracts by automatically detecting and correcting errors in the code.
- Fraud Detection: Blockchain systems are relatively secure due to their decentralized nature, but they are not completely immune to fraud. AI can help in detecting and preventing fraud by analyzing data patterns and identifying suspicious activities.
- Data Management: Blockchain systems generate large amounts of data, and AI can help in managing and processing this data more efficiently. This can help in reducing costs and improving the speed and accuracy of transactions.



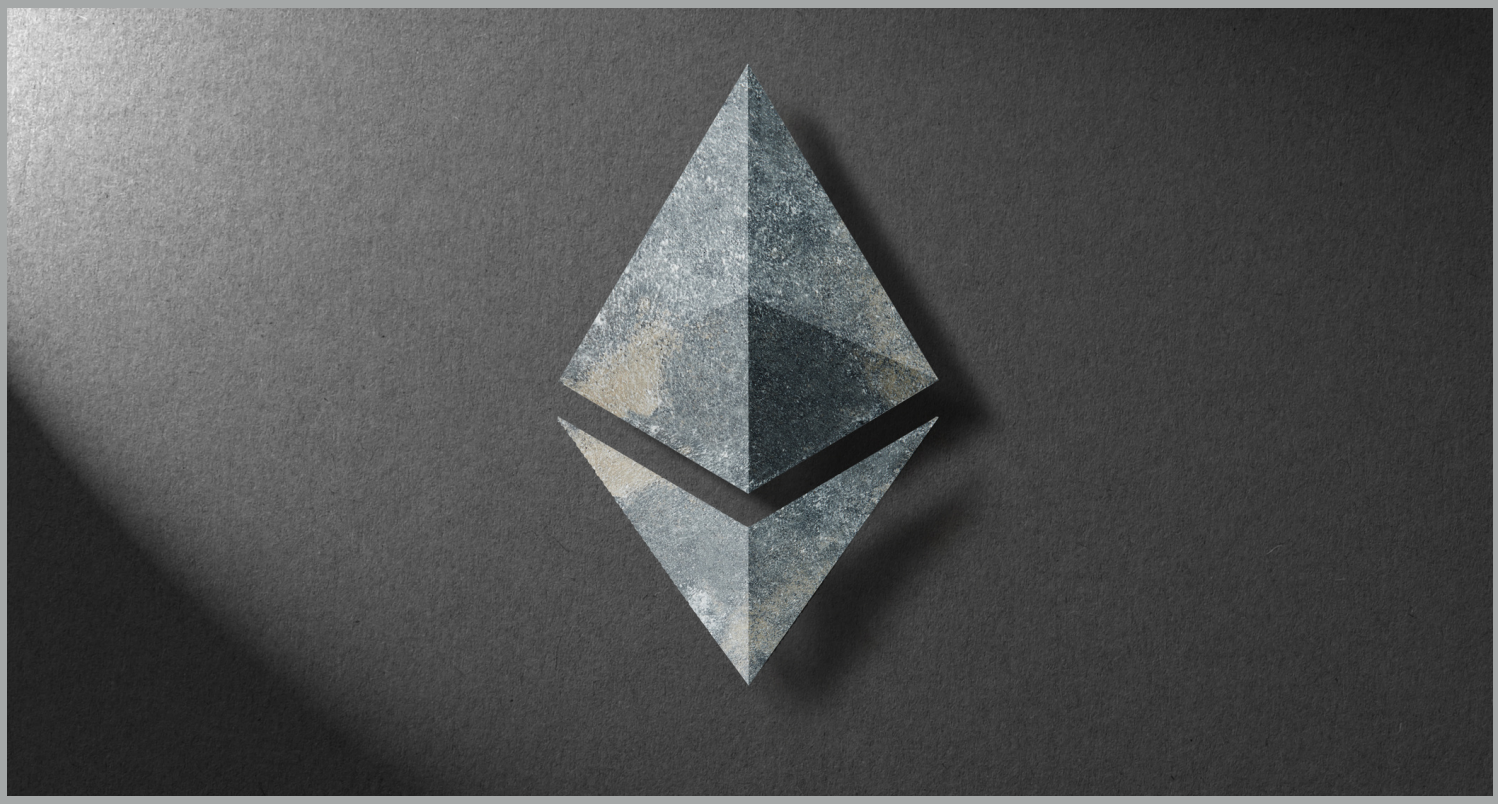
- Decentralized Autonomous Organizations (DAOs): A DAO is an organization that operates through rules encoded as computer programs called smart contracts. AI can help in improving the decision-making process of DAOs by analyzing data and providing insights that can inform the decision-making process.
- Cybersecurity: AI can help in enhancing the security of blockchain systems by identifying and mitigating potential security threats. This can help in preventing data breaches and protecting sensitive information.
- Overall, the combination of AI and blockchain has the potential to revolutionize various industries, including finance, healthcare, and supply chain management.

There are several algorithms of Artificial Intelligence (AI) that can be used in blockchain technology to enhance its efficiency, security, and reliability. Here are some of the key algorithms:

- Machine Learning (ML): Machine learning algorithms can be used to analyze data patterns and make predictions about future behavior. In blockchain, ML can be used for fraud detection, optimization of blockchain networks, and identification of potential vulnerabilities.
- Natural Language Processing (NLP): NLP algorithms can be used to analyze unstructured data, such as social media feeds and news articles, to gain insights about market trends and consumer behavior. In blockchain, NLP can be used to analyze user sentiments and improve the accuracy of predictive analytics.
- Deep Learning: Deep learning algorithms can be used to analyze large amounts of data and identify complex patterns. In blockchain, deep learning can be used for predictive analytics, fraud detection, and optimization of blockchain networks.
- Reinforcement Learning: Reinforcement learning algorithms can be used to train autonomous agents to interact with blockchain networks and make decisions based on their experiences. This can help in improving the efficiency and accuracy of decision-making in blockchain networks.
- Convolutional Neural Networks (CNNs): CNNs are a type of deep learning algorithm that can be used to analyze images and identify patterns. In blockchain, CNNs can be used for image recognition and analysis of visual data, such as in supply chain management.

Overall, the use of AI algorithms in blockchain technology can help to improve the overall efficiency, security, and reliability of blockchain networks, leading to improved trust and transparency in various industries.

Thanks & Regards,
Mrs.Shruti Mathur
Assistant Professor, TCET IT



ETHEREUM

- The Ethereum network is currently famous for allowing the implementation of smart contracts. Smart contracts can be thought of as ‘cryptographic bank lockers’ which contain certain values.
- These cryptographic lockers can only be unlocked when certain conditions are met.
- Unlike bitcoin, Ethereum is a network that can be applied to various other sectors.
- Ethereum is often called Blockchain 2.0 since it proved the potential of blockchain technology beyond the financial sector.
- The consensus mechanism used in Ethereum is Proof of Stakes(PoS), which is more energy efficient when compared to that used in the Bitcoin network, that is, Proof of Work(PoW). PoS depends on the amount of stake a node holds.

What is Ethereum?

Ethereum is a Blockchain network that introduced a built-in Turing-complete programming language that can be used for creating various decentralized applications (also called Dapps). The Ethereum network is fueled by its own cryptocurrency called ‘ether’.

ethereum

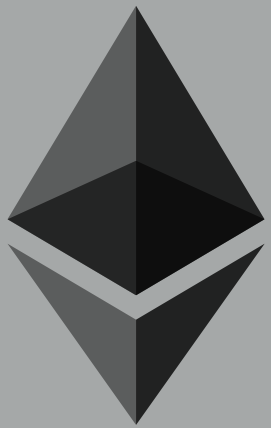
Features of Ethereum:

- Smart contracts: Ethereum allows the creation and deployment of smart contracts. Smart contracts are created mainly using a programming language called solidity. Solidity is an Object Oriented Programming language that is comparatively easy to learn.
- Ethereum Virtual Machine (EVM): It is designed to operate as a runtime environment for compiling and deploying Ethereum-based smart contracts.
- Ether: Ether is the cryptocurrency of the Ethereum network. It is the only acceptable form of payment for transaction fees on the Ethereum network.
- Decentralized applications (Daaps): Dapp has its backend code running on a decentralized peer-to-peer network. It can have a frontend and user interface written in any language to make calls and query data from its backend. They operate on Ethereum and perform the same function irrespective of the environment in which they get executed.
- Decentralized autonomous organizations (DAOs): It is a decentralized organization that works in a democratic and decentralized fashion. DAO relies on smart contracts for decision-making or decentralized voting systems within the organization.

Types of Ethereum Accounts:

Ethereum has two types of accounts: An externally owned account (EOA), and a Contract account. These are explained as following below:

- Externally owned account (EOA): Externally owned accounts are controlled by private keys. Each EOA has a public-private key pair. The users can send messages by creating and signing transactions.
- Contract Account: Contract accounts are controlled by contract codes. These codes are stored with the account. Each contract account has an ether balance associated with it. The contract code of these accounts gets activated every time a transaction from an EOA or a message from another contract is received by it. When the contract code activates, it allows to read/write the message to the local storage, send messages and create contracts.



ethereum

How does Ethereum work?

Ethereum implements an execution environment called Ethereum Virtual Machine (EVM).
When a transaction triggers a smart contract all the nodes of the network will execute every instruction.
All the nodes will run The EVM as part of the block verification, where the nodes will go through the transactions listed in the block and runs the code as triggered by the transaction in the EVM.
All the nodes on the network must perform the same calculations for keeping their ledgers in sync.
Every transaction must include:

- Gas limit.
- Transaction Fee that the sender is willing to pay for the transaction.
- If the total amount of gas needed to process the transaction is less than or equal to the gas limit then the transaction will be processed and if the total amount of the gas needed is more than the gas limit then the transaction will not be processed the fees are still lost.
- Thus it is safe to send transactions with the gas limit above the estimate to increase the chances of getting it processed.

Real World Applications of Ethereum:

- Voting: Voting systems are adopting Ethereum. The results of polls are available publicly, ensuring a transparent fair system thus eliminating voting malpractices.
- Agreements: With Ethereum smart contracts, agreements and contracts can be maintained and executed without any alteration. Ethereum can be used for creating smart contracts and for digitally recording transactions based on them.
- Banking systems: Due to the decentralized nature of the Ethereum blockchain it becomes challenging for hackers to gain unauthorized access to the network. It also makes payments on the Ethereum network secure, so banks are using Ethereum as a channel for making payments.
- Shipping: Ethereum provides a tracking framework that helps with the tracking of cargo and prevents goods from being misplaced.
- Crowdfunding: Applying Ethereum smart contracts to blockchain-based crowdfunding platforms helps to increase trust and information symmetry. It creates many possibilities for startups by raising funds to create their own digital cryptocurrency.
- Domain names: Ethereum name service allows crypto users to buy and manage their own domain names on Ethereum, thus simplifying decentralized transactions without putting users to remember long, machine-readable addresses.

Benefits of Ethereum:

- Availability: As the Ethereum network is decentralized so there is no downtime. Even if one node goes down other computing nodes are available.
- Privacy: Users don't need to enter their personal credentials while using the network for exchanges, thus allowing them to remain anonymous.
- Security: Ethereum is designed to be unhackable, as the hackers have to get control of the majority of the network nodes to exploit the network.
- Less ambiguity: The smart contracts that are used as a basis for trade and agreement on Ethereum ensure stronger contracts that differ from the normal traditional contracts which require follow-through and interpretation.
- Rapid deployment: On Ethereum decentralized networks, enterprises can easily deploy and manage private blockchain networks instead of coding blockchain implementation from scratch.
- Network size: Ethereum network can work with hundreds of nodes and millions of users.
- Data coordination: Ethereum decentralized architecture better allocates information so that the network participants don't have to rely on a central entity to manage the system and mediate transactions.

Drawbacks of Ethereum:

- Complicated programming language: Learning solidity from programming smart contracts on Ethereum can be challenging and one of the main concerns is the scarcity of beginner-friendly classes.
- Volatile cryptocurrency: Ethereum investing can be risky as the price of Ether is very volatile, resulting in significant gains as well as a significant loss.
- Low transaction rate: Bitcoin has an average transaction rate of 7TPS and Ethereum has an average speed of 15 TPS which is almost double that of bitcoin but it is still not enough.

Thanks & Regards
Mrs.Swati Abhang
Assistant Professor, TCET IT

MACHINE LEARNING

Machine learning has been making swells in the tech assiduity for many times now, and for good reason. It's a subset of artificial intelligence (AI) that focuses on erecting algorithms and models that enable computers to learn and make prognostications grounded on data inputs. As a result, machine learning is fleetly changing the way we do effects, from healthcare to finance, education, and indeed the way we live. At its core, machine learning uses algorithms that are trained on large data sets to enable computers to make prognostications or opinions without being explicitly programmed to do so. These algorithms use statistical models that can identify patterns in data, allowing the computer to make prognostications grounded on what it has learned. The further data the algorithm is exposed to, the more accurate it becomes in prognosticating issues or making opinions. There are three main types of machine learning supervised learning, unsupervised learning, and underpinning learning. Supervised learning is the most common type of machine learning, where the computer is trained on labeled data to identify patterns and make prognostications. Unsupervised learning, on the other hand, is used when the computer is given unlabeled data and must identify patterns and connections on its own. underpinning learning is a type of learning that focuses on tutoring computers how to make opinions grounded on feedback from the terrain. Machine learning has come ubiquitous in numerous diligence, including healthcare, finance, and education. In healthcare, machine learning is being used to develop prophetic models that can help croakers identify cases who are at threat of developing certain conditions, similar as heart complaint or cancer. These models can help croakers give further individualized care to cases and ameliorate patient issues. In finance, machine learning is being used to develop trading algorithms that can identify patterns in the stock request and make trading opinions in real- time. This technology is also being used to descry fraud and plutocrat laundering, helping banks and fiscal institutions help fiscal crimes. In education, machine learning is being used to epitomize the learning experience for scholars. By assaying pupil data, algorithms can identify areas where scholars need fresh support and give targeted interventions to help them succeed. still, as with any new technology, machine learning isn't without its challenges. One of the biggest challenges is icing that the algorithms are fair and unprejudiced.

MACHINE LEARNING

Because machine learning algorithms are trained on data, they can reflect the impulses that live in the data. This can lead to discriminative issues and immortalize social inequalities. Another challenge is the issue of data sequestration. Machine learning algorithms bear large quantities of data to be effective, and this data frequently contains sensitive particular information. It's important that this data is defended and not misused in any way. In conclusion, machine learning has the implicit to revise the way we do effects, from healthcare to finance, education, and beyond. still, it's important that we address the challenges that come with this technology, similar as bias and sequestration enterprises, to insure that it's used immorally and responsibly. With the right approach, machine learning can help us make a better future for everyone.

SE_IT_A_57_Harsh Mishra

GAMING UNCHAINED: THE POWER OF BLOCKCHAIN 3.0

Blockchain technology has been hailed as one of the most transformative innovations of the modern era. Its decentralized nature and secure architecture make it perfect for a range of applications, including gaming. In recent years, blockchain has evolved into its third generation, known as Blockchain 3.0, which promises to revolutionize the gaming industry. In this article, we will explore what Blockchain 3.0 is and how it is set to transform gaming.

What is Blockchain 3.0?

Blockchain 3.0 is the latest iteration of blockchain technology that builds on the foundations laid by the first two generations. The first generation of blockchain technology focused on creating a decentralized ledger that could be used to record transactions securely. The second generation expanded on this by incorporating smart contract functionality, allowing for the creation of decentralized applications (dApps).

Blockchain 3.0 takes this a step further by introducing interoperability between different blockchains. This means that different blockchain networks can communicate and exchange information with each other, creating a more connected and flexible ecosystem. Blockchain 3.0 also promises to improve the scalability and speed of blockchain networks, making them more suitable for enterprise-level applications.

How Blockchain 3.0 is set to transform gaming

The gaming industry has always been at the forefront of technological innovation, and blockchain is no exception. The use of blockchain technology in gaming is not new, but Blockchain 3.0 promises to take it to the next level. Here are some of the ways in which Blockchain 3.0 is set to transform gaming:

Cross-chain interoperability:

Blockchain 3.0's cross-chain interoperability will allow for more seamless communication between different gaming platforms. This means that gamers will be able to transfer assets and data between different games and platforms easily. This will create a more connected and flexible gaming ecosystem, where gamers are not limited by the restrictions of a single platform.

Secure item ownership and trading

One of the biggest advantages of blockchain technology is its ability to create secure, tamper-proof records of ownership. This is particularly relevant in gaming, where players spend time and money acquiring in-game items and assets. Blockchain 3.0 will allow for the creation of decentralized marketplaces where players can trade their items securely and with complete ownership rights.

Decentralized game development

Blockchain 3.0's smart contract functionality will enable the creation of decentralized game development platforms. This means that developers can create games that are entirely decentralized, with no central authority controlling the game's economy or mechanics. This will create a more transparent and democratic gaming industry, where the power is in the hands of the players.

Gaming as a service

Blockchain 3.0 will enable the creation of decentralized gaming-as-a-service platforms. This means that gamers will be able to rent or lease gaming resources, such as processing power or storage, from other players. This will create a more decentralized and cost-effective gaming ecosystem, where players can monetize their gaming resources and earn money from gaming.

Conclusion

Blockchain 3.0 promises to transform the gaming industry in ways that we cannot yet imagine. Its cross-chain interoperability, secure ownership and trading, decentralized game development, and gaming-as-a-service functionality will create a more connected, transparent, and democratic gaming ecosystem. As blockchain technology continues to evolve, we can expect to see even more exciting developments in the gaming industry.

Rishabh Ratnesh Singh
TE-IT/B-38

GROWING WEB3 COMMUNITY IN INDIA

The Web3 community is rapidly growing in India, with an increasing number of people interested in the potential of decentralized technologies and the internet of value. Polygon is India grown Web3 infrastructure company focusing on Layer 2 scaling solution for Ethereum that aims to provide faster and cheaper transactions with a higher degree of scalability. Seeing the blockchain adoption and growing web3 developers in India and some clarity about crypto regulations efforts by India during its G20 presidency attracting other Web3 community like Algorand and polkadot to come to India.

The Hyperledger India Chapter is responsible for growing the Hyperledger community in India, promoting contributions to Hyperledger projects and providing a platform for collaboration, mentoring and support. The chapter aims to showcase the broad range of Hyperledger projects and initiatives to the Indian audience. Hyperledger Foundation's India community, led by the regional chapter, is growing the Hyperledger ecosystem in India, promoting contributions to projects and providing a platform for collaboration, mentoring and support. The community's growth is a combined success of our regional chapter and our members worldwide who support developer ecosystems in India.

Members of the India community have taken on leadership roles with the foundation, including as maintainers and contributors across Hyperledger projects and as contributors in special interest groups and working group activities. Learn about innovations in this key market that are transforming Hyperledger enterprise blockchain development.

Hyperledger Foundation Executive director Daniela Barbosa always appreciating growing Hyperledger community. In the recent Hyperledger India Connect 2023 , Hyperledger India announced Extended India team to build bigger and stronger community in 2023.

DISCOVER HOW HYPERLEDGER FOUNDATION IN INDIA IS LEADING THE WAY IN ENTERPRISE BLOCKCHAIN INNOVATION, DEVELOPMENT, DEPLOYMENTS AND COMMUNITY INVOLVEMENT

"India has a huge potential to drive digital transformation globally, leveraging blockchain technology. We at Snapper Future Tech work closely with the Government agencies and enterprises to build innovative solutions for Indian and Global customers using Hyperledger technologies. We are very excited as we work towards the vision of making India a $1 Trillion digital economy by 2025, where blockchain led digital transformation would play a significant role.

Kamlesh Nagware, CTO, Snapper Future Tech - Hyperledger Foundation TSC member 2021-2022, Co-lead, Hyperledger India Chapter

In march two bigger Web3 Community Algorand and Polkadot jumped in Indian Web 3 space with AlgoBharat and PolygonNow India initiative.

AlgoBharat(Algorand Foundation)

To expand its global presence, the popular blockchain protocol, Algorand, has set its sights on India in Hyderabad Event at T-hub in March 2023. Algorand, which has recently been chosen as the public blockchain to power innovative digital platforms in Italy and the Marshall Islands, is now making India its new hub for technological advancements. Algorand aims to transition India from Web2 to Web3, according to its two senior representatives. The company has already formed several partnerships in the country, including with the healthcare sector, startups, and educational institutes. Additionally, Algorand has created "AlgoBharat," a wing dedicated to India, to expand the Web3 ecosystem in the country and support related startups

"India was effectively the back office of Web2, right? The innovation might have been led somewhere else," said Anil Kakani, a vice president and the India country head at the Algorand Foundation. "Blockchain use cases that have the greatest real world utility are happening here in India."

02.

GROWING WEB3 COMMUNITY IN INDIA

Polkadot Now India (Polkadot ecosystem)

Polkadot, a next-generation leading blockchain platform, has recently hosted its first and one-of-a-kind global blockchain conference – Polkadot Now India conference in India with the aim to enter into the Indian Ecosystem. Some of the most innovative developers in the Web3 space are from India, and Bangalore in particular has produced some of the most talented minds in tech. The city is a perfect choice as a location for what some may feel is an overdue visit to the country.

"India is an important hub for blockchain innovation, and we are excited to bring the Polkadot network's next-generation blockchain technology to the region with our first conference in India. The conference will introduce developers, researchers, media, investors, and other stakeholders to the Polkadot ecosystem, sharing knowledge and discovering new collaboration opportunities for the entire ecosystem," said ***Rishant (Rish) Kumar, Growth Lead, APAC, KILT Protocol***

Other India blockchain communities like Blockchained India lead by Manav Ailawadi , Blockchain Productivity Forum run by retired Govt. officials & Industry leaders and India Blockchain forum run by India's top 40 Blockchain Influencers.

Here are some ways to encourage the growth of the Web3 community in India:-

- Education and awareness: Educating people about Web3 technologies, their benefits, and how they work is critical to the growth of the community. Companies, organizations, and individuals can offer educational resources, such as online courses, workshops, and meetups, to help people understand the potential of Web3 technology.

03.

GROWING WEB3 COMMUNITY IN INDIA

- Community building: Building a strong and supportive community is essential to the growth of the Web3 community in India. This can be achieved through social media groups, online forums, and in-person meetups, where people can share ideas, collaborate, and network with like-minded individuals.
- Supporting local projects: Supporting local Web3 projects can help showcase the potential of the technology and encourage adoption. Local projects can be anything from developing decentralized applications (dApps) to creating blockchain-based solutions for local problems.
- Collaboration: Collaboration is essential for the growth of the Web3 community in India. Companies, organizations, and individuals can work together to develop innovative solutions and drive adoption of Web3 technology.
- Regulatory clarity: Providing clear and supportive regulatory frameworks for Web3 technologies can encourage investment in the industry and drive innovation. This can provide certainty and encourage businesses to develop and invest in Web3 projects.

India is an important market for the growth of the Web3 community, given the country's large population and the growing interest in cryptocurrencies and blockchain technology. The growth of the blockchain open source project community in India is a positive sign for the development and adoption of blockchain technology in the country.

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GROWING WEB3 COMMUNITY IN INDIA

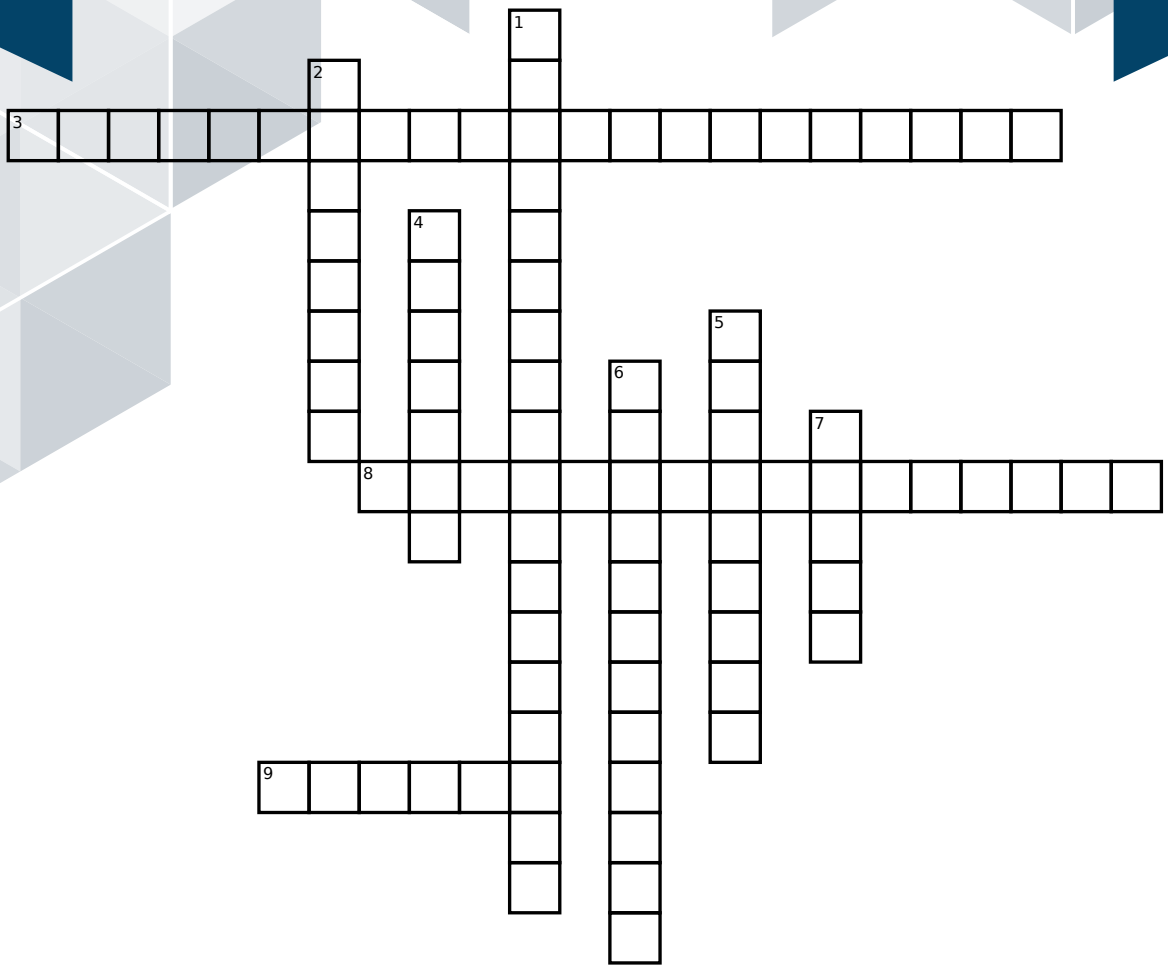
Mr. Kamlesh Nagware

CTO,

Snapper Future Tech.

CROSSWORD

BLOCKCHAIN 3.0



Down:

1.The process of adding data to a blockchain in a way that preserves the privacy of the user

2.blockchain-based platform that is designed for the creation and management of decentralized applications

4.A blockchain platform that is designed to be scalable and energy-efficient

5.A technology that allows smart contracts to be executed off-chain

6.A type of consensus mechanism that is designed to be more energy-efficient than proof-of-work

7.A blockchain-based platform that allows for the creation and exchange of custom assets

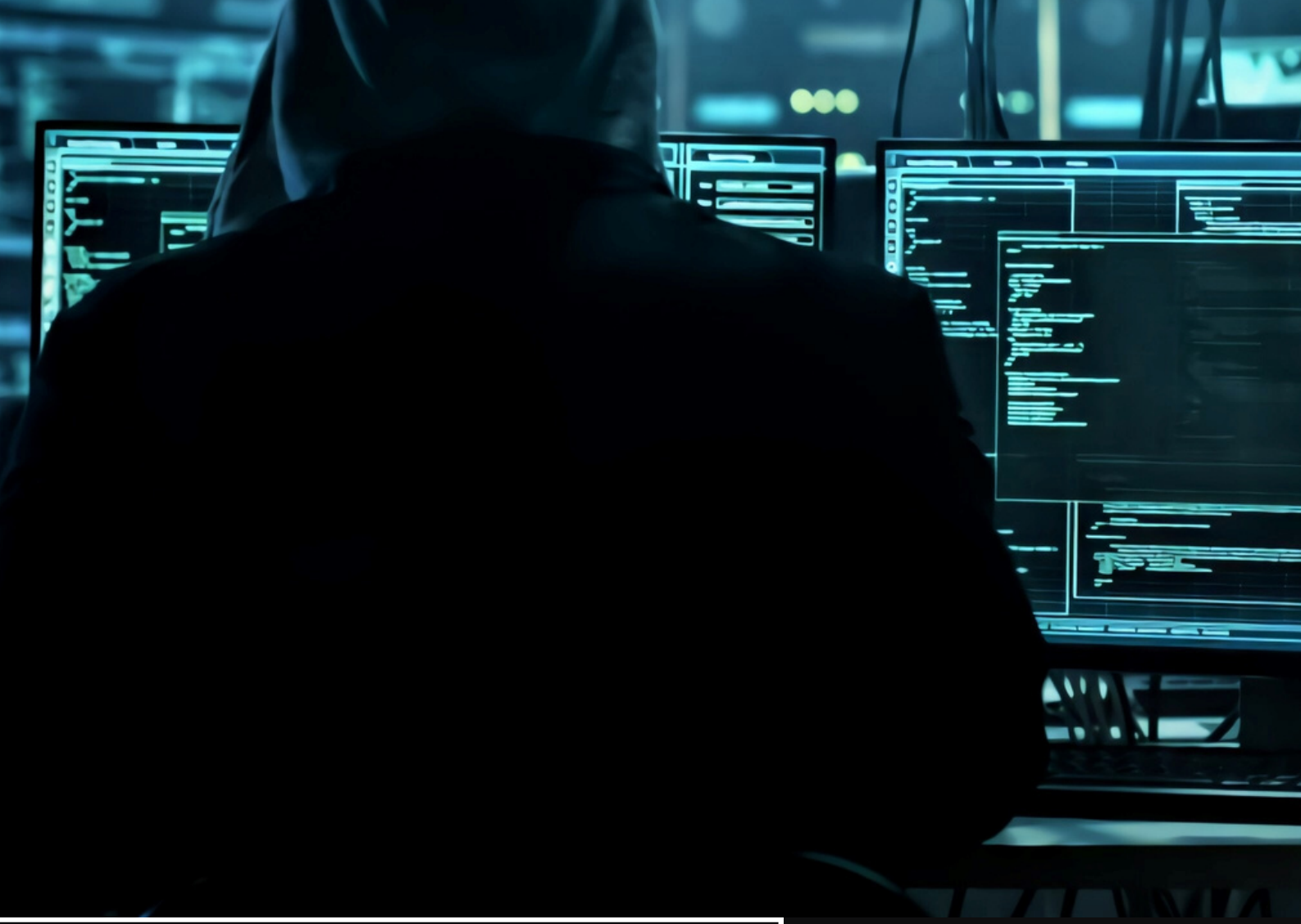
Across:

3.A type of consensus mechanism that is designed to be more democratic and flexible than proof-of-stake

8.A term that describes the use of multiple blockchains to solve different parts of a problem

9.A type of blockchain that allows for the creation of private transactions

ANSWERS KEY



CYBER SECURITY

THE BEGINNING OF POPULAR TECHNOLOGY

Cybersecurity refers to the activity of protecting computer systems, networks, and electronic devices from unauthorized access, theft, damage, and other malicious attacks. It encompasses a range of technologies, processes, and practices designed to secure digital assets and prevent cyber threats.

Cybersecurity is becoming increasingly important as more and more businesses and individuals rely on digital technologies to store and process sensitive information. A cyber attack can result in significant financial loss, reputational damage, and liability.

To protect against cyber threats, organizations and individuals use a variety of cybersecurity measures, including firewalls, antivirus software, intrusion detection and prevention systems, code encryption, access control, and security policies and procedures. They also conduct regular security reviews and train employees to identify and address vulnerabilities and ensure that everyone in the organization understands their role in maintaining a secure environment.

Types of Cybersecurity:

- Application Security – Most of the Apps that we use on our Cell-phone are Secured and work under the rules and regulations of the Google Play Store. There are 1.85 million different apps available for users to download. When we have other choices, this does not mean that all apps are safe. Many of the apps pretend to be safe, but after taking all information from us, the app users share information in money with the 3rd-party as well app stop working. Suddenly this comes under Cyberattack. The app must be Installed from a trust-worthy platform, not from Google Chrome.

- Network Security – Guard your internal network against outside threats with increased network security. Sometimes we used to utilize free Wi-Fi in public areas such as cafes, Malls, etc. With this activity, 3rd Party starts tracking your Phone over the internet. If you are using any payment gateway, then your bank account can be Empty. So, avoid using Free Network because free network Doesn't support Securities.

- Cloud Security – Cloud base data storage has become a popular option over the last decade. It enhances privacy and saves data on the cloud, making it excess able from any device but needs correct authentication. Some Famous platforms are Google Drive, Microsoft Cloud, Dropbox, etc. These platforms are free to some extent if we want to save more data than we have to pay. AWS is also a new Technique that helps to run your business over the internet and provides security to your data

- Mobile Security – Mobile is the very common gadgets we use daily, everything we excess is by mobile phone online class then the mobile phone, Call to the client then the mobile phone, sending money need a mobile phone and many more. The mobile phones made our life so easy only with a single touch we can be excess news from another country. Then this mobile phone must come under all security patches.We ust lock all the payment applications by phone in-built app as well never share your phone password except with your family.

- Infrastructure Security- All of the physical and virtual resources, systems, and networks that are necessary for a society's economics, security, or any combination of the above to run smoothly are referred to as critical infrastructure. Food and agricultural industries, as well as transportation systems, comprise critical infrastructure.The Infrastructure that is considered important might vary depending on a country's particular demands, resources, and level of development, even though crucial infrastructure is comparable across all nations due to basic living requirements. Industrial control systems (ICS), such as supervisory control and data acquisition (SCADA) systems, which are used to automate industrial operations in critical infrastructure industries, are frequently included in critical infrastructure.

CYBER SECURITY

In today's increasingly digital world, cyber security has become a critical issue. With the rise of online communication, transactions, and storage, the potential for cyber attacks and data breaches has never been higher. As such, it is essential that individuals and organizations alike take steps to protect themselves from these threats. In this article, we will explore the basics of cyber security, as well as some tips for staying safe online.

What is Cyber Security?

At its core, cyber security is the practice of protecting electronic devices and digital information from unauthorized access, theft, and damage. This can include everything from personal computers and smartphones to corporate networks and cloud storage. The goal of cyber security is to prevent cyber attacks and data breaches, and to minimize the damage if such an attack occurs.

Cyber Security, Types and Importance

Cyber Security is the practice of Protecting computers, mobile devices, Servers, electronic Systems, networks, and data from malicious attacks. It's also known as Information Security (INFOSEC), Information Assurance (IA), or System Security. Cyber Security is important because the government, Corporate, medical organizations collect, military, financial, process, and store the unprecedented amount of data on a computer and other property, personal information, or exposure could have negative consequences.

Cyber Security proper began in 1972 with a research project on ARPANET (The Advanced Research Projects Agency Network), a precursor to the internet. ARPANET developed protocols for remote computer networking. Example – If we shop from any online shopping website and share information like email id, address, and credit card details as well as saved on that website to enable a faster and hassle-free shopping experience, then the required information is stored on a server one day we receive an email which state that the eligibility for a special discount voucher from XXXXX (hacker use famous website Name like Flipkart, Amazon, etc.) website to receive the coupon code, and we will be asked to fill the details then we will use saved card account credentials. Then our data will be shared because we think it was just an account for the verification step, then they can wipe a substantial amount of money from our account.

That is why Cyber Security provides services as a Security Gate-Way to make information more Secure; in today's time, hackers are advanced. We can't surely say whether the data stored in my Devices is safe from outside threats. With Cybercrime increasing rapidly, it's crucial to have Cyber Security in place in our personal life and our Business.

- SCADA and other industrial control system attacks are very concerning. They have the capacity to seriously undermine critical infrastructure, including transportation, the supply of oil and gas, electrical grids, water distribution, and wastewater collection.Due to the links and interdependence between infrastructure systems and sectors, the failure or blackout of one or more functions could have an immediate, detrimental effect on a number of sectors.

- Internet of Things (IoT) Security- Devices frequently run on old software, leaving them vulnerable to recently identified security vulnerabilities. This is generally the result of connectivity problems or the requirement for end users to manually download updates from a C&C centre. Manufacturers frequently ship Internet of Things (IoT) devices (such as home routers) with easily crackable passwords, which may have been left in place by suppliers and end users. These devices are easy targets for attackers using automated scripts for mass exploitation when they are left exposed to remote access. APIs are frequently the subject of threats such as Man in the Middle (MITM), code injections (such as SQLI), and distributed denial of service (DDoS) attacks since they serve as a gateway to a C&C centre. You can read more about the effects of attacks that target APIs here.

Why is Cybersecurity Important?

Cybersecurity is essential for protecting our digital assets, including sensitive personal and financial information, intellectual property, and critical infrastructure. Cyberattacks can have serious consequences, including financial loss, reputational damage, and even physical harm.

Importance and challenges of Cyber Security:

Cyber security is vital in any organization, no matter how big or small the organization is. Due to increasing technology and increasing software across various sectors like government, education, hospitals, etc., information is becoming digital through wireless communication networks.

The Importance of cyber security is to secure the data of various organizations like email, yahoo, etc., which have extremely sensitive information that can cause damage to both us and our reputation. Attackers target small and large companies and obtain their essential documents and information.

There are a few reasons why it is important, which are as follows:

Cyber Crime is on rising: There are 4000 roughly cyber attacks every day. One of the reasons cybercrime is increasing is because it is cheap, fast, and highly profitable compared to other types of crime, which is why cybercriminals are headed.

Damage is significant: Cybercrime can cost organizations can cause millions of dollars in damage. But it is not just about financial costs; it can also damage reputations. Their ability to do business sometimes even compromises the physical safety and health of employees, patients, customers, and others.

Cybersecurity builds trust: Cybersecurity affects trust with customers and employees. When people feel that their information is not being properly secured and kept private, they lose trust in the brand, product, and services.

Our identities protect our data: User identity now protects billions of points of data. This is the data we are transmitting at work data from the internet of things, devices or a coffee maker or the printers we use, and our personal information as more of our data is becoming digitized. Security of these identities helps reduce the risk of cybercrime to organizations and individuals alike.
Every organization has vulnerabilities: As organizations evolve, merge, and grow over time, their networks and systems become more complicated, and things may slip through the cracks. Additionally, end-users can often be the weakest link in an organization's security, requiring the organizations to put robust security and compliance protection in place. We should all care about cybersecurity.

Cyber-attack:
A cyber-attack is a deliberate attempt by external or internal threats or attackers to exploit and compromise the integrity and confidentiality of the information system of a target organization.
Cyber-attacks come in a wide variety, and the following list highlights some of the important ones that criminals and attackers use to exploit software:

- 1)Malware
- 2)Ransomware
- 3)Injection attacks
- 4)Session management and Man-in-the-Middle attacks
- 5)Phishing
- 6)Denial of service
- 7)Privilege escalations
- 8)Unpatched/Vulnerable software

Cyber Crime:
Cybercrime or a computer-oriented crime is a crime that includes a computer and a network. The computer may have been used in the execution of a crime or it may be the target. Cybercrime is the use of a computer as a weapon for committing crimes such as committing fraud, identity theft, or breaching privacy. Cybercrime, especially through the Internet, has grown in importance as the computer has become central to every field like commerce, entertainment, and government. Cybercrime may endanger a person or a nation's security and financial health. Cybercrime encloses a wide range of activities, but these can generally be divided into two categories:
Crimes that aim at computer networks or devices. These types of crimes involve different threats (like virus, bugs etc.) and denial-of-service (DoS) attacks.
Crimes that use computer networks to commit other criminal activities. These types of crimes include cyber stalking, financial fraud or identity theft.

Classification of Cyber Crime:

- Cyber Terrorism – Cyber terrorism is the use of the computer and internet to perform violent acts that result in loss of life. This may include different type of activities either by software or hardware for threatening life of citizens. In general, Cyber terrorism can be defined as an act of terrorism committed through the use of cyberspace or computer resources.
- Cyber Extortion – Cyber extortion occurs when a website, e-mail server or computer system is subjected to or threatened with repeated denial of service or other attacks by malicious hackers. These hackers demand huge money in return for assurance to stop the attacks and to offer protection.

- Cyber Warfare – Cyber warfare is the use or targeting in a battle space or warfare context of computers, online control systems and networks. It involves both offensive and defensive operations concerning to the threat of cyber attacks, espionage and sabotage

- Internet Fraud – internet fraud is a type of fraud or deceit which makes use of the Internet and could include hiding of information or providing incorrect information for the purpose of deceiving victims for money or property. Internet fraud is not considered a single, distinctive crime but covers a range of illegal and illicit actions that are committed in cyberspace.

- Cyber Stalking – This is a kind of online harassment wherein the victim is subjected to a barrage of online messages and emails. In this case, these stalkers know their victims and instead of offline stalking, they use the Internet to stalk. However, if they notice that cyber stalking is not having the desired effect, they begin offline stalking along with cyber stalking to make the victims' lives more miserable.

Challenges of Cyber Crime:

- People are unaware of their cyber rights-The Cybercrime usually happen with illiterate people around the world who are unaware about their cyber rights implemented by the government of that particular country.

- Anonymity-Those who Commit cyber crime are anonymous for us so we cannot do anything to that person

- Less numbers of case registered-Every country in the world faces the challenge of cyber crime and the rate of cyber crime is increasing day by day because the people who even don't register a case of cyber crime and this is major challenge for us as well as for authorities as well.

- Mostly committed by well educated people-Committing a cyber crime is not a cup of tea for every individual. The person who commits cyber crime is a very technical person so he knows how to commit the crime and not get caught by the authorities.

- No harsh punishment- In Cyber crime there is no harsh punishment in every cases. But there is harsh punishment in some cases like when somebody commits cyber terrorism in that case there is harsh punishment for that individual. But in other cases there is no harsh punishment so this factor also gives encouragement to that person who commits cyber crime.

Tips for Staying Safe Online

- Use Strong Passwords: Your password is the first line of defence against hackers. Make sure your passwords are long, complex, and unique for each account. Avoid using the same password across multiple accounts.

- Keep Your Software Up-to-Date: Software updates often include important security patches that fix vulnerabilities in the program. Make sure you regularly update your operating system, web browser, and other software

- Be Wary of Phishing Emails: Phishing emails are designed to look like legitimate emails from reputable sources, but are actually attempts to steal your personal information. Be sceptical of any email that asks you to click on a link or enter personal information.
- Use Antivirus Software: Antivirus software can help protect your computer from malware and other threats. Make sure you have up-to-date antivirus software installed on all of your devices.
- Back Up Your Data: In the event of a cyber attack or data breach, it's important to have a backup of your important data. Make sure you regularly back up your files to an external hard drive or cloud storage service

CONCLUSION

CYBER SECURITY IS AN ESSENTIAL PART OF MODERN LIFE. WITH THE RIGHT PRACTICES AND TOOLS, YOU CAN PROTECT YOURSELF FROM CYBER ATTACKS AND KEEP YOUR PERSONAL INFORMATION SAFE. BY FOLLOWING THE TIPS OUTLINED IN THIS ARTICLE, YOU CAN REDUCE YOUR RISK OF FALLING VICTIM TO A CYBER ATTACK AND ENJOY THE BENEFITS OF THE DIGITAL WORLD WITH PEACE OF MIND.

JANHAVI BELNEKAR

SE-IT A

CYBERSECURITY LAWS AND REGULATIONS IN INDIA

ABSTRACT:

From the survey of 2014 where each Indian household was said to have an average of 2 networking devices, to the survey of 2020 where each Indian household is said to have an average of 7 networking devices, the use of internet has tremendously increased and along with it has increased cybercrime or possibility of it. Strong defence against cyber risks and good cybersecurity policies are absolutely essential in this era of technology. This article provides a short overview on some of the most important regulations of Cybersecurity in India along with the issues of these rules and regulations.

What is Cybersecurity?

Cybersecurity is the practice of protecting systems, networks, and programs from digital attacks. These cyberattacks are usually aimed destroying sensitive information, extracting money from user or interrupting regular business.

Implementing effective cybersecurity measures is particularly challenging today because there are more devices than people, and attackers are becoming more innovative.

Cybersecurity laws

The first ever landmark in cybersecurity law of India was the Information technology act 2000 also known as ITA-2000 finalized by Pramod Mahajan and passed by K.R Narayan on 9th May 2000. This act was administered by CERT (Computer emergency response team) to guide India's Cybersecurity legislation. The law applies to any computer or any network located inside India (even though the person may not be of Indian nationality). This act defines Cybercrimes and decides penalties for them.

Section	Offence	Penalty
65	Tampering with computer source documents	Imprisonment up to three years, or/and with fine up to Rs.200,000
66	Hacking with computer system	Imprisonment up to three years, or/and with fine up to Rs.500,000
66B	Receiving stolen computer or communication device	Imprisonment up to three years, or/and with fine up to Rs.100,000
66C	Using password of another person	Imprisonment up to three years, or/and with fine up to Rs.100,000
66D	Cheating using computer resource	Imprisonment up to three years, or/and with fine up to Rs.100,000
66E	Publishing private images of others	Imprisonment up to three years, or/and with fine up to Rs.200,000
66F	Acts of cyberterrorism	Imprisonment up to life.

67	Publishing information which is obscene in electronic form.	Imprisonment up to five years, or/and with fine upto Rs.1,000,000
67A	Publishing images containing sexual acts	Imprisonment up to seven years, or/and with fine up to Rs.1,000,000
67B	Publishing or transmitting of material depicting children in sexually explicit act	Imprisonment up to seven years, or/and with fine up to Rs.1,000,000
67C	Failure to maintain records	Imprisonment up to three years, or/and with fine.
68	Failure/refusal to comply with orders	Imprisonment up to 2 years, or/and with fine up to Rs.100,000
69	Failure/refusal to decrypt data	Imprisonment up to seven years and possible fine.
70	Securing access or attempting to secure access to a protected system	Imprisonment up to ten years, or/and with fine.
71	Misrepresentation	Imprisonment up to 2 years, or/and with fine up to Rs.100,000

72	Breach of confidentiality and privacy	Imprisonment up to 2 years, or/and with fine up to Rs.100,000
72A	Disclosure of information in breach of lawful contract	Imprisonment up to 3 years, or/and with fine up to Rs.500,000
73	Publishing electronic signature certificate false in certain particulars	Imprisonment up to 2 years, or/and with fine up to Rs. 100,000
74	Publication for fraudulent purpose	Imprisonment up to 2 years, or/and with fine up to Rs. 100,000

- An amendment to the ITA-2000 act was made in 2008 which added a section 66A to the list of offences. The section states that publishing an offensive statement or false/threatening information is an offense that can be penalized with imprisonment up to three years. Though this section was later revoked by the government in 2015 saying “it arbitrarily invades the right of free speech” as it was not clearly phrased.

- According to the 1996 verdict the government can only tap phones calls in cases of public emergency, though according to the section 69, refusal to decrypt data is an offense and the section does not offer any further restrictions. After this on December 2018 the Ministry of Home affairs cited section 69 and authorized ten central agencies to interpret and monitor any data saved in or generated by any computer. According to the citizens this is actually a violation of privacy though the government deems it necessary for the purpose of Cybersecurity.

- The section 69A which was later added to IT Act 2000 states that the government holds Power to issue directions for blocking for public access of any information through any computer resource. Under this section the in June 2020 the Indian government banned 59 Chinese apps including TikTok, Share-it etc. This section is said to cause conflicts with the Article 19(1)(a) of constitution, thus endangering freedom of speech.

- After that in February 2021 The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 were commenced by the ministry of electronics and IT. The main objective of this was giving the citizens of India access to safe and trustworthy Internet. The 2021 rules have stemmed from section 87 of the Information Technology Act, 2000 and are a combination of the draft Intermediaries Rules, 2018 and the OTT Regulation and Code of Ethics for Digital Media.

What are the concerns over the Cybersecurity rules and regulation?

The government's response to the rapidly shifting digital transformation is not as rapid, the gap between the number of Cybercrimes and the resources that are handling those Cybercrimes is still considerably large. India needs more Ethical hackers and people who ensure safety of all internet users.

Many laws and regulations from ITA-2000 and IT-rules 2021 has issues with constitutional rules such as freedom of speech and some rules even violate the privacy of citizens
The lack of clear laws and the fact that these laws are very outdated also hinders the process of practicing Cybersecurity.

Even after the formation of Cybersecurity regulating bodies such as CERT(Computer Emergency response team), NCIIPC (National Critical Information Infrastructure Protection centre), Cyber Regulations Appellate Tribunal (CRAT) it is still difficult for the government to keep up with Cybercrime.

Conclusion

The Indian government needs to rethink about the way they have regulated Cybersecurity. New bills with more apt and ambiguous laws regarding Cybersecurity should be passed as soon as possible to be able to tackle cybercrime. India needs to form a better framework for data protection keeping into mind the digital citizens privacy as well as safety.

SHREYA SAPRE
SE-IT B

DATA SECURITY IN CYBER-SECURITY

• What is Data or Critical Data?

Data is the heart of any organization. Data refer to any digital information that is stored, processed, or transmitted electronically. Critical data contain information that is important or that must be protected for business operation. We need to identify and classify the business- critical data and that is the first step in making sure it is secure.

Examples of Critical Data :

1. Accounting files (Example Accounting files for organization's annual revenue, an employee's pay information)
2. Databases (Example Microsoft SQL Server Databases)
3. Important office documents or spreadsheets, etc. (Example Large spreadsheets that contain private data or very important document that needs to be protected by a company)
4. Contact information (Example, an email address, phone numbers of clients or customers or employees)

We can have data from any one of the categories or other categories that need to be protected.

• Need of Data Security

As Data is organization's most important or an ultimate asset, This is in which most attackers or hackers are interested in. Some of the latest attacks that have happened with ransomware occurs like this : For an example, Suppose The organization is attacked by ransomware. The attacker generally does 2 things :

1. The ransomware attacker locks the file with powerful encryption that the organization normally uses.
2. The attacker downloads all the personal data that in Gigabytes (GB) or Terabytes (TB) and asks for some huge pay or else they will release that data on the internet.

So, if this organization's data is exposed or lost, it can just severely damage the business and the business's reputation. There is a lot of data loss risk in business environment. There are many causes as well as effects of data leaks.

- **Effects of Data Loss or Leaks :**

1. Brand Damage and reputation loss.
2. Competitive advantage loss
3. Loss of Customer
4. Market share loss
5. Fines and Civil penalties
6. Data -Security

- **There are 3 critical states of Data Security :**

Data at Rest

Data at rest means data stored in hard-drive or a workstation drive. Data at rest can also be data that is in a database or in some repositories. In short, it is inactive data that is digitally stored at a physical location. For example, Customer bank balance stored in database.

Security Controls :

1. Data Encryption
2. Password Protection
3. Tokenization

Data in Use

Data is use is something that is stored in memory like RAM (Random Access Memory) that is frequently being used. For example, one watching a video or typing something in the computer is part of data and use. For example, Data stored in RAM.

Security Controls :

1. Authentication Techniques
2. Identity Management
3. Tight Control on data's accessibility

Data in Transit

Data in Transit means data that is being moved from location to another location like through a VPN or opening up a web-app or website or something like that. Data transit can be through wired or wireless communication. For example, an Email being sent.

Security Controls :

1. SSL and TLS
2. Email encryption tool such as PGP or S/MIME
3. Firewall Controls

• Common Data Security Technologies :

1. Data Access Control : Authenticates and authorizes users to access data.

2. Data Encryption : Protecting information by transforming it in such a way that it cannot be read by an unauthorized party.

3. Data Masking : Protecting information by obscuring specific areas of data with random characters or codes.

4. Data Resilience and Backup : Making a duplicate copy of critical data that can be used for restore and recovery purposes when a primary copy is lost or corrupted either accidentally or on purpose.

5. Data Destruction : Destroying data, so that it cannot be recovered and used for wrong motives.

6. Data Retention : Storing data security for compliance or business requirements.

• Data Encryption Techniques

1. Disk Encryption : Full disk encryption is encryption of all data in a disk except Master Boot Record (MBR).

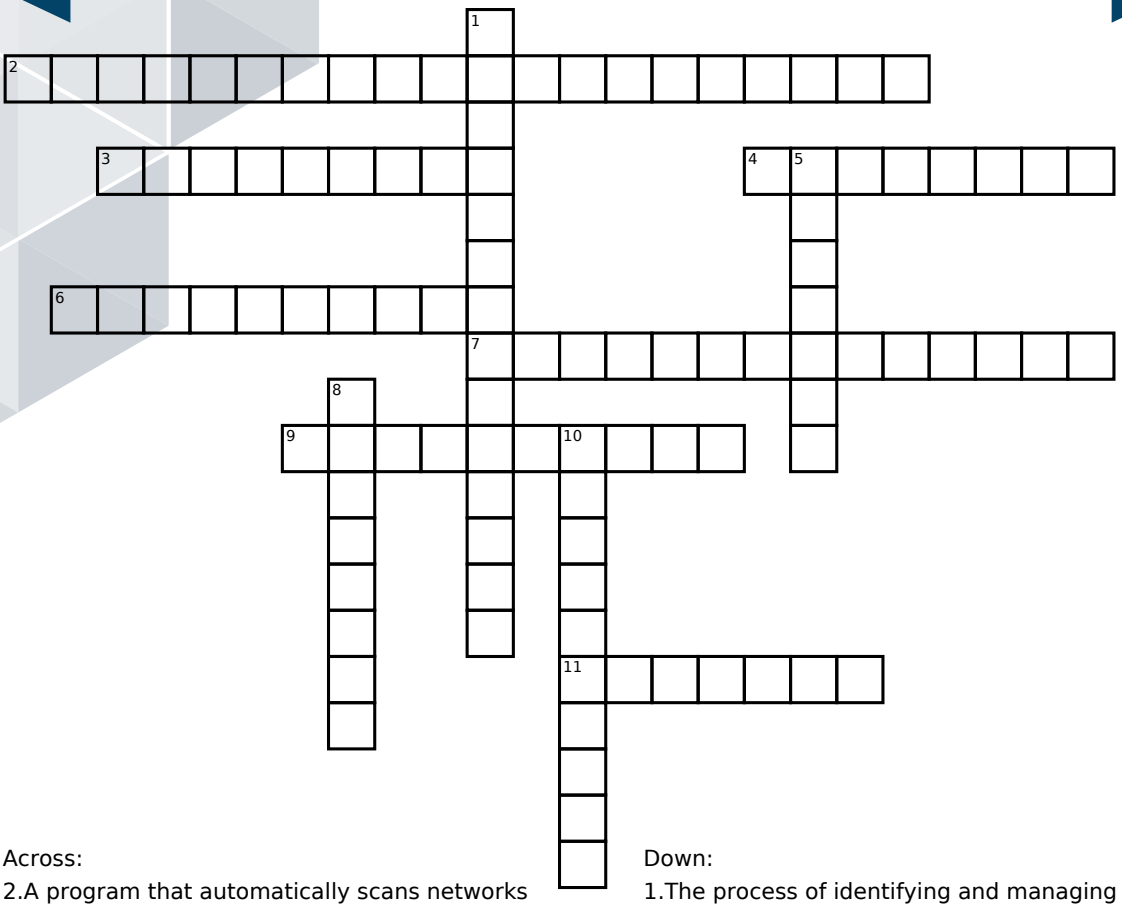
2. File-level Encryption : In this type of encryption, the encryption occurs at a filesystem level such as a folder or file, and in combination with a cryptographic algorithm, the encrypted data will be extremely secure

3. Removable media encryption : Removable media encryption prevents removable media devices such as USB Flash drives, portable hard disks, digital cameras, smartphones, tablets, etc. from unauthorized access.

GAUTAM JUVARAJIYA
TE IT - A

CROSSWORD

CYBERSECURITY



Across:

2.A program that automatically scans networks or systems for vulnerabilities

3.A type of attack that involves overwhelming a system or network with traffic to cause a denial of service

4.A type of security threat that involves tricking users into revealing sensitive information

6.A technique used to encrypt messages to ensure confidentiality

7.A security measure that verifies the identity of a user or device attempting to access a system

9.A method of authentication that involves using a unique physical characteristic to verify identity

11.Malicious software that is designed to damage, disrupt or control computer systems

Down:

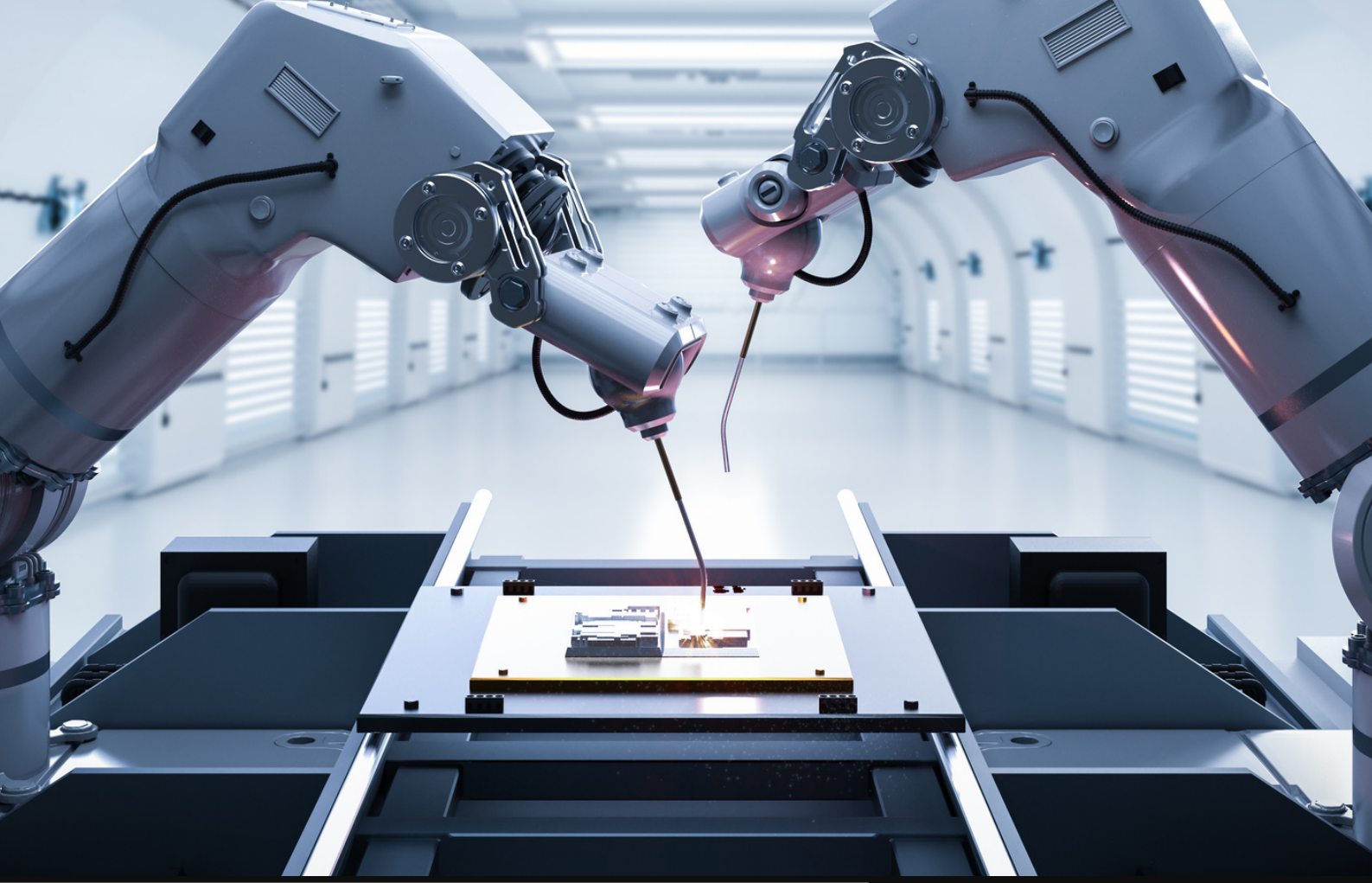
1.The process of identifying and managing risks to an organization's information assets

5.A type of attack that involves exploiting vulnerabilities in a system to gain unauthorized access

8.A network security system that monitors and controls incoming and outgoing network traffic

10.A type of cyber attack that involves infecting a system with malware that encrypts data until a ransom is paid

ANSWERS KEY



ROBOTIC PROCESS AUTOMATION

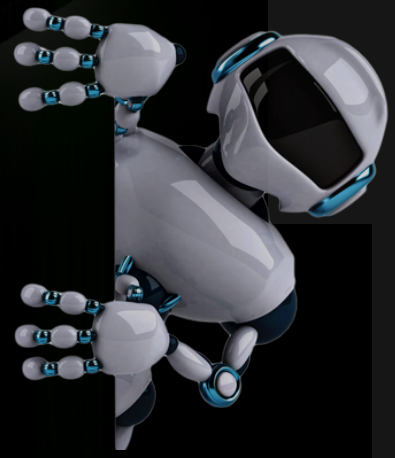
THE BEGINNING OF POPULAR TECHNOLOGY

Robotic process automation (RPA) uses software robots to automate repetitive, rule-based tasks in business processes. RPA technology enables organizations to streamline operations, reduce costs, and increase productivity by automating routine tasks previously performed by humans.

RPA robots can mimic human behavior such as: For example, opening an application, logging in, copying and pasting data, performing calculations, and so on. It works 24/7 and is highly accurate, reducing the risk of errors and improving data quality.

RPA can be applied to various industries and business functions such as finance, human resources, customer service, and supply chain management. RPA implementations range from simple tasks such as data entry to more complex tasks such as data extraction and analysis.

RPA technology is evolving rapidly with the addition of machine learning and artificial intelligence capabilities. This will enable RPA robots to perform more complex tasks, including decision-making and analysis, further increasing their value to organizations.



The Future of Work: How Robotic Process Automation(RPA) is Changing the Workforce

Robotic Process Automation (RPA) is a game-changing technology that has the potential to revolutionize the way organizations operate. It involves the use of software robots or "bots" to automate repetitive, mundane, and rule-based tasks, freeing up human workers to focus on more strategic and value-added activities. RPA has gained popularity in recent years as a key enabler of digital transformation, helping organizations to improve efficiency, reduce costs, and enhance customer experience.

What is RPA?

RPA is a form of software automation that mimics human actions to perform tasks. It is not dependent on complex programming or machine learning, but rather on a set of pre-defined rules and algorithms that enable it to perform specific tasks with speed and accuracy. RPA tools can interact with existing systems and applications, such as enterprise resource planning (ERP) systems, customer relationship management (CRM) systems, and others, to automate repetitive, routine tasks.

How does RPA work?

RPA is typically implemented through a three-step process:

1. Mapping: The first step involves identifying and mapping out the repetitive and rule-based tasks that can be automated using RPA.

2. Building: The second step involves building and configuring the RPA bots to perform the identified tasks. This typically involves defining the rules and parameters that the bots should follow.
3. Monitoring: The final step involves monitoring the bots and the automated processes to ensure that they are functioning as expected. This may involve monitoring performance metrics, such as throughput, error rates, and response times.

Examples of RPA in Action

1. Automating Customer Service: RPA can be used to automate customer service tasks, such as responding to inquiries, processing refunds, and updating customer records. This can help organizations to improve customer satisfaction by providing faster, more accurate responses to customer inquiries.
2. Streamlining Financial Processes: RPA can be used to automate a wide range of financial processes, such as accounts payable and receivable, expense management, and financial reporting. By automating these tasks, organizations can reduce errors and delays, improve compliance, and gain greater visibility into their financial operations.
3. Enhancing Supply Chain Management: RPA can be used to automate supply chain processes, such as order management, inventory tracking, and logistics. By automating these processes, organizations can improve efficiency, reduce costs, and respond more quickly to changing market conditions.

What the Experts are Saying -

According to Forrester Research, "RPA is a software robot that replicates human actions, working across multiple systems and applications to automate high-volume repetitive tasks." Similarly, Gartner describes RPA tools as being able to perform "if then, else" statements on structured data, typically using a combination of user interface (UI) interactions or by connecting to APIs to drive client servers, mainframes, or HTML code.

Here are some trends that will shape the intelligent automation and RPA landscape.

1. The focus will shift from cost-cutting to strategic value creation As intelligent automation and RPA become more mature, companies will move beyond using them simply to cut costs. Instead, they will look for ways to use these technologies to create strategic value.

This could involve using intelligent automation to drive innovation, improve customer experience, or enhance product quality. Companies will need to think creatively about how they can use these technologies to differentiate themselves from competitors.

2. Low-code and no-code solutions will become more popular One of the barriers to adopting intelligent automation and RPA has been the complexity of the technology. However, low-code and no-code solutions are emerging that make it easier for non-technical users to create automation workflows. These solutions will become more popular in 2022, allowing companies to implement automation more quickly and at a lower cost.

3. RPA tactics are complemented by prominent AI use cases, and vice versa In 2022, we will see more intersection points between RPA and artificial intelligence/machine learning (AI/ML). AI/ML use cases today fall into two categories: optimizing data-driven decisions at scale and helping humans to explore options and make choices. These patterns will serve as a strategic roadmap for future decisions regarding how to combine RPA with AI/ML. Optimization methods can be integrated if bulk data processing is automated. If automation is being used for human-in-the-loop activities such as customer service, AI may provide a set of possible solutions that a customer service representative can choose from. However, companies need to be aware of the pitfalls of assuming that AI-enabled automation is always better.

Robotic Process Automation (RPA) is a technology that uses software robots or "bots" to automate repetitive tasks, freeing up human workers for more strategic activities. RPA has recently gained popularity as a key enabler of digital transformation. It involves mapping out tasks, building and configuring bots to perform them, and monitoring their performance. RPA can be used to automate customer service, financial processes, supply chain management, and healthcare operations. Experts predict that RPA will move beyond cost-cutting to strategic value creation, low-code, and no-code solutions will become more popular, AI and ML will complement RPA strategies, and RPA will need a people-process-tools makeover to be successful.

Harsh Shukla (SE IT B 37)
Aishwarya Vyas (SE IT B 60)

Revolutionizing Business Processes: The Power of Robotic Process Automation (RPA)

In today's rapidly evolving business landscape, automation has emerged as a game-changer. Organizations are constantly seeking innovative ways to streamline their operations and enhance efficiency. One technology that has gained significant traction in recent years is Robotic Process Automation (RPA). RPA refers to the use of software robots or bots to automate repetitive and rule-based tasks, allowing businesses to optimize their processes and achieve higher productivity levels. Among the leading RPA platforms, UiPath has emerged as a key player.

Robotic Process Automation (RPA) has gained immense popularity among businesses of all sizes and industries due to its ability to significantly streamline operations, reduce errors, and enhance productivity. RPA involves the use of software robots to mimic human actions and automate repetitive tasks, such as data entry, report generation, and invoice processing, among others. These robots interact with various applications, systems, and websites, just like human employees, but with higher speed and accuracy.

As an Assistant Lead in my college, I had the opportunity to work on creating awareness and promoting RPA and UiPath among students. Through workshops, presentations, and demonstrations, we highlighted the benefits of RPA and UiPath in improving efficiency, reducing errors, and enhancing job prospects in the digital era. One of the key advantages of RPA is its scalability. RPA can be applied across a wide range of industries, including finance, healthcare, logistics, and customer service, etc.

UiPath, a leading RPA platform, has emerged as a preferred choice for many organizations due to its comprehensive suite of automation tools and user-friendly interface. UiPath offers a range of features, including process mining, process automation, and AI-powered capabilities, making it a powerful tool for businesses looking to optimize their operations.

Furthermore, RPA has the potential to revolutionize the way businesses operate by freeing up human employees from mundane and repetitive tasks, allowing them to focus on higher-value activities that require critical thinking and creativity. Another significant advantage of RPA is its ability to reduce errors and increase accuracy. Software robots are programmed to follow predefined rules and processes, which minimizes the risk of human errors, such as data entry mistakes or calculation errors.

Robotic Process Automation (RPA) is a game-changing technology that is transforming the way businesses operate by automating repetitive and rule-based tasks, enhancing productivity, and reducing errors. I am excited about the immense potential of this technology in driving operational excellence and unlocking new opportunities for businesses. With its scalability, cost-effectiveness, and ability to free up human employees from mundane tasks, RPA is poised to revolutionize the future of work and pave the way for a more efficient and digitally-driven business landscape.

SHIFA KHAN SE IT B 65

Robotic Process Automation in India : An Overview

Robotic Process Automation (RPA) is a rapidly growing field that has the potential to revolutionize the way businesses in India operate. RPA involves the use of software robots or bots that automate repetitive and mundane tasks, freeing up employees to focus on more strategic and value-adding activities.

In recent years, RPA has gained significant momentum in India. According to a report by Grand View Research, the RPA market in India is expected to grow at a compound annual growth rate (CAGR) of 28.1% from 2020 to 2027. This growth is driven by several factors, including the increasing adoption of digital transformation initiatives, rising labor costs, and a growing need for businesses to improve operational efficiency.

One of the key benefits of RPA is that it can help businesses in India reduce costs while improving accuracy and efficiency. By automating repetitive tasks, businesses can reduce the number of errors that occur, while also completing tasks faster and more consistently. This can lead to significant cost savings, as well as
improved customer satisfaction due to faster turnaround times and fewer errors.

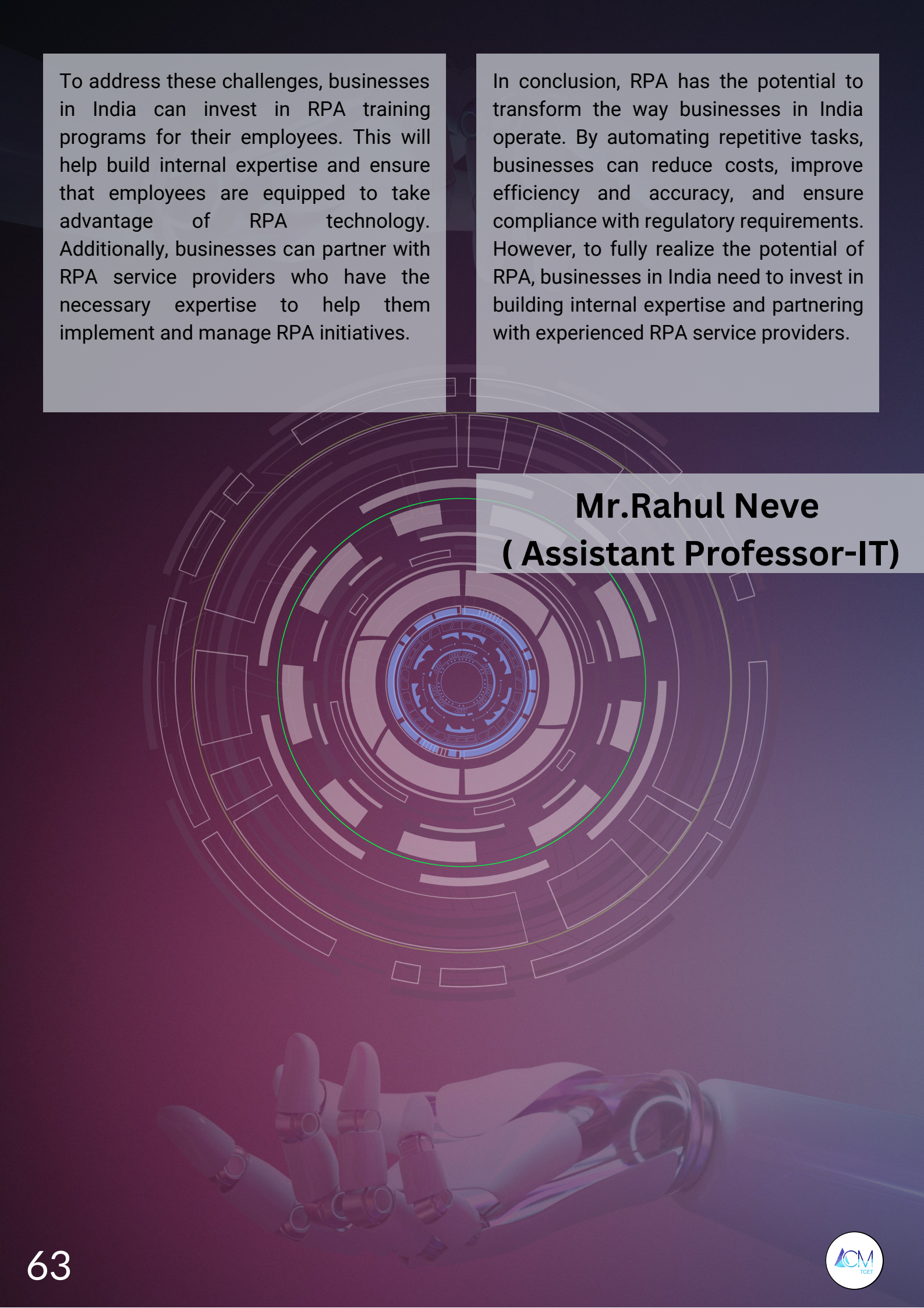
RPA can also help businesses in India improve their compliance and regulatory adherence. Many businesses in India operate in highly regulated industries, such as banking and finance, where compliance is critical. By automating compliance-related tasks, businesses can ensure that they are meeting all regulatory requirements, while also reducing the risk of human error.

One of the challenges of implementing RPA in India is the lack of awareness and expertise. While RPA is gaining popularity in India, there is still a significant knowledge gap when it comes to understanding the technology and its potential benefits. Additionally, there is a shortage of skilled RPA professionals in the country, making it difficult for businesses to find the right talent to implement and manage RPA initiatives.

To address these challenges, businesses in India can invest in RPA training programs for their employees. This will help build internal expertise and ensure that employees are equipped to take advantage of RPA technology. Additionally, businesses can partner with RPA service providers who have the necessary expertise to help them implement and manage RPA initiatives.

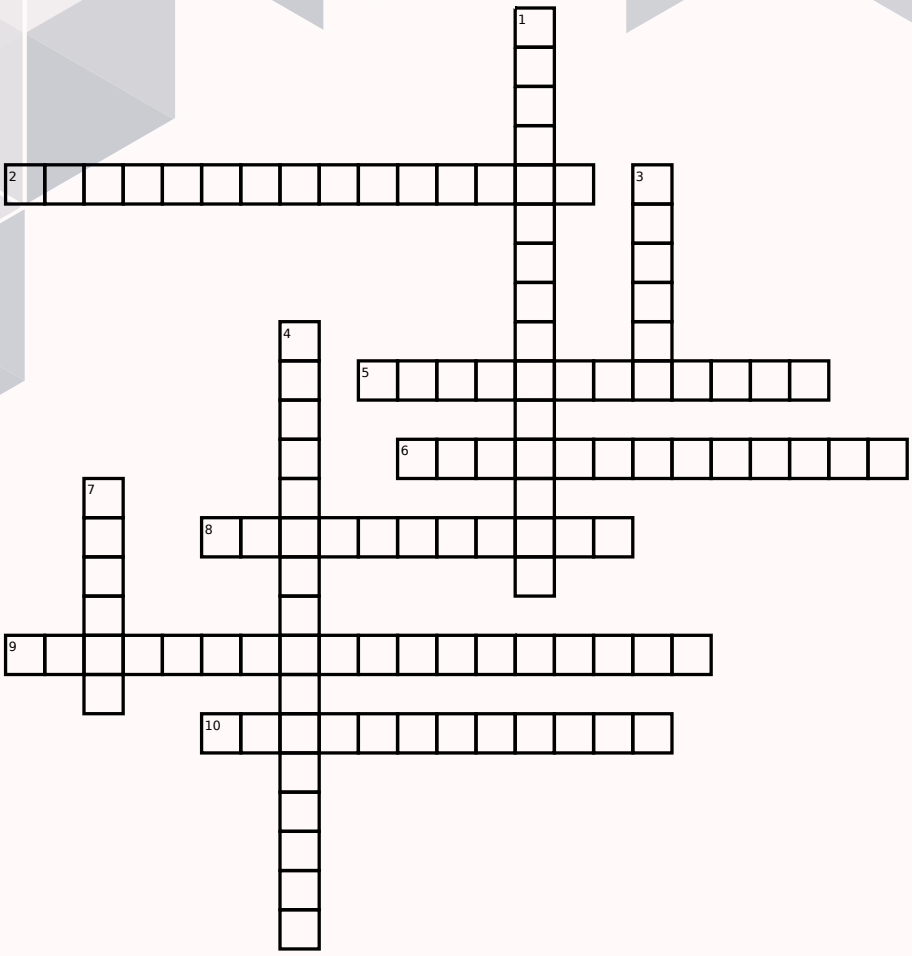
In conclusion, RPA has the potential to transform the way businesses in India operate. By automating repetitive tasks, businesses can reduce costs, improve efficiency and accuracy, and ensure compliance with regulatory requirements. However, to fully realize the potential of RPA, businesses in India need to invest in building internal expertise and partnering with experienced RPA service providers.

Mr.Rahul Neve
(Assistant Professor-IT)



CROSSWORD

ROBOTIC PROCESS AUTOMATION



Across:

2.The ability of an RPA software to learn from experience

5.The framework that defines the rules and structure of an RPA solution

6.The process of recording and analyzing human actions to create an automated process

8.The programming language used to develop RPA solutions

9.A type of RPA software that is designed to mimic human actions

10.A tool used to create and manage RPA bots

Down:

1.Type of process that RPA can automate 3.The process of deploying an RPA solution in a live environment

4.The process of identifying and prioritizing processes for automation

7.Automation software that uses bots to perform repetitive tasks

ANSWERS KEY

WAVE OF ENTREPRENEURSHIP

THE BEGINNING OF POPULAR TECHNOLOGY

The entrepreneurial wave refers to the recent trend of more and more individuals starting their own businesses and pursuing entrepreneurial ventures. This wave was fueled by a combination of factors such as technological advancements, changes in the labor market, and a growing interest in self-employed and independent work.

Technological advances have made it easier and more affordable than ever to start a business, with tools and resources available online for everything from website design and marketing to accounting and project management. I was. Also, changes in the labor market, for example, the rise of freelancing and contract work, are creating more opportunities for individuals to pursue entrepreneurial ventures.

The entrepreneurship wave is characterized by a diverse range of individuals founding companies in a variety of industries, from technology start-ups and e-commerce businesses to artisanal food and beverage companies and creative services. The trend has also led to a greater focus on innovation and social impact, with many entrepreneurs looking to tackle global challenges and bring about positive change in their communities.

BUDDING INDIAN ENTREPRENEUR

MRS. APEKSHA WAGHMARE

India has experienced a significant wave of entrepreneurship in recent years, with a growing number of young entrepreneurs starting their own businesses across a wide range of industries.
Several factors have contributed to this trend, including increased access to capital, improvements in technology, and a growing middle class with a greater appetite for new products and services.

The government's focus on promoting entrepreneurship and innovation through various initiatives like Startup India, Make in India, and Digital India has played a vital role in encouraging young entrepreneurs to start their own ventures.
As a result, India has become one of the world's fastest-growing startup ecosystems, with a thriving network of incubators, accelerators, and venture capitalists. Some of the most successful Indian startups include Flipkart, Ola, Paytm, and Zomato, which have all achieved billion-dollar valuations.

There is a growing awareness and acceptance of entrepreneurship as a viable career option in India.

With successful entrepreneurs like Flipkart's Sachin Bansal and Ola's Bhavish Aggarwal serving as role models, more young Indians are viewing entrepreneurship as a desirable and attainable goal.

The trend of Entrepreneurship has been fuelled by a number of factors which includes :

VocalforLocal: Government initiatives like MakeinIndia and Vocalforlocal has raised awareness of local grows and brands amongst the people of India. They are now supporting the products made or manufactured in India itself.

Rise of the middle class: The growth of the middle class in India has led to an increase in demand for goods and services, which has created opportunities for entrepreneurs to start new businesses. India has a large and growing middle class, which has created new opportunities for businesses.

Cultural factors: India has a long history of entrepreneurship, with a culture that values innovation, risk-taking, and hard work.

Government support: The Indian government has been actively promoting entrepreneurship through various initiatives such as the Start-Up India program. This has included providing tax breaks and other incentives to new businesses, as well as setting up incubation centres and other support systems.

Access to capital: With the growth of the Indian economy, there has been an increase in the availability of capital for entrepreneurs. This is been facilitated by the growth of venture capital firms, angel investors, and other sources of funding.

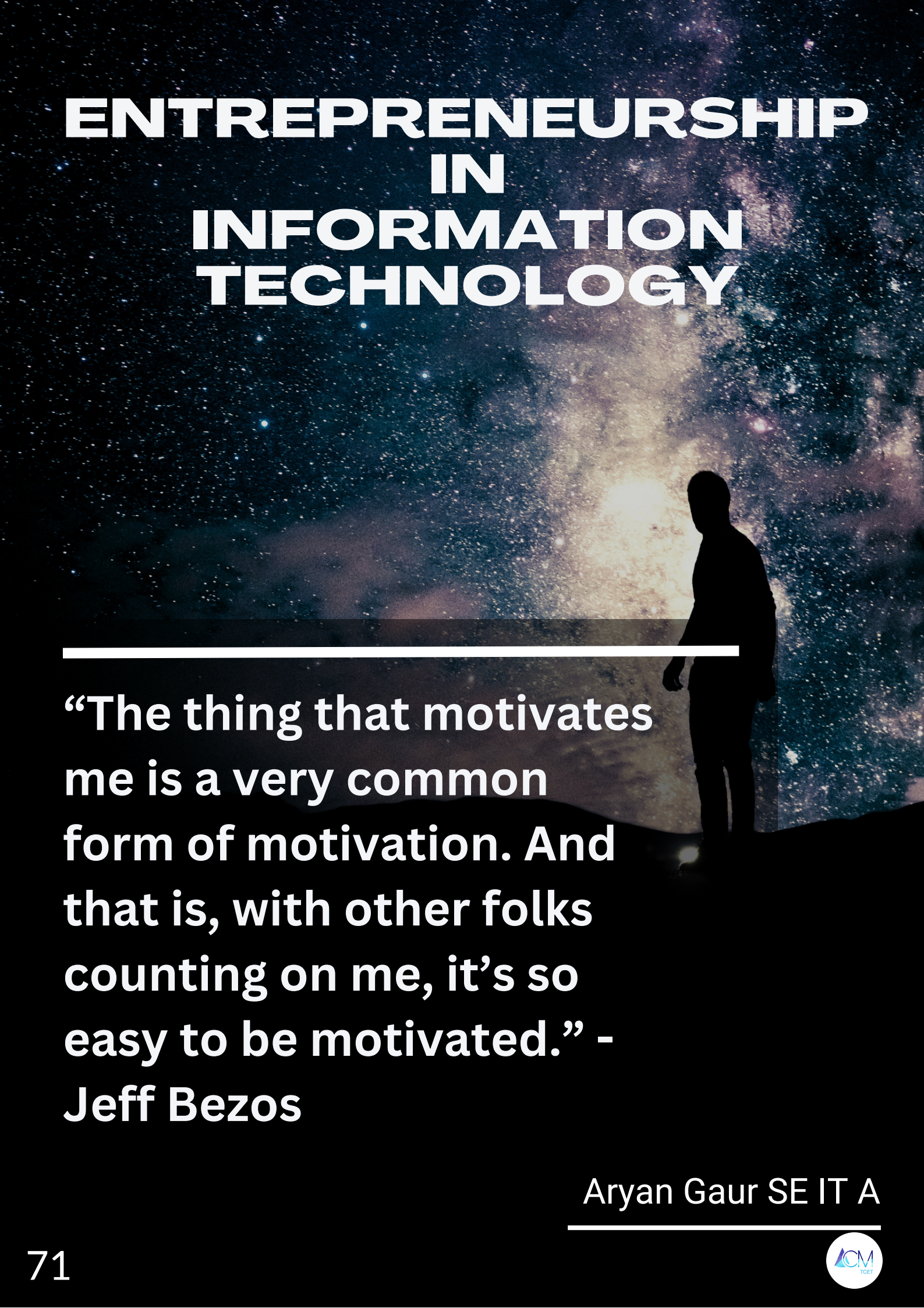
Technology: The growth of technology has made it easier for entrepreneurs to start and grow their businesses. This has included the growth of e-commerce platforms, mobile apps, and other digital tools that make it easier to reach customers and manage operations.

Globalization: With the growth of globalization, Indian entrepreneurs have been able to access markets outside of India. This has provided new opportunities for growth and expansion.

Overall, the wave of entrepreneurship in India is a promising sign for the country's future economic growth and development, as it is driving innovation and creating jobs while also helping to solve some of the country's most pressing social and environmental challenges.

Mrs. Apeksha Waghmare
Assistant Professor,
Department of Information Technology, TCET
Founder of Uuns,
Conscious clothing brand

ENTREPRENEURSHIP IN INFORMATION TECHNOLOGY



"The thing that motivates me is a very common form of motivation. And that is, with other folks counting on me, it's so easy to be motivated." - Jeff Bezos

Aryan Gaur SE IT A

ENTREPRENEURSHIP IN INFORMATION TECHNOLOGY

IT plays an important role in entrepreneurship. Software such as Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Supply Chain Management (SCM) systems can help entrepreneurs manage their businesses more efficiently, reducing costs and increasing productivity. Business can also access real-time data through these systems, enabling them to make more informed decisions and adjust to changing market conditions faster.

Entrepreneurs have also been able to create innovative products and services due to IT. In the age of digital technology, entrepreneurs can now develop new software applications, mobile apps, and online platforms that offer unique solutions to consumer problems. An entrepreneur's toolkit should include IT skills since these products require a deep understanding of IT.

Entrepreneurs have also benefited greatly from IT in terms of accessing funding and resources. Entrepreneurs can connect with investors and supporters worldwide through crowdfunding platforms such as Kickstarter and Indiegogo.

ENTREPRENEURSHIP IN INFORMATION TECHNOLOGY

Furthermore, IT has enabled entrepreneurs to access resources such as online learning and mentorship programs, which enable them to develop their skills and knowledge without requiring traditional education.

Furthermore, IT has enabled entrepreneurs to access resources such as online learning and mentorship programs, which enable them to develop their skills and knowledge without requiring traditional education.

Written By:
Aryan Gaur
SE IT A

"THE TECTONIC SHIFT: NAVIGATING THE UNDULATING LANDSCAPE OF ENTREPRENEURSHIP"

"Every time you state what you want or believe, you're the first to hear it. It's a message to both you and others about what you think is possible. Don't put a ceiling on yourself."

- Oprah Winfrey

Yash Kamdar

"THE TECTONIC SHIFT: NAVIGATING THE UNDULATING LANDSCAPE OF ENTREPRENEURSHIP"

Introduction:

The contemporary business milieu is experiencing a seismic tectonic shift as a resolute wave of entrepreneurship surges across diverse industries and economies. Visionary entrepreneurs, armed with their ingenuity and indefatigable drive, are redefining traditional business paradigms and challenging the established norms. In this article, we delve into the multifaceted phenomenon of entrepreneurship, elucidating the intricacies of this sweeping wave and exploring its profound impact on the modern business landscape.

Catalytic Confluence of Ingenuity and Opportunism:

At the heart of the entrepreneurial wave lies the catalytic confluence of ingenuity and opportunism. Astute entrepreneurs adeptly identify nascent needs and untapped markets, harnessing their creative acumen and foresight to conceive groundbreaking business ideas. Through their unwavering determination and calculated risk-taking, they capitalize on opportunities and translate them into disruptive ventures. From nascent startups to established conglomerates, entrepreneurs are at the

vanguard of driving waves of innovation, transforming industries, and creating new market frontiers.

Dynamic Ecosystem of Innovation:

The entrepreneurial wave is fueled by a dynamic ecosystem of innovation, comprising a diverse spectrum of stakeholders such as investors, mentors, incubators, accelerators, and policymakers. This multifaceted ecosystem provides a fertile breeding ground for nascent entrepreneurs to ideate, iterate, and scale their ventures. Access to capital, mentorship, and networks serves as a potent catalyst for entrepreneurial endeavors, empowering entrepreneurs to convert their nascent ideas into viable business propositions. The synergistic interplay among these stakeholders fosters a conducive environment for entrepreneurial growth, propelling the wave of entrepreneurship forward.

Nurturing Entrepreneurial Mindsets:

The entrepreneurial wave is not solely about launching successful ventures but also about nurturing entrepreneurial mindsets. Entrepreneurs possess a

distinctive amalgamation of traits such as resilience, adaptability, and risk tolerance, which are quintessential for navigating the dynamic business landscape. They embrace failure as an invaluable learning opportunity, iterate their ideas based on constructive feedback, and persevere with unwavering resolve in the face of daunting challenges. This entrepreneurial mindset transcends beyond business ventures, shaping individuals to be innovative and proactive problem-solvers in various spheres of life.

Navigating the Intricacies of Entrepreneurship:

Notwithstanding the allure of entrepreneurship, navigating the intricate complexities of this realm can be daunting. Entrepreneurs encounter multifarious challenges, ranging from market volatility and regulatory constraints to resource limitations and cutthroat competition. Effectively managing risks, scaling operations, building robust teams, and sustaining growth require a strategic and nuanced approach.

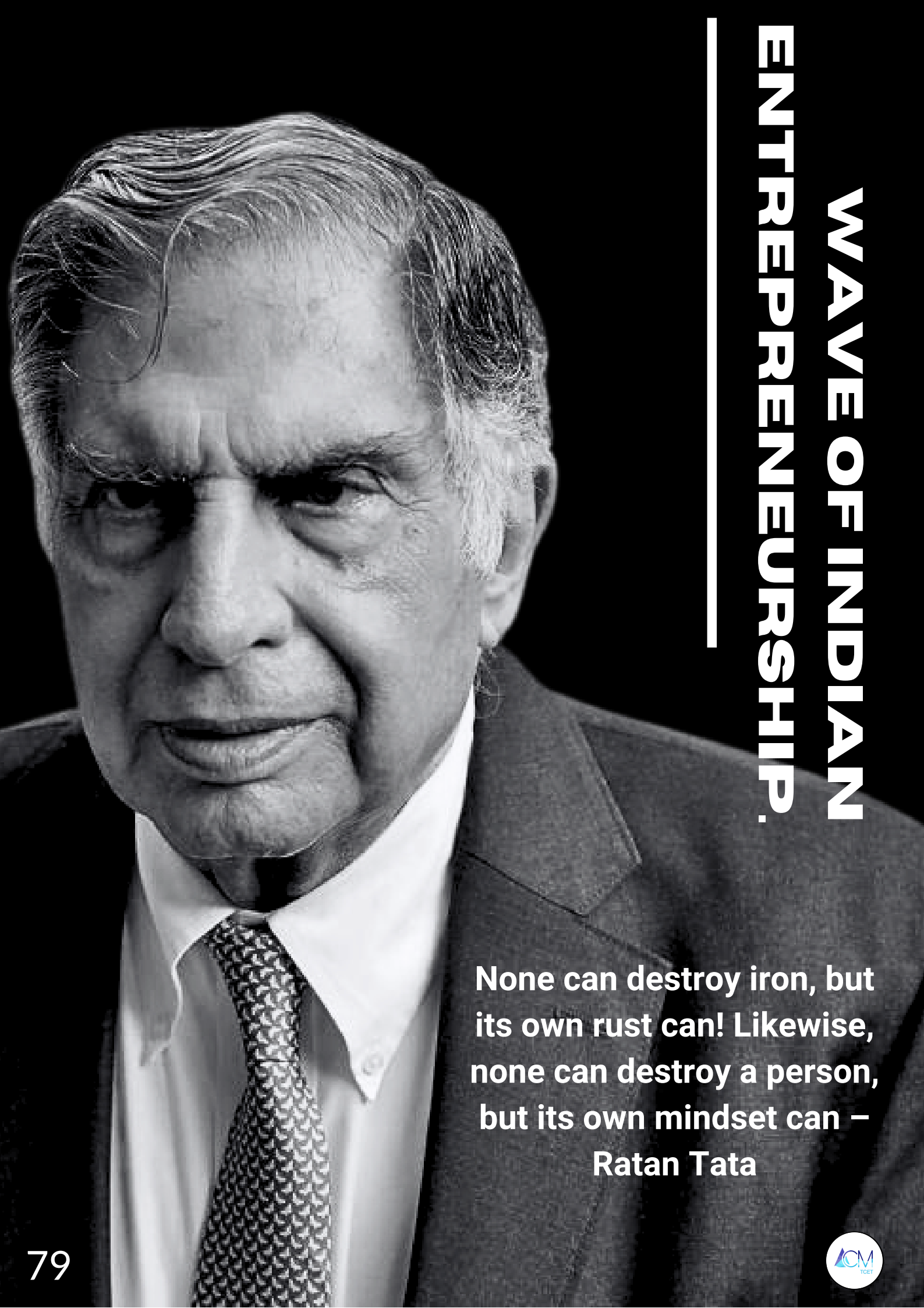
Attaining entrepreneurial success necessitates meticulous planning, unwavering . However, the tangible rewards of entrepreneurship, including financial independence, personal fulfilment, execution, and a perpetual quest for knowledge.and societal impact, often outweigh the challenges, making the entrepreneurial journey truly worthwhile.

Conclusion:

The wave of entrepreneurship is a transformative force that is reshaping the business landscape and propelling economic growth. With their audacity, creativity, and resilience, entrepreneurs are disrupting conventional paradigms, fostering innovation, and driving positive change. Nurturing an entrepreneurial mindset, leveraging the supportive ecosystem, and adeptly navigating the intricacies of entrepreneurship are pivotal for successfully riding this wave of opportunity. Embracing the entrepreneurial spirit can unlock new horizons of success, both for aspiring entrepreneurs and established businesses alike.

Written By:

Yash Kamdar



WAVE OF INDIAN ENTREPRENEURSHIP.

None can destroy iron, but its own rust can! Likewise, none can destroy a person, but its own mindset can – Ratan Tata

01.

WAVE OF INDIAN ENTREPRENEURSHIP.

Over the past few years, India has witnessed an unprecedented surge in entrepreneurship. This surge has been fueled by a number of factors, including the growth of the country's economy, the increasing availability of capital, and a growing culture of innovation and risk-taking.

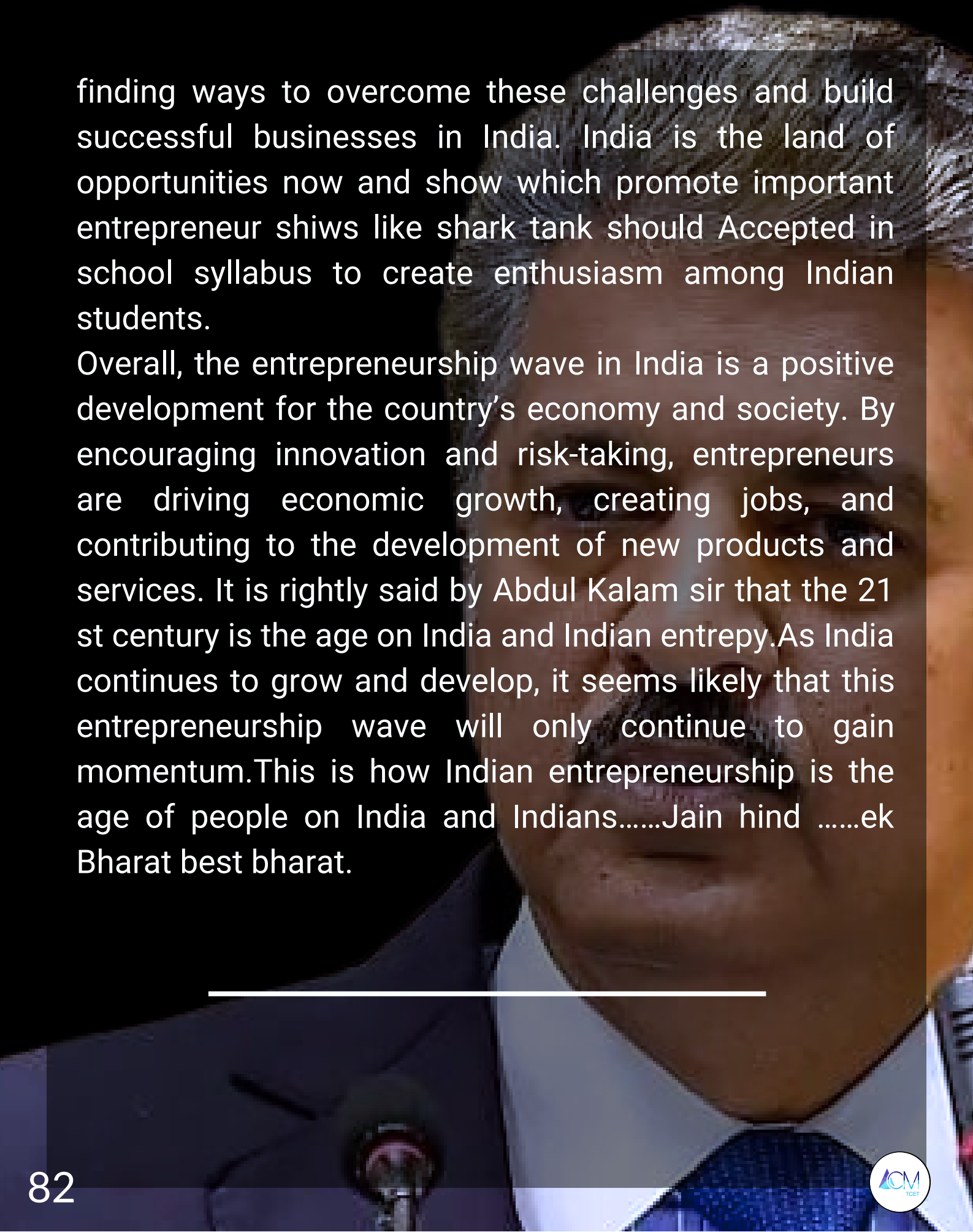
India's economy has been growing at an impressive pace over the past few years, averaging over 7% annual growth since 2014. This growth has been fueled by a number of factors, including increased government spending on infrastructure, rising consumer spending, and a growing middle class. As the economy has grown, so too has the number of entrepreneurs in India.

Another key factor driving the entrepreneurship wave in India has been the increasing availability of capital. Over the past few years, there has been a surge in the number of venture capital firms, angel investors, and crowdfunding platforms operating in India. This has made it easier than ever for entrepreneurs to raise the capital they need to start and grow their businesses.

In addition to these macro-level factors, there has also been a growing culture of innovation and risk-taking in India. This is partly due to the increasing number of young, educated, and tech-savvy individuals who are entering the workforce. These individuals are often eager to take risks and pursue their own ideas, rather than working for traditional companies.

One area where this culture of innovation has been particularly evident is in the tech sector. India has emerged as a global hub for tech startups, with companies like Flipkart, Ola, and Paytm gaining international attention for their innovative products and services. Many of these companies have also attracted significant investment from venture capital firms and other investors.

Of course, there are still many challenges that entrepreneurs in India face. These include a lack of infrastructure in some parts of the country, a complex regulatory environment, and difficulties accessing skilled talent. However, many entrepreneurs are

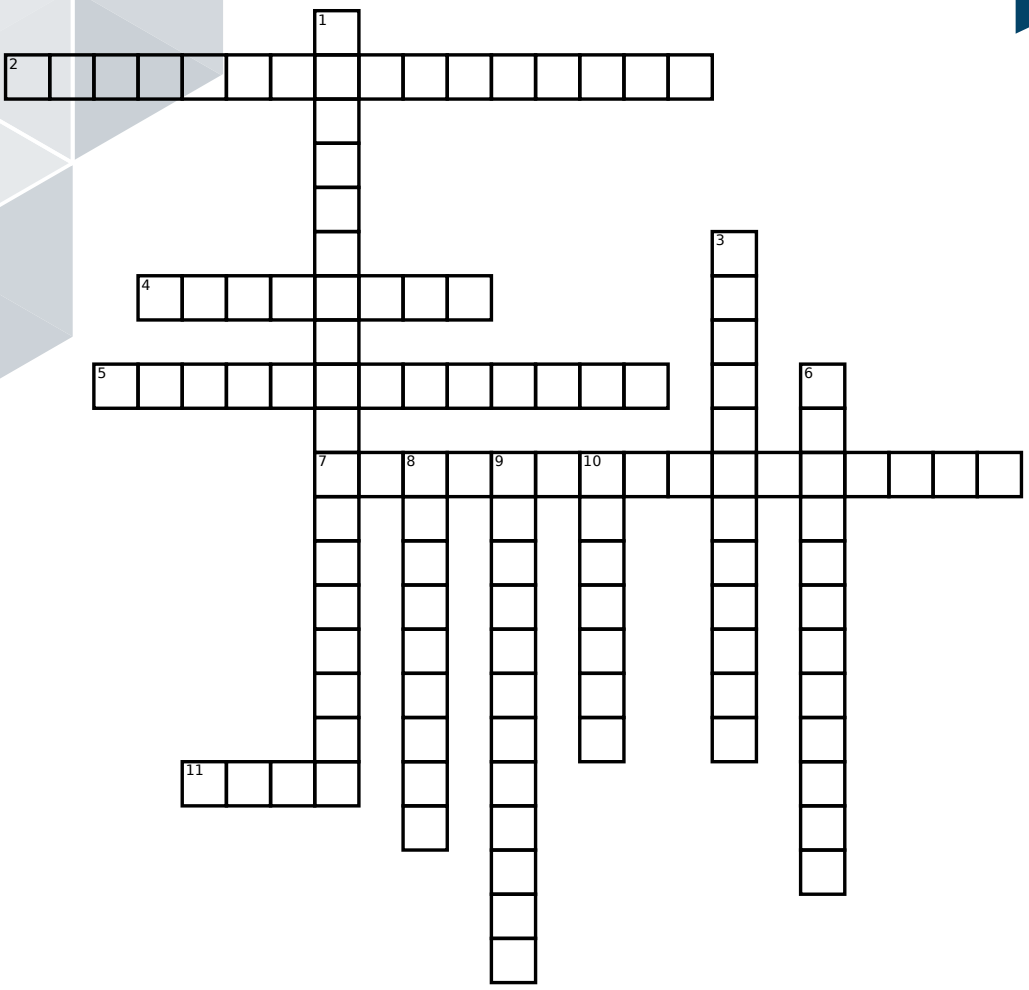


finding ways to overcome these challenges and build successful businesses in India. India is the land of opportunities now and show which promote important entrepreneur shiws like shark tank should Accepted in school syllabus to create enthusiasm among Indian students.

Overall, the entrepreneurship wave in India is a positive development for the country's economy and society. By encouraging innovation and risk-taking, entrepreneurs are driving economic growth, creating jobs, and contributing to the development of new products and services. It is rightly said by Abdul Kalam sir that the 21 st century is the age on India and Indian entrepy.As India continues to grow and develop, it seems likely that this entrepreneurship wave will only continue to gain momentum.This is how Indian entrepreneurship is the age of people on India and Indians.....Jain hind .....ek Bharat best bharat.

CROSSWORD

A WAVE OF ENTREPRENEURSHIP.



Down:

1.The process of turning an idea into a product or service

3.A document that outlines a company's goals and strategies

6.A group of potential customers that a business is targeting

8.A small, temporary team of people brought together to work on a specific project

9.The person who starts and runs a business

10.The amount of money that a business earns from its sales

Across:

2.The study of how people use goods and services

4.The process of generating ideas for new products or services

5.A detailed plan for how a company will achieve its goals

7.The process of creating a new business venture

11.The money that a business owes to its creditors

ANSWERS KEY

EZINE COMMITTEE

PUBLICATIONS TEAM

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TCET ACM FACULTY INCHARGE &
EZINE COORDINATOR

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VICE CHAIRPERSON

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KEENJAL GUPTA

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VISHAL ANTIYA

RAMNARAYAN TIWARI

CODE OF ETHICS

The Department of Information and Technology of TCET believes that Engineers make a direct impact on almost all aspects of Human Life for its betterment. IT Engineers should strictly adhere to the high principles of ethical conduct. In order to inculcate high standards in professional behaviour, the department advocates the following code of ethics for all the students, Faculty members & Staff of the department.

- Strive to be professionally competent to provide high quality product and services.
- To responsibly make decisions, minimising hazards to society and to disclose potential factors that maybe a threat to health and society.
- Be fair to all individuals and not discriminate between individual based on religion, race, sex, age, disability, national origin, etc.
- Give credits to contribution of other's viz. copyrights, patent, intellectual property, etc.
- Protect and respect privacy and ensure confidentiality of information whenever appropriate.
- The knowledge gained during the course of study will not be misused for carrying out any illegal activities, intruding and hacking of networks.

SUMMARY OF ACTIVITIES

DATE	NAME	DESCRIPTION
3rd Jan to 11th Jan	Industrial Visit for TE & BE	To give students an insight into the working of various industries and provide a fun refreshing experience to gain knowledge and develop sense of social responsibility
20 Jan 2023	Meeting with Core and working committee members to discuss further events	To discuss and plan acm activities, roles and responsibilities for even sem.
27th Jan 2023	Seminar on Recent Trends & Technology RPA	Significance, growth and opportunities in Robotic Process Automation field
3rd Feb 2023	Senior Interaction-Sharing the experience by current placed students/Students scored good	To discuss tips and requirements for preparation of resume , on campus placement and Higher Studies
10th feb 2023	Alumni connect	Sharing of Moments spent at Institute , encourage , promote networking opportunities and industrial exposure

SUMMARY OF ACTIVITIES

DATE	NAME	DESCRIPTION
21st Feb 2023 to 24th Feb 2023	Multicon W 2023 Professional Body Workshop Multicon-W QP Workshops RPA QP Workshop DAA Workshop AWS Workshop	Provide Hands on experience, enhance technical knowledge, develop problem solving skills.
10th March 2023	Seminar/Webinar on Budding Technology	To Provide Insights on Blockchain Technology
24th March 2023	Code-o-Fiesta	Organized National Level Coding Competition on Codechef platform
15th April 2023	Idea Presentation	BE Students Presented their Projects Ideas and scope of implementation to external judges. The shortlisted groups will present at their projects at Mind's-eye at Institute level
11 April 2023 & 12 April 2023	Project Competition	The competition was intended to showcase the projects thereby identifying and analyzing real problems and provide solutions to the same