



SADHANA EDUCATION SOCIETY'S
L. S. RAHEJA COLLEGE OF ARTS AND COOMERCE
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INHOUSE DEPARTMENT PUBLICATION
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Sadhana Education Society's
L.S. Raheja College of Arts & Commerce

PENNY TALKS

Bachelors of Commerce (Financial Markets)

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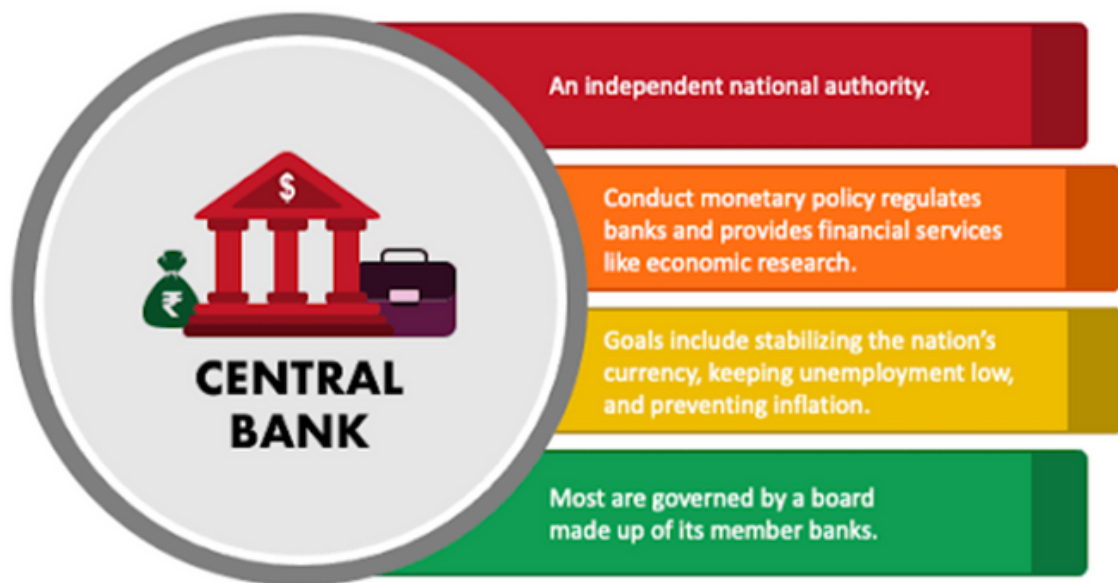
The Role of Central Banks in shaping the economy

-MR. GUNJAN CHITLANGE (TYBF)

In the big world of money stuff, where words like "monetary policy" might make you want to take a nap, there's a cool group called central banks. Today, we're hopping on the Fun Money Express to explore the funny side of central banks and how they help our money world.

CENTRAL BANK

What is a Central Bank?



The Keeper of Calm: Money Rules

Central banks are like the smart bosses of the money game, using things like interest rates to make the money world happy. Lower rates help the money world grow, and higher rates stop prices from going wild. It's a game of balance, and central banks are like the superheroes making sure the money world stays cool (with awesome money swords).

Prices and Jobs: Finding the Right Mix

Think of central bankers as tightrope walkers, trying not to fall into the pit of too many prices going up or too many people without jobs. Too much of either is like juggling fire, and central banks are the leaders making sure the money circus stays in control.

Magic Money Machines: Controlling Money

Central banks have a superpower – they can make more money. It's like having a magic money-making machine in their secret hideout. Need more money for everyone? Press the magic button! Too much money flying around? Pause the magic machine. Picture central bankers in superhero capes pressing buttons that say "Boom" and "Stop."

The End: Making Money Fun

As our trip through the funny side of central banking ends, remember that these money heroes are here to keep our money safe. So, the next time you hear about interest rates doing a dance or money playing hide-and-seek, know that the central bank is making the biggest money show ever.

Understanding the central bank's job isn't just about money; it's about seeing that even money stuff can be funny. Who said money things can't be a good time? Now, go out there, little money experts, armed with money jokes and a smile, and rule the money world!

Reference links:

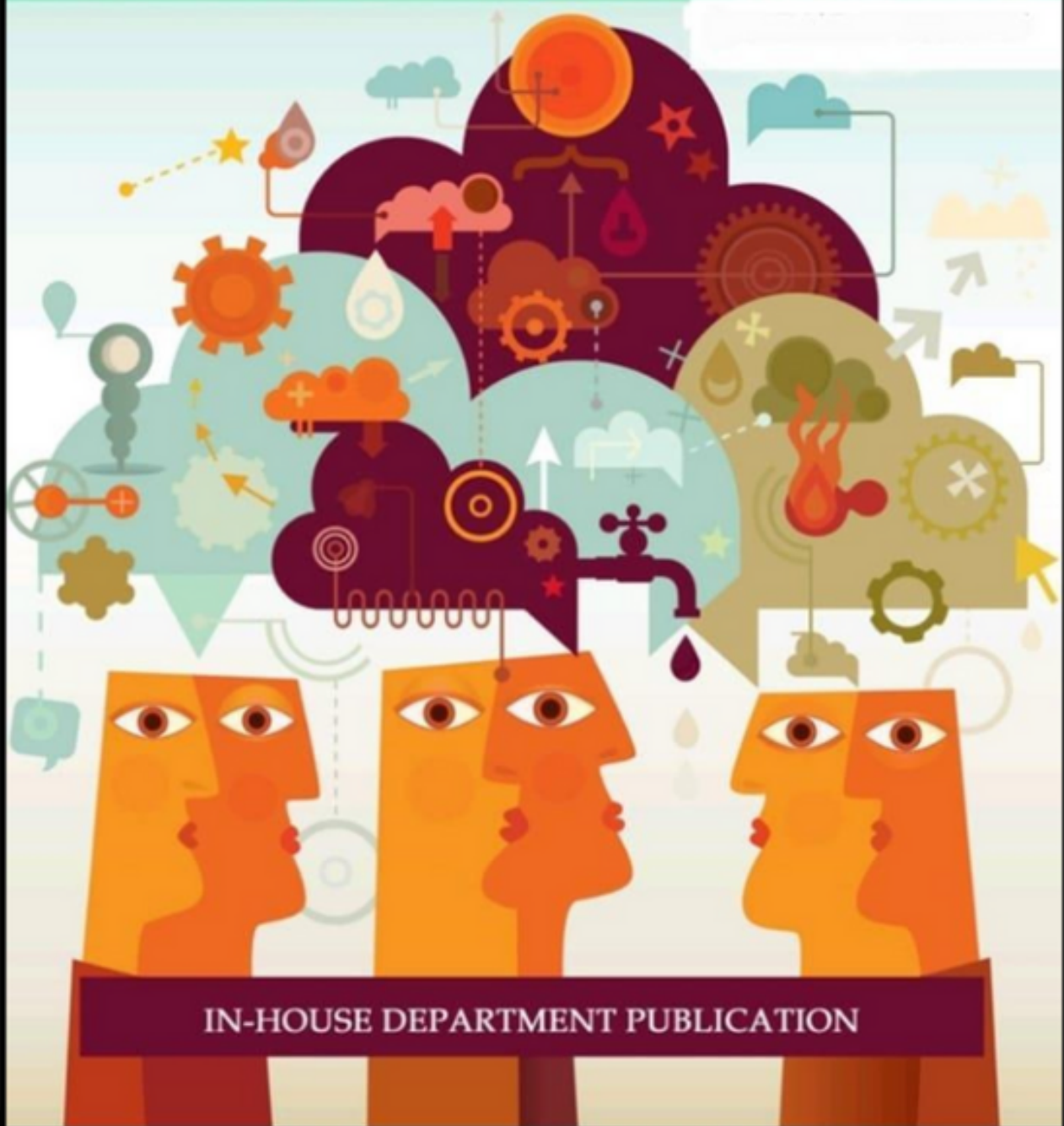
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Bachelors of Commerce (Accounting & Finance)



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L. S. RAHEJA COLLEGE OF ARTS AND COMMERCE

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EDITOR: MS. VAISHALI PANDYA

Exploring RBI's Contemplation on Open Market Operations

-MS. TEJASVINI SACHALA- FYBAF -3645

-MR. PRASHANT RAJAN SHELAR

The Reserve Bank of India (RBI) is currently immersed in a thoughtful evaluation of its open market operations (OMO), a crucial tool in its monetary policy toolkit. OMOs involve the buying and selling of government securities to regulate the money supply in the economy, influencing liquidity and interest rates.

Background:

Amidst economic uncertainties and evolving global conditions, the RBI continually assesses the efficacy of its policy instruments. OMOs, in particular, play a pivotal role in maintaining price stability and ensuring adequate liquidity in the financial system.

Current Considerations:

1. Liquidity Management:

The RBI is meticulously examining the liquidity conditions in the market. OMOs serve as a mechanism to address any liquidity mismatches, ensuring that the financial system operates smoothly.

2. Interest Rate Dynamics:

In the wake of changing interest rate dynamics, the RBI is evaluating how OMOs can be deployed to influence short-term interest rates. Adjusting these rates helps manage inflation and stimulate economic growth.

3. Inflation Targeting:

With a commitment to inflation targeting, the RBI is assessing the role of OMOs in achieving the desired inflation rate. Effective OMOs can help in controlling inflationary pressures by regulating the money supply.

4. External Economic Factors:

Given the interconnectedness of economies, the RBI is closely monitoring external factors such as global interest rates and capital

flows. OMOs may be adjusted to mitigate the impact of these external variables on the domestic economy.

5. Market Stability:

The central bank is keen on maintaining stability in financial markets. OMOs can be utilized to address any disruptions and ensure that markets function efficiently.

Potential Outcomes:

1. Enhanced Policy Transmission:

Adjustments in OMOs could lead to more effective transmission of monetary policy changes. This can result in a quicker and more direct impact on borrowing costs for businesses and individuals.

2. Improved Liquidity Conditions:

By fine-tuning OMOs, the RBI aims to enhance liquidity conditions, providing ample funds for economic activities while preventing excessive liquidity that may fuel inflation.

3. Flexible Approach:

The central bank may adopt a more flexible and dynamic approach to OMOs, responding promptly to evolving economic conditions. This adaptability allows for a nuanced response to emerging challenges.

4. Aligning with Economic Goals:

The overarching goal is to align OMOs with broader economic objectives, ensuring that the monetary policy framework contributes effectively to economic growth, stability, and the overall well-being of the populace.

In conclusion, the RBI's current consideration of open market operations reflects its commitment to maintaining a balanced and resilient economic environment. As the economic landscape continues to evolve, the central bank's strategic use of OMOs is poised to play a pivotal role in achieving its objectives and fostering sustainable growth.

"Navigating New Horizons: Decoding the Impact of Budget 2023 on India's Financial Landscape"

-MR. RAJESH POOJARY- FYBAF-3640

-MR. PRASHANT RAJAN SHELAR

The Union Budget 2023 is a pivotal roadmap that charts the course for India's economic trajectory. At the forefront is a strategic commitment to economic recovery post-pandemic. With a substantial allocation to healthcare, the budget underscores the importance of fortifying the nation's medical infrastructure, ensuring resilience in the face of health crises, and bolstering the well-being of its citizens.

Education emerges as a linchpin for future growth, with increased funding dedicated to skill development programs and educational institutions. The budget signals a resolute intent to cultivate a skilled workforce, pivotal for India's competitive edge in the global economic arena.

Tackling unemployment takes center stage through the National Employment Guarantee Scheme, designed to create job opportunities and alleviate economic hardships. This initiative reflects the government's dedication to inclusive growth and economic stability, particularly for those adversely affected by the pandemic.

Sustainability is a recurrent theme, with heightened allocations for renewable energy projects. This move aligns India with global efforts to combat climate change, positioning the nation as a proponent of green and sustainable practices.

Infrastructure development assumes a pivotal role, as significant investments are channeled into roadways, railways, and urban infrastructure projects. Beyond stimulating economic activity, these initiatives aim to enhance the overall quality of life for citizens across the country.

Entrepreneurship and innovation are given a boost with measures aimed at supporting startups and small businesses.

Tax incentives, easier access to credit, and regulatory reforms contribute to fostering a conducive business environment, promoting economic dynamism.

Agriculture, a cornerstone of India's economy, witnesses increased investments in irrigation, technology adoption, and market linkages. These measures are designed to uplift farmers by improving income and resilience amid the evolving landscape of agriculture.

Digital transformation takes center stage, with heightened allocations for digital infrastructure and technology adoption. The vision is to propel India into a digitally empowered future, fostering efficiency, connectivity, and innovation across sectors.

Addressing fiscal challenges, the budget outlines measures for revenue generation, encompassing tax reforms and enhanced enforcement. The objective is to ensure fiscal sustainability and responsible financial management, crucial for long-term economic stability.

Financial inclusion emerges as a key imperative, with initiatives promoting digital payments, expanding banking services, and economically empowering marginalized communities. These measures underscore the commitment to creating a more equitable and inclusive financial landscape.

Healthcare research and development receive a significant boost, aiming to position India as a hub for medical innovation and pharmaceutical manufacturing. This not only strengthens the healthcare sector but also enhances India's global standing in pharmaceuticals.

The budget places a strong emphasis on reducing economic inequality through increased allocations for poverty alleviation, housing, and nutrition schemes. Social welfare programs underscore the commitment to creating a more equitable society, ensuring that the benefits of economic growth reach all segments of the population.

In response to evolving global trade dynamics, the budget outlines strategies to boost India's export competitiveness.

Simplifying trade procedures, reducing compliance burdens, and exploring new markets are key components of this approach, positioning India as a formidable player in the international trade arena.

The financial sector receives attention, with measures aimed at enhancing its stability and efficiency. Regulatory reforms address challenges faced by banks and financial institutions, ensuring the robustness of the financial system.

In conclusion, the Union Budget 2023 is not just a financial document; it's a strategic vision that encapsulates the aspirations of a nation navigating new horizons. From healthcare and education to sustainable development, innovation, and financial inclusion, the budget lays the groundwork for a more resilient, inclusive, and forward-looking financial landscape for India.



Sadhana Education Society's
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Inhouse Departmental Publication

COGNIZANCE



Department Of B.M.S.

SES'S

L. S. RAHEJA COLLEGE OF ARTS AND COMMERCE

INHOUSE DEPARTMENT PUBLICATION

NAME: COGNIZANCE

**DEPARTMENT: BMS (BACHELOR OF
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EDITOR: MS. SAMPADA ALMEIDA

Gen-z Unplugged: Technology and well being among the younger generation

-MS. SAKINA RETIWALA

The young generation is a rainbow of hopes, dreams, and unbounded enthusiasm. They are the ones taking the initiative, tearing down obstacles, and changing the way the world works. Let's examine the new generation's incredible spirit of resiliency, flexibility, and ambition in more detail.

The dreamers are them. Young people are a breeding ground for idealistic individuals. They dare to imagine a more creative world that is unrestricted by the limitations of the present. They're not content to settle for the usual, whether it's starting their own business, pursuing artistic endeavours, or looking for unorthodox employment routes. With enthusiasm as their driving force, they forge forth into unfamiliar territory, sparking change and motivating others in the process.

The younger generation is the first to have developed a close relationship with technology. They use social media, smartphones, and cutting-edge software to traverse the digital world with ease. They are more able to communicate with the world, express their thoughts, and start social justice movements because to their technological prowess. They are aware that technology can help them be heard and have a significant influence.

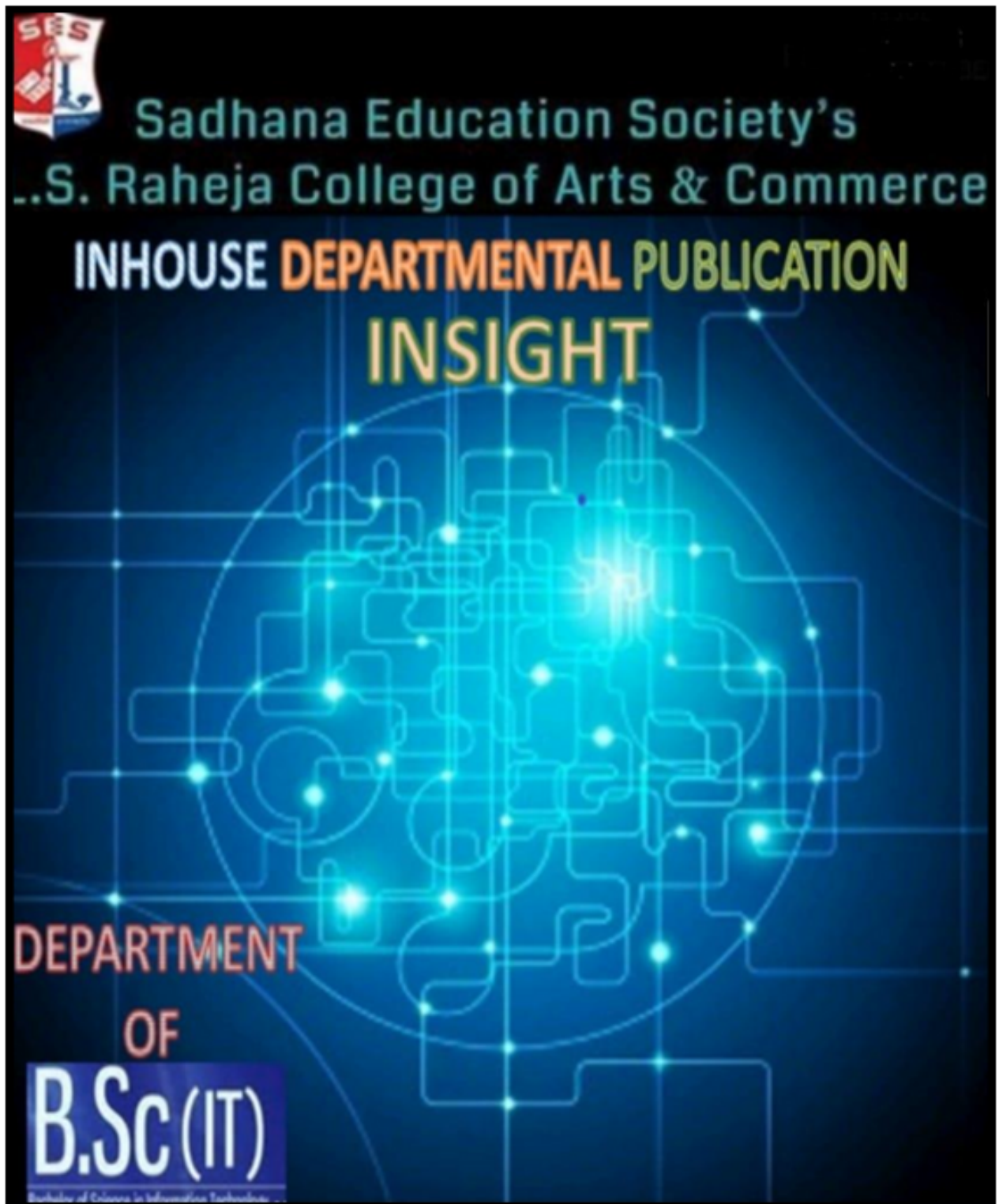
More than ever before, the younger generation is accepting and inclusive. They embrace many cultures, beliefs, and lifestyles as they celebrate variety. They go against social conventions and combat prejudice, intolerance, and discrimination. They act as rays of hope, bridging gaps and promoting harmony in a society that still struggles with separation. They realize that real strength comes from accepting our differences and constructing a world in which everyone can prosper.

The younger generation, in contrast to earlier generations, looks for more than just financial security. They desire for a sense of direction in their life and work. Even if it necessitates following a less common route, they place a higher priority on having a constructive impact on the world.

Whether it is sustainability, social justice, or mental health awareness, they are motivated by their passions. They aspire to create a lasting impression and a legacy that transcends material achievement.

When it comes to conquering obstacles, the younger generation has their share to deal with. They have the burden of inheriting a planet riddled with complicated issues, from economic instability to climate catastrophe. They resist being overcome, nevertheless. They take these problems head-on, band together, and demand change. They have no qualms about challenging the status quo, putting the government in its place, or working for a better tomorrow. Their tenacity and willpower serve as an inspiration that advancement is still achievable in the face of difficulty.

The youthful generation personifies the traits of optimism, creativity, and fortitude. They are the change-makers, defying convention and reshaping the world in their image. They continue to inspire earlier generations with their aspirations, flexibility, and unrelenting spirit. Let's encourage and support the younger generation as we follow their journey since they hold the key to a better future.



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EDITOR: Ms. PRAJAKTA JOSHI

MS.SAYALI PARAB

Cloud Computing

-MS. SAYALI PARAB

Cloud computing refers to delivering computing resources as a service over the Internet, on a pay-as-you-go pricing. This type of computing relies on sharing a pool of physical and virtual resources, rather than deploying local or personal hardware and software.

The name “cloud” was inspired by the cloud symbol that is often used to represent the Internet in diagrams. Today, many large and small businesses use cloud computing, either directly or indirectly. The big players in the cloud space are Amazon (AWS), Microsoft (Azure), Google (Google CloudPlatform), and Rackspace (OpenStack).

Costs reduction is probably the main driver of the wide use of cloud computing among businesses. Cloud computing helps businesses reduce overall IT costs in multiple ways. First, cloud providers enjoy massive economies of scale. Effective use of physical resources due to statistical multiplexing brings prices lower, 5–7 times.

Then, multiple pricing models, especially, the pay-per-use model, allow customers to optimize costs. Cloud computing brings down IT labor costs and gives access to a full-featured platform at a fraction of the cost of traditional infrastructure. Universal access is another advantage of cloud computing.

It allows remote employees to access applications and work via the Internet. Other important benefits include a choice of applications, flexible capacity, up-to-date software, potential for greener communication, and speed and agility. With flexible capacity, the organizations need not be concerned about over/under-provisioning for a service.

Cloud Services Models

Services in cloud computing have different levels of support, according to what is offered to clients. There are three classes of services, named IaaS (Infrastructure as a Service), PaaS (Platform as a Service) and SaaS (Software as a Service).

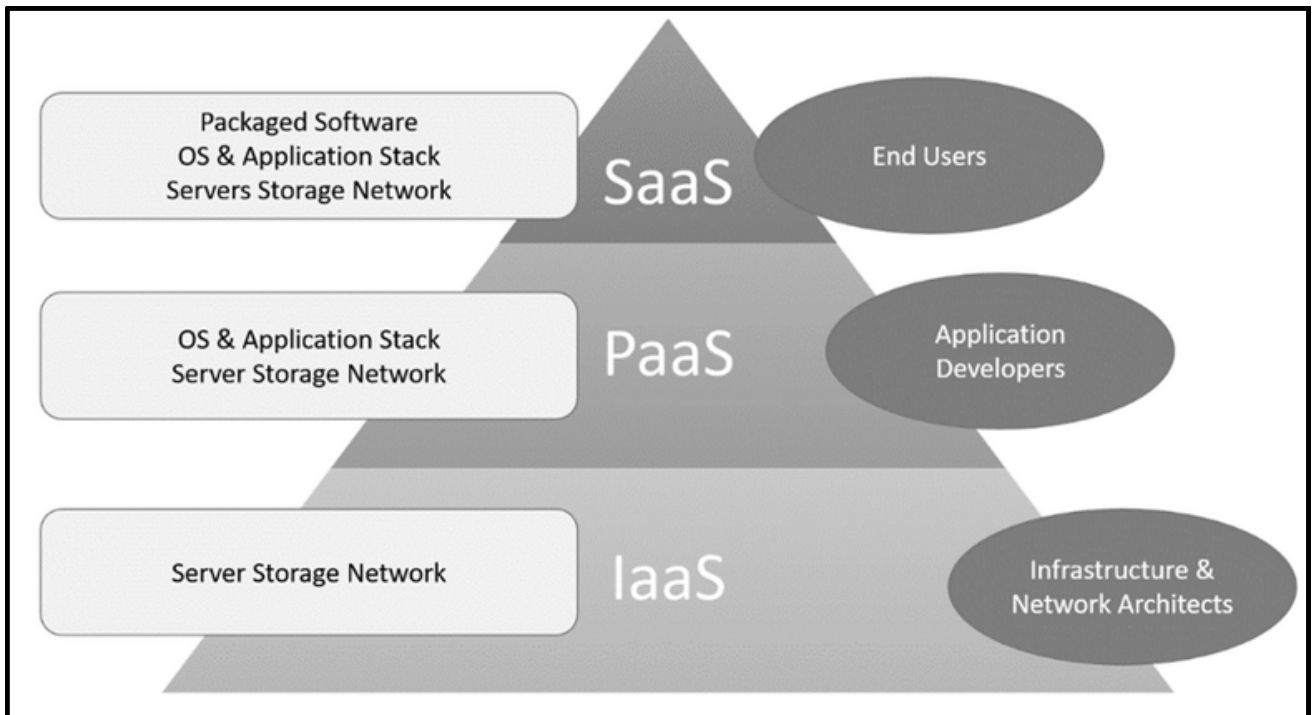


Fig. 1: Cloud Service Models

In general, X (everything) as a Service (XaaS) is a collective term used to refer to any services that are delivered over the Internet, rather than locally.

(a) Infrastructure as a Service (IaaS) : In this type of service clients are provided with processing, storage, network bandwidth, and other computing resources, being able to reconfigure them as needed. The clients do not own, manage, or control the underlying infrastructure; instead, they rent it, as a service by paying only for what is used. This eliminates the need for customers to set up and maintain their physical resources. The service provider supplies virtual hardware resources (e.g., CPU, memory, storage, load balancer, virtual LANs, etc.). Amazon Elastic Compute Cloud (Amazon EC2), Eucalyptus, OpenNebula, and OpenStack are examples of providers in this class.

(b) Platform as a Service (PaaS) : In this type clients get an environment for the development, testing, and deployment of their applications, disregarding the needs of infrastructure (memory, storage, processors, etc.). The customer has control over the applications and some of the configuration of the platform environment but not over the infrastructure; this is the main difference between PaaS and IaaS.

Hence, unlike IaaS where users select their operating system, application software, server size, etc., and maintain complete responsibility for the maintenance of the system, PaaS operating system updates, versions, and patches are controlled and implemented by the vendor.

Google Apps and Microsoft Azure are examples of services in this class.

(c) Software as a Service (SaaS) : The applications are the service provided, with clients demanding the execution of specific programs. The applications are accessible to the customers, at any time, from any location, and with any device, through a simple interface such as a web browser. The client has no control over the infrastructure or even the application.

Types of Cloud Computing

The cloud can be deployed in four types private, public, hybrid, and community cloud. An additional type is the community cloud, which is less commonly used.

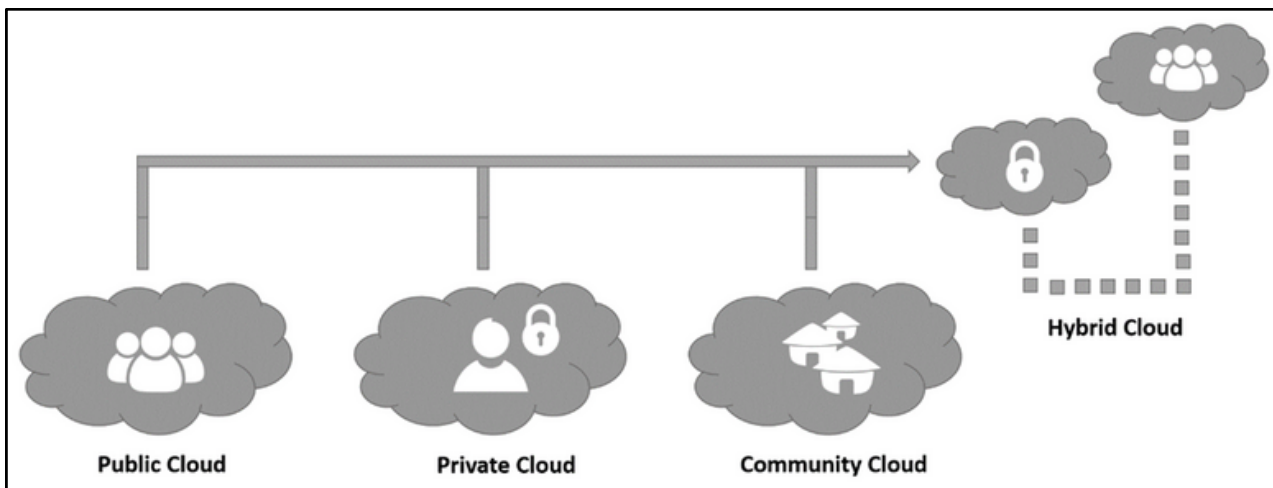


Fig. 2: Types of Cloud Computing

(a) Private Cloud

Private clouds are those that are built exclusively for a single business. For many companies considering cloud computing, private clouds are a good starting point.

They allow the organization to host applications, development environments, and infrastructure in a cloud, while addressing concerns regarding data security and control that can arise in the public cloud environment.

(b) Public Cloud

The public cloud is a series of computing services available on the public Internet. It includes Software-as-a-service applications such as Salesforce.com or Google's Gmail, software development Platforms as a Service, such as Microsoft's Azure, and Infrastructures as a Service from a wide range of vendors.

(c) Hybrid Cloud

A hybrid cloud be an interesting opportunity for taking advantage of the best of the private and public cloud. You can choose to maintain some systems and data in-house while using external services where they will be more effective for your business. Such a combined solution is called a Hybrid Cloud. It combines the comfort level of a private cloud with the flexibility and versatility of the public cloud.

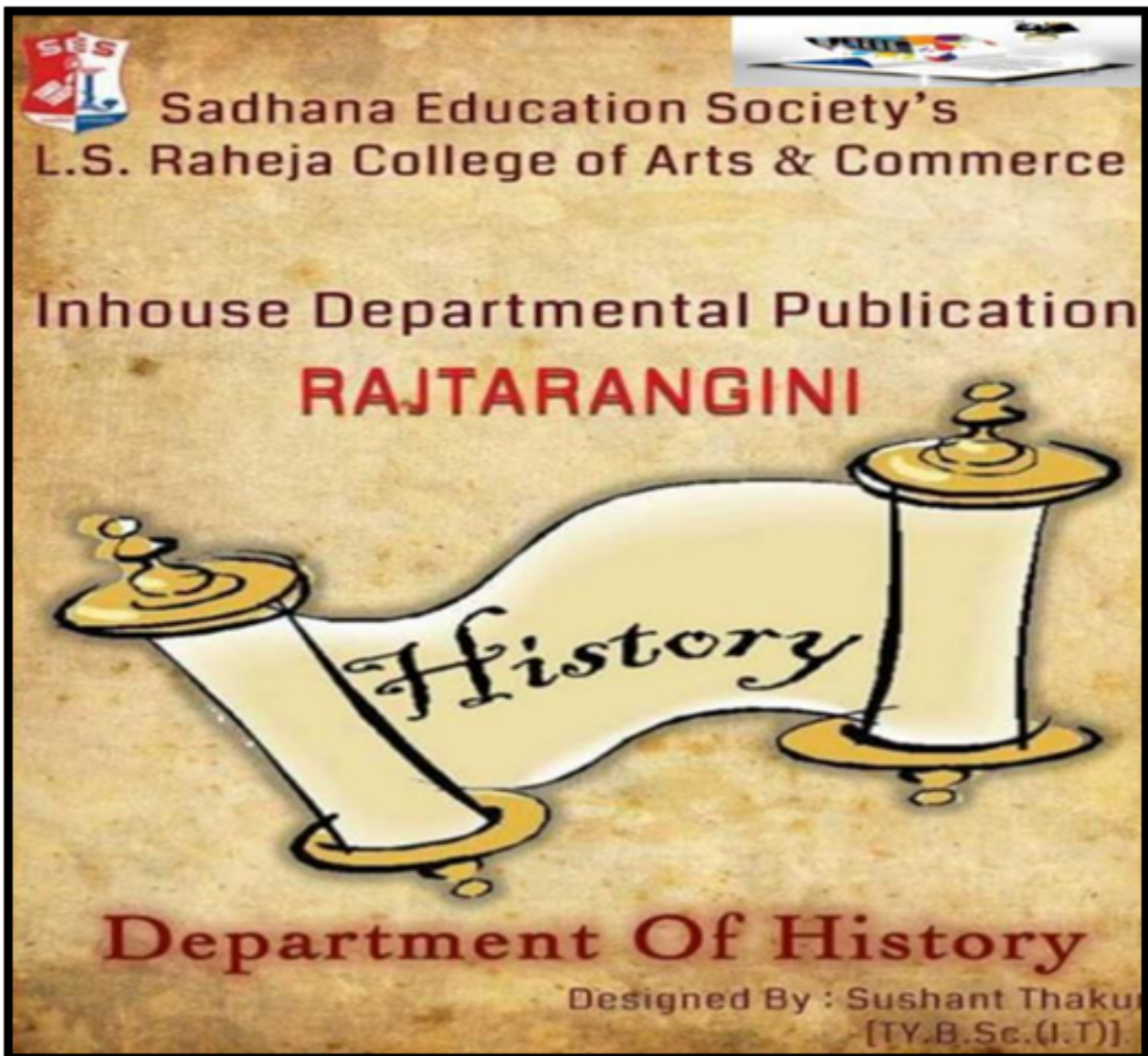
(d) Community Cloud

Community clouds are the integration of services of different clouds to achieve the specific needs of an industry, a community, or a business sector.

The cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). It may be managed by the organizations or a third party and may exist on premise or off-premise. Community cloud arises from concerns over Cloud Computing, specifically control by vendors and lack of environmental sustainability.

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**L. S. RAHEJA COLLEGE OF ARTS AND COMMERCE
INHOUSE DEPARTMENT PUBLICATION**

NAME: RAJTARANGINI

DEPARTMENT: HISTORY

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EDITOR: MS. POOJA U. YADAV

The Hidden Gem of the India: Raghurajpur-Heritage **Village of Odisha**

-MS. POOJA U. YADAV

Raghurajpur Artist Village is a stunning cultural jewel hiding away in Puri's peaceful countryside. It is well-known for its rich heritage of traditional art, craftsmanship, and centuries-old artistic traditions that have been passed down through generations.



Raghurajpur, located only a few kilometres from Puri's famous Jagannath Temple, is a must-see site for art lovers, history fans, and those looking for an authentic experience of Odisha's cultural heritage.



The village is well-known for its distinctive Pattachitra art, a traditional type of painting that features detailed craftsmanship, brilliant colours, and legendary narratives. The Pattachitra art genre focuses on stories from Hindu epics such as the Ramayana, Mahabharata, and Puranas. The artisans employ natural dyes and colours to produce these beautiful artworks on fabric, which are known as 'Patta' in the local language.



Apart from Pattachitra, the village is well-renowned for its magnificent palm leaf engravings known as 'Talapattachitra,' stone and wood carvings, and traditional masks. These masks are essential to Odisha's flourishing folk theatre, particularly during the legendary 'Gotipua' dance performances and other traditional festivals.



Another major reason is that Raghurajpur hosts art festivals and cultural events during the tourist season, which usually happens in the winter. These events highlight the village's artistic tradition, allowing visitors to interact with the artists, witness live demonstrations, and purchase artwork directly from them. Remember that during the holidays, the village might be more crowded, especially around Christmas and New Year. So, if you're visiting during these times, it's a good idea to plan your trip and book your accommodation.

Raghurajpur Artist Village promises to give you an enriching experience of India's cultural heritage and traditional art styles no matter when you go.

Raghurajpur is well-known for its extensive cultural legacy, particularly for the Pattachitra art form, which is a custom of painting on fabric.

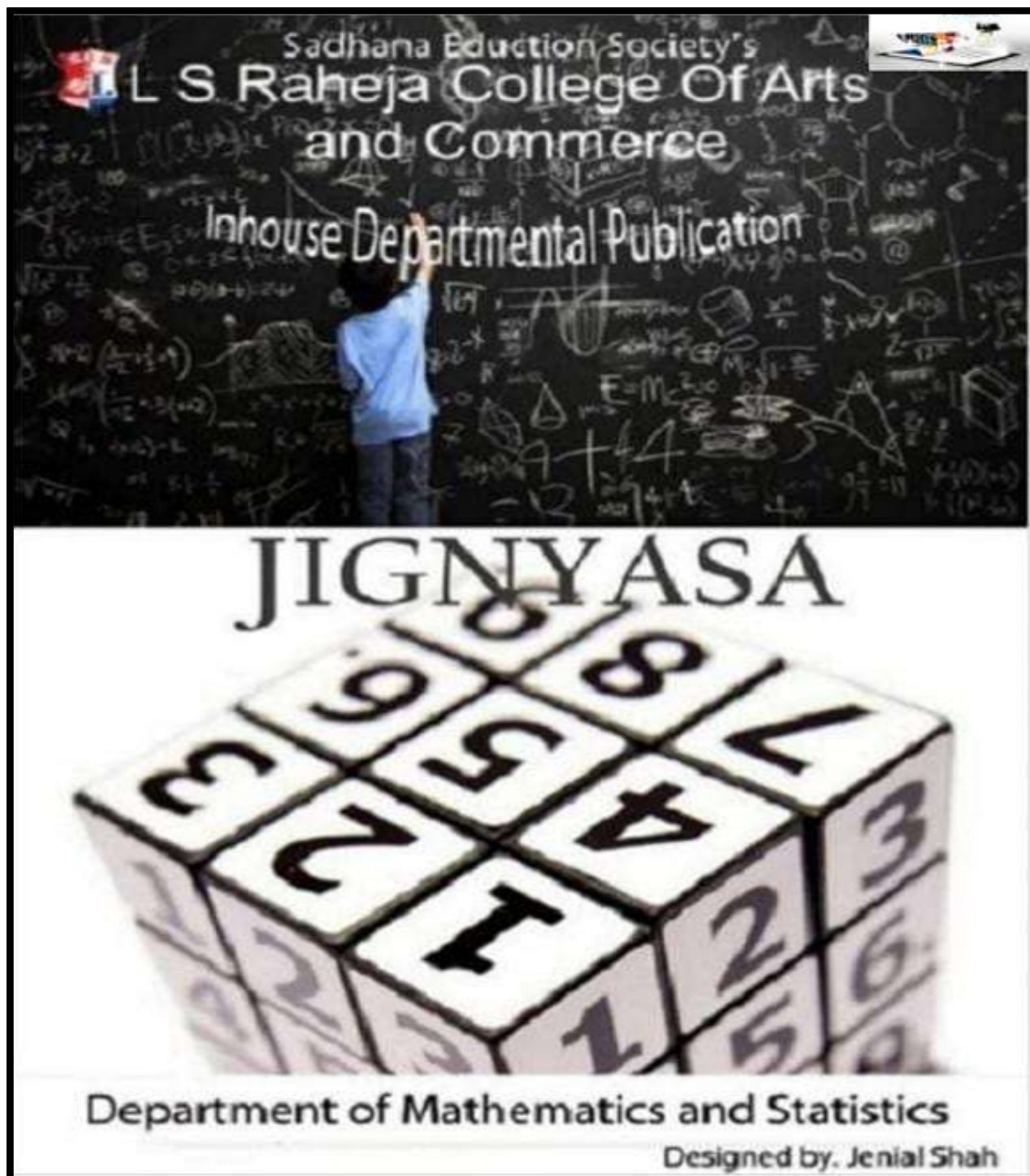
The Pattachitra art form is fascinating since it has been handed down through the generations. The residents of this village have done a magnificent job of maintaining this art form for thousands of years.



As soon as you go into the village, you will observe that many households there are engaged in traditional crafts. Many of the houses in Raghurajpur have intricate designs on their doors and walls. This is to inform the guests that Pattachitra is practiced by these households. In recent years, Raghurajpur has grown in popularity as a travel destination, inviting tourists from all over the world. Visitors to the village can buy traditional handicrafts, engage with the artisans, and watch traditional art forms being practiced. They use these houses as both their studio and place of abode.



Typically, the themes seen in Pattachitra paintings are drawn from local Hindu mythology and tradition. Natural dyes and pigments are used in the painting of these designs. When it comes to colours, natural ones are just so much more remarkable and one-of-a-kind. Every visitor is captivated by the artwork's and the village's distinctiveness.



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DEPARTMENT: MATHEMATICS AND STATISTICS

EDITOR: DR. SEEMA UKIDVE

ISSUE: JANUARY, 2024

Aditya-L1 Mission

-Dr. Seema Ukidve

Aditya L1 shall be the first space based Indian mission to study the Sun. The spacecraft shall be placed in a halo orbit around the Lagrange point 1 (L1) of the Sun-Earth system, which is about 1.5 million km from the Earth. A satellite placed in the halo orbit around the L1 point has the major advantage of continuously viewing the Sun without any occultation/eclipses. This will provide a greater advantage of observing the solar activities and its effect on space weather in real time. The spacecraft carries seven payloads to observe the photosphere, chromosphere and the outermost layers of the Sun (the corona) using electromagnetic and particle and magnetic field detectors. Using the special vantage point L1, four payloads directly view the Sun and the remaining three payloads carry out in-situ studies of particles and fields at the Lagrange point L1, thus providing important scientific studies of the propagatory effect of solar dynamics in the interplanetary medium

The suits of Aditya L1 payloads are expected to provide most crucial informations to understand the problem of coronal heating, coronal mass ejection, pre-flare and flare activities and their characteristics, dynamics of space weather, propagation of particle and fields etc.

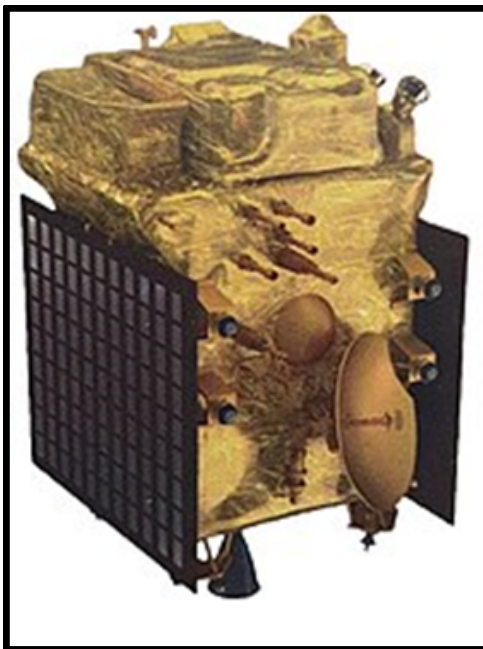
Science Objectives:

The major science objectives of Aditya-L1 mission are:

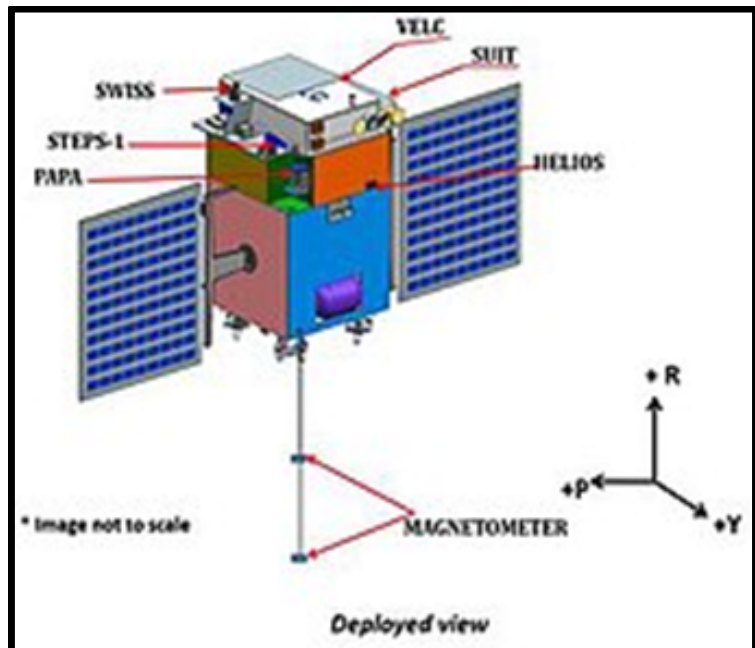
- Study of Solar upper atmospheric (chromosphere and corona) dynamics.
- Study of chromosphere and coronal heating, physics of the partially ionized plasma, initiation of the coronal mass ejections, and flares
- Observe the in-situ particle and plasma environment providing data for the study of particle dynamics from the Sun.
- Physics of solar corona and its heating mechanism.
- Diagnostics of the coronal and coronal loops plasma: Temperature, velocity and density.

- Development, dynamics and origin of CMEs.
- Identify the sequence of processes that occur at multiple layers (chromosphere, base and extended corona) which eventually leads to solar eruptive events.
- Magnetic field topology and magnetic field measurements in the solar corona.
- Drivers for space weather (origin, composition and dynamics of solar wind).
- The instruments of Aditya-L1 are tuned to observe the solar atmosphere mainly the chromosphere and corona. In-situ instruments will observe the local environment at L1. There are total seven payloads on-board with four of them carrying out remote sensing of the Sun and three of them carrying in-situ observation.

History



Aditya-L1 in stowed configuration



Aditya-L1 in deployed configuration

The mission was conceptualised in January 2008 by the Advisory Committee for Space Sciences (ADCOS). It was initially envisaged as a small, 400 kg (880 lb) satellite in a Low Earth Orbit (800 km) with a coronagraph to study the solar corona.

An experimental budget of ₹3 crore was allocated for the financial year 2016–2017. The scope of the mission has since been expanded and it became a comprehensive solar and space environment observatory to be placed at Lagrange point 1 (L1), hence the mission was renamed as "Aditya-L1". As of July 2019, the mission has an allocated cost of ₹378 crores, excluding launch costs.

Payloads

The instruments of Aditya-L1 are tuned to observe the solar atmosphere, mainly the chromosphere and corona. In-situ instruments will observe the local environment at the L1 point. There are seven payloads onboard, with four for remote sensing of the Sun and three for in-situ observation. The payloads have been developed by different laboratories in the country with close collaborations of various ISRO centres.

Type	Sl. No	Payload	Capability	Laboratories
Remote Sensing	1	Visible Emission Line <u>Coronagraph</u> (VELC)	<u>Corona</u> Imaging and <u>spectroscopy</u>	<u>Indian Institute of Astrophysics, Bangalore</u>
Payloads	2	Solar Ultraviolet Imaging Telescope (SUIT)	<u>Photosphere</u> and <u>chromosphere</u> imaging-narrow and broadband	<u>Inter University Centre for Astronomy & Astrophysics, Pune</u>
	3	Solar Low Energy X-ray <u>Spectrometer</u> (SoLEXS)	Soft X-ray <u>spectrometer</u> : Sun-as-a-star observation	<u>U R Rao Satellite Centre, Bangalore</u>
	4	High Energy L1 Orbiting X-ray <u>Spectrometer</u> (HEL1OS)	Hard X-ray <u>spectrometer</u> : Sun-as-a-star observation	

In-situ Payloads	5	Aditya Solar wind Particle Experiment (ASPEX)	<u>Solar wind</u> and Particle analyzer: <u>Protons</u> and Heavier ions with directions	<u>Physical Research Laboratory, Ahmedabad</u>
	6	<u>Plasma Analyser Package For Aditya (PAPA)</u>	<u>Solar wind</u> and Particle Analyzer: <u>Electrons</u> and Heavier Ions with directions	Space Physics Laboratory, <u>Vikram Sarabhai Space Centre, Thiruvananthapuram</u>
	7	Advanced Tri-axial <u>High Resolution Digital Magnetometers</u>	<u>In-situ</u> magnetic field (Bx, By and Bz).	<u>Laboratory for Electro Optics Systems, Bangalore</u>

Visible Emission Line Coronagraph (VELC)

The Visible Emission Line Coronagraph (VELC) is a key instrument on the Aditya spacecraft. The VELC is an internally occulted reflective coronagraph designed to fulfil specific observation needs. The instrument allows for high spatial resolution imaging 1.25-2.5 arcseconds of the Sun's corona, simultaneous observations in three modes (Imaging, Spectroscopy and Spectro-polarimetry), and even utilizes artificial intelligence to aid in the detection of coronal mass ejections (CMEs). The instrument was developed by Indian Institute of Astrophysics, Bangalore.

Solar Ultraviolet Imaging Telescope (SUIT)

The SUIT is an ultraviolet imaging telescope designed to study the solar spectral radiation in the ultraviolet range, using narrowband and broadband spectral filters in the range of 200-400 nm with the hope of developing a better understanding between solar activity and the atmospheric dynamics of Earth. The SUIT provides near-simultaneous coverage of the solar atmosphere, from lower photosphere to the upper chromosphere. The instrument was developed by Inter University Centre for Astronomy & Astrophysics, Pune, in collaboration with ISRO.

Solar Low Energy X-ray Spectrometer (SoLEXS)

The SoLEXS is an X-ray spectrometer designed to continuously measure the solar soft X-ray flux (1 keV-22 keV) from the Sun-Earth Lagrangian point L1. These measurements can be used to better understand the properties of the Sun's corona, in particular, why the temperature of the corona is so high. The SoLEXS will observe solar flares, and in conjunction with data provided by the VELC, will help study the complex thermal properties of the Sun's outer layers. The instrument was developed by U R Rao Satellite Centre, Bangalore.

High Energy L-1 Orbiting X-ray Spectrometer (HEL1OS)

Developed by the Space Astronomy Group, URSC, the HEL1OS (pronounced helios) is an x-ray spectrometer designed to study solar flares in the x-ray spectrum, in particular, energy bands of 10-150 Kev (kilo-electron volts). Using a twin-pair of Cadmium Telluride (CdTe) and Cadmium Zinc Telluride (CZT) detectors, the instrument aims to study the acceleration and movement of electrons in the Sun's corona, as well as to study the cut-off energy between thermal and non-thermal solar emissions.[29]

Aditya Solar Wind Particle Experiment (ASPEX)

The ASPEX is an instrument composed of low and high energy particle spectrometers, designed to conduct measurements of the Sun's solar wind particles. Solar Wind Ion Spectrometer (SWIS), the low energy spectrometer, contains two analysers, each designed to study particles entering the device in different planes. Supra Thermal Energetic Particle Spectrometer (STEPS), the high energy spectrometer, also consists of two parts, STEPS 1 and STEPS 2, both designed to separate protons and alpha particles and measure the integrated flux. The instrument was developed by Physical Research Laboratory, Ahmedabad.[29]

Plasma Analyser Package for Aditya (PAPA)

The PAPA is an instrument onboard the Aditya-L1 designed to study the temperature, distribution and velocity of the solar winds. The instrument contains two sensors; the Solar Wind Electron Energy

Probe (SWEEP) and the Solar Wind Ion Composition Analyser (SWICAR).

The detectors are used in conjunction to analyse the energy levels of electrons and ions within the solar wind. The instrument was developed by the Space Physics Laboratory of the Vikram Sarabhai Space Centre, Thiruvananthapuram.

Digital Magnetometers

On-board the Aditya-L1 spacecraft are a pair of magnetic sensors on a deployable boom, one positioned in the middle and the other at the tip. The purpose of these sensors is to gather information about the magnitude and direction of the Interplanetary Magnetic Fields (IMF), as well as to study other events such as Coronal Mass Ejections (CME). Data from the magnetic sensors will be used to supplement that of the PAPA and ASPEX sensors.



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Has UPI helped India go cashless?

-MS. VARSHA NANJI VAN

What is UPI?

UPI means Unified Payment Interface is a payment system that allows its users to link more than one bank account in a single smartphone app or a mobile application with the help of UPI your smartphone becomes a virtual debit card for you that help you send or receive funds instantly on a real- time basis. UPI has been developed by the National Payments Corporation of India (NPCI) and is regulated by the Reserve Bank of India (RBI).The emergence of the Unified Payments Interface (UPI) has played a significant role in streamlining fund transfers. The National Payments Corporation of India (NPCI) introduced UPI payments to make online transaction hassle-free.

How does UPI work?

UPI payment comes under the IMPS infrastructure in which you can send or receive money without the need of entering any credential banking details. There is no need to provide any IFSC code or account number the transaction can be carried out with the help of (VPA) Virtual Payment Address. VPA is created by linking your bank account and mobile number registered with the bank. Other ways to make payment is through UPI includes scanning QR code or inputting mobile number.

What are its benefits?

The Unified Payment Interface (UPI) has altered dramatically the way India transacts and is helping India to move through words a cashless economy. With its user-friendly features, accessibility and convenience UPI has become the most preferred mode of payment for millions of Indians. Today everyone is shifting towards UPI and is the reason why are they doing so –

1. UPI is one of the cheapest modes of payment and most of the banks provide UPI transactions Free of Cost unlike other modes of payment.
2. It allows instant money transfer and provides 24x7 services to its customers.
3. With the help of VPA (Virtual Payment Address) UPI helps in maintaining the privacy of any individual.
4. A single UPI application can hold multiple accounts which make it more reliable to use.
5. Many UPI applications provide a cashback facility that makes it more appealing for the customers to perform more transactions.
6. To perform a transaction all you need is either VPA, QR scanner or a mobile number which is applicable for both receiving and sending money.

When did UPI Gains its popularity?

UPI was introduced on 11th April 2016 and till date it has gained over 300 million monthly active users in India. UPI has gained its popularity during Covid 19 pandemic as the whole nation was dependent upon digital technology.

UPI is the retail digital payment mechanism which is introduced by the National Payment Corporation of India (NPCI) in April 2016 .Although it has been more than a decade since the country was introduces to UPI there are two major events that has pushed the UPI market to a big leap, it was in 2016 when digital payment first picked up with a huge boost. When the country was undergoing demonetization in 2016 and in the year 2020 during the covide-19 pandemic period, people were fearful about the spread of the coronavirus through exchange of currency notes therefore customers preferred to make payment digitally which shows a positive impact on the growth of UPI payment system in India.

The government of India has been emphasizing on the cashless, paperless and e-payments as a part of the digital India programme.

After the demonetization in the year 2016 the government of India has been promoting to the people go for cashless or digital transaction. After it's launched in 2016, UPI payment system has been a huge success in India with a record 9.41 billion transaction being recorded in May this year.

Use of various third party UPI apps has also increased among people in India such as PhonePe, Google pay, PayTm, Amazon pay, BHIM app, etc. According to report many youngsters in the age group of 18 to 24 years prefer using UPI app. Since UPI ecosystem is a bit crowded with multiple apps being used for digital transaction, but only a few of them including Paytm, Google pay Phonepe and BHIM app seem to be popular among the user. According to report Google pay is one of the most preferred UPI platform with 42.45% of voters, 32.35% people prefer Phonepe and 21.75% people prefer Paytm and 3.45% people prefer BHIM.

With the help of UPI application and app India is slowly moving towards cashless economy. A system where no physical cash is in circulation is a cashless system. Payments are made through credit and debit cards, bank electronic fund transfers or virtual wallets. The government's demonetization initiative in 2016 paved the way for India to transition to a cashless economy. Soon after, while the rest of the world was dealing with the pandemic, the government of India established Unified Payment Interfaces (UPI) and quickly established e-payment startups. The onset of the pandemic prompted a paradigm shift in people's attitudes toward leveraging available technology by adopting a cashless mind set.

Cashless economy can be beneficial for the government of India as well as RBI in many ways like

1. Reduction in the cost of printing, storing and transporting of cash.
2. Can minimize risk of money getting stolen.
3. It's more convenient to use.

4. Helps in tracking money spend by an individual.
5. In cashless economy it is easier to track black money.

Many people of India think that India can go cashless, the government of India is working dedicatedly to push India towards a cashless economy with major initiatives such as demonetization, direct benefit transfers, BHIM and many more.

Conclusion

Unified Payment Interface UPI has given a boost to India to move towards cashless economy.

In earlier times a cashless economy in India would have been unheard of, but now the government is in a bid to go cashless in upcoming years. In a country like India cashless transaction are not widespread and due to technology gap and lack of proper education. The government of India and financial institution needs to address these matters to create a cashless economy.

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