Department of Space Education
India Space Week

India Space Week

Space, Science, Computing & Technology

India Space Week is an autonomous body with support from central and state governments. The role of India Space Week is to promote space education and employment among the students, teachers, and research scholars of schools, colleges, universities, and institutions.

Mission: Our mission is to bring space knowledge to grassroots levels, inspiring students to become future space leaders.

Vision: Our vision is to make every citizen of India aware about space and make them future space industry ready.

India Space Academy

Space Education & Employment

India Space Academy is an academic institution under the Department of Space Education of India Space Week. The academy develops workshops that spread awareness about the current requirements of the space industry. Also, it develops various programs to equip the students with the right information, skills, practical exposure, research exposure, technology exposure and training to make them future-ready.

Mission: Our mission is to equip the future space leaders of India with the right, high-quality, currently demanding space education with innovative learning modes.
Vision: Our mission is to make space education and employment accessible and affordable to every citizen of India.

DRONE TECHNOLOGY

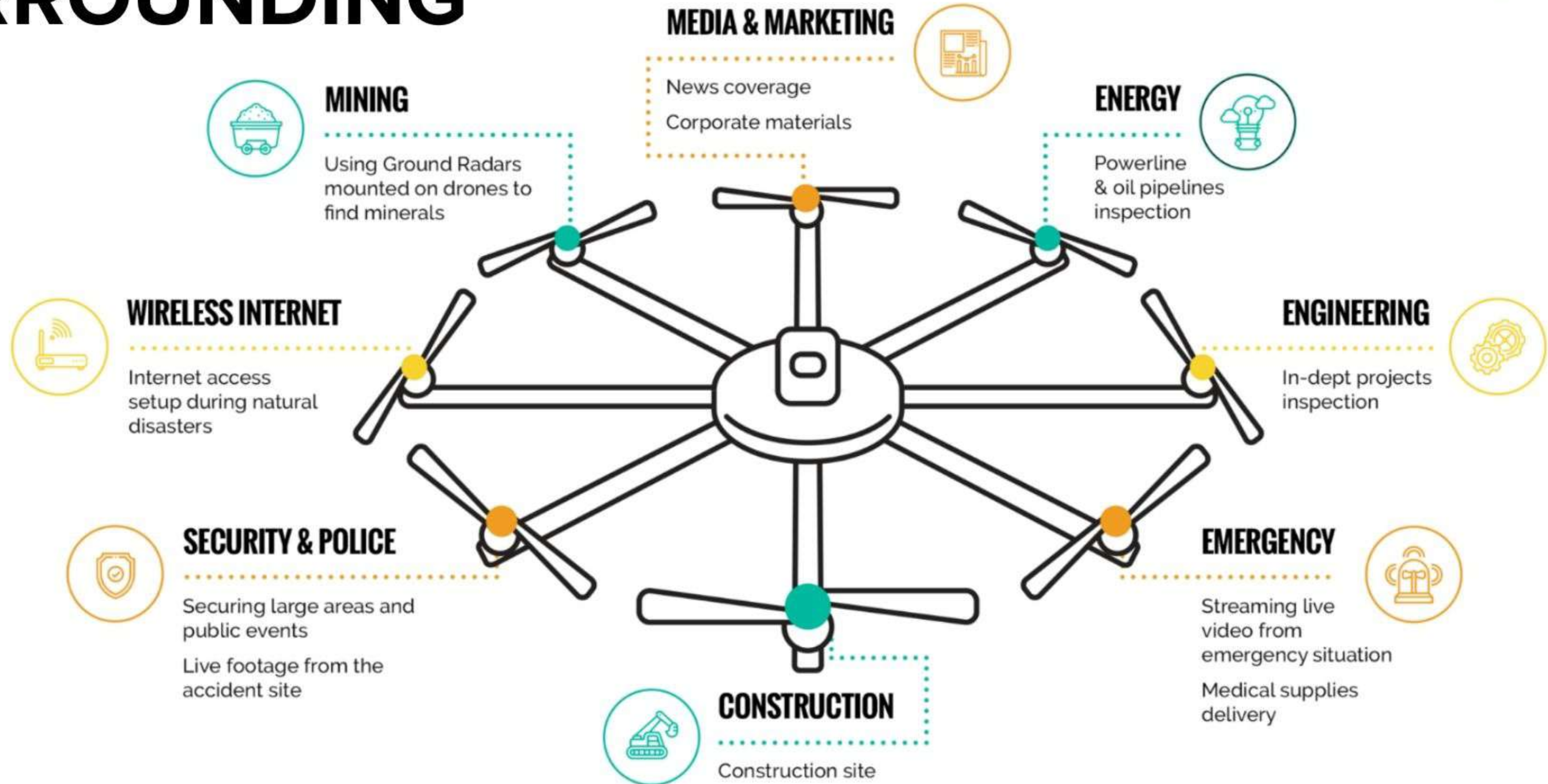## Why we choose this area of technology?

An Unmanned Aerial Vehicle (UAV), commonly known as a Drone, is an aircraft without any human pilot, crew, or passengers on board.

More than $500 billion, this is the staggering revenue number forecast for the drone business by 2030. And, given its current rate of development, we can believe that this prediction will come true.

Drones, perform duties ranging from the ordinary to the extremely deadly. These robot-like aircrafts can be seen rescuing avalanche victims as well as delivering groceries to your house — and almost everywhere in between.

DRONE IN OUR SURROUNDING

MEDIA & MARKETING

News coverage

Corporate materials

MINING

Using Ground Radars mounted on drones to find minerals

ENERGY

Powerline & oil pipelines inspection

WIRELESS INTERNET

Internet access setup during natural disasters

ENGINEERING

In-dept projects inspection

SECURITY & POLICE

Securing large areas and public events

Live footage from the accident site

EMERGENCY

Streaming live video from emergency situation

Medical supplies delivery

CONSTRUCTION

Construction site

Growth in Industry Adoption (YoY)

While dozens of industries use drones, the fastest growing commercial adopters of aerial data come from the construction, agriculture, and mining industries.

239% Construction

198% Mining

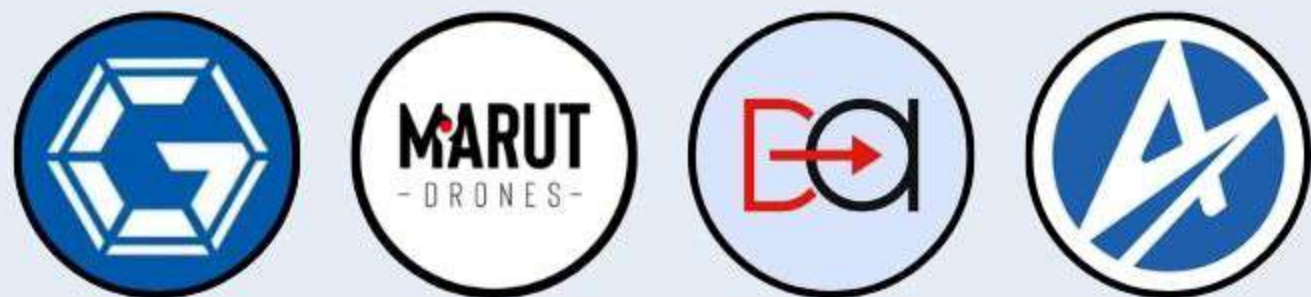**172%** Agriculture

171% Surveying

118% Real Estate

Some facts about Drone sector in India

Drone Market Shows Incredible Growth with 22.15% CAGR.

India Drone Market Size Set Expands at Significant CAGR of 22.15% During 2024–2030 to Reach USD 4.87 Billion by 2030.
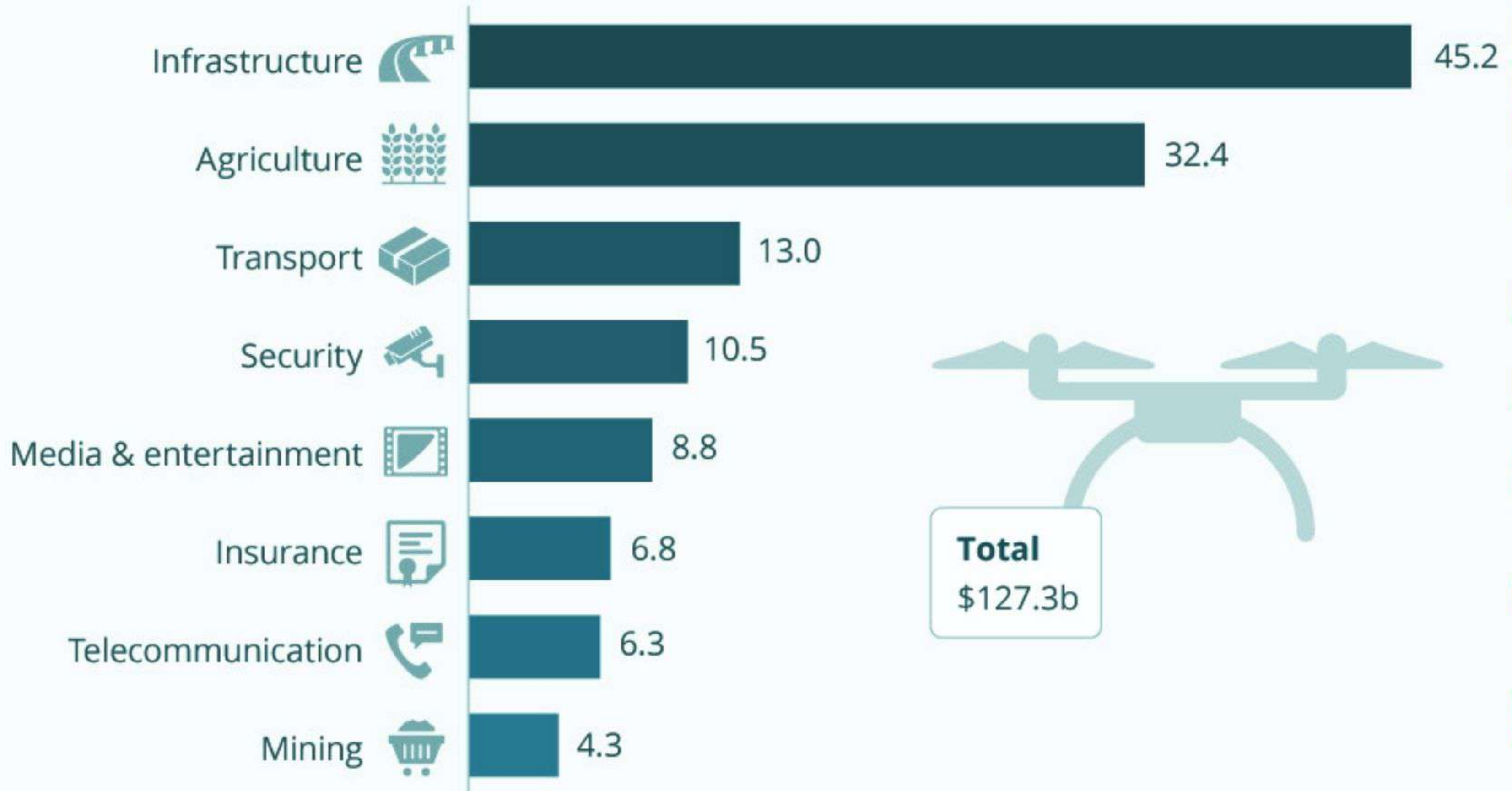
11 DRONE MANUFACTURING LICENSES ISSUED

Rs. 30 CRORES DISBURSED TO THE BENEFICIARIES

8,700+ DRONES LICENCES GRANTED

Rs. 120 CRORES PLI SCHEME MANUFACTURING OF DRONES

48 DRONE TRAINING SCHOOLS HAVE APPROVED

Plane e200

MAKING INDIA A GLOBAL DRONE HUB

MARUT DRONES

Aero360 Dronix Technologies Pvt Ltd

THE ePLANE CO.

SKYE AIR Elevating Delivery

The Industries Where Drones Could Really Take Off

Value of drone powered solutions to industries in 2015 (billion U.S. dollars)

Industry	Value
Infrastructure	45.2
Agriculture	32.4
Transport	13.0
Security	10.5
Media & entertainment	8.8
Insurance	6.8
Telecommunication	6.3
Mining	4.3

Total
$127.3b

IMPACTS

ABOUT THE WORKSHOP

Objective

This workshop is designed to impart a comprehensive understanding of drones, covering their historical development, components, and functionality. Practical training will include drone assembly, maintenance, and basic flight operations. Additionally, the workshop will introduce AI and ML applications in drones, and provide insights into the drone industry's growth and opportunities in India. Emphasis will be given to career pathways, certification processes, and regulatory compliance to prepare students for the drone sector.

Learning Outcome

Upon completion, students will be able to identify and describe drone components, understand the historical context of drones, and safely operate drones in basic manoeuvres. They will gain practical insights into AI and ML applications within drones and advanced drone technologies. Students will also analyze current trends and future prospects in India's drone industry and outline the certification steps required to become a drone pilot, ensuring adherence to safety standards and regulations.

Topics To Be Covered

Advanced Drone Technology

- Examine the integration of artificial intelligence in drones.
- Discuss the development of multi-sensor integration for enhanced data collection.
- Learning Pointers:
- Introduction to AI's role in autonomous drone navigation.
- Explore multi-sensor systems that enhance operational capabilities.

Engineering Principles of UAV Design

- Explore the impact of aerodynamics on drone efficiency.
- Review the materials and technologies used in lightweight drone design.
  Learning Pointers:
- Analysis of different materials used for drone frames and their properties.
- Understanding how aerodynamic design influences drone stability and speed.

Regulatory & Ethical Considerations

Recognize the importance of ethical considerations and legal compliance in drone operations.
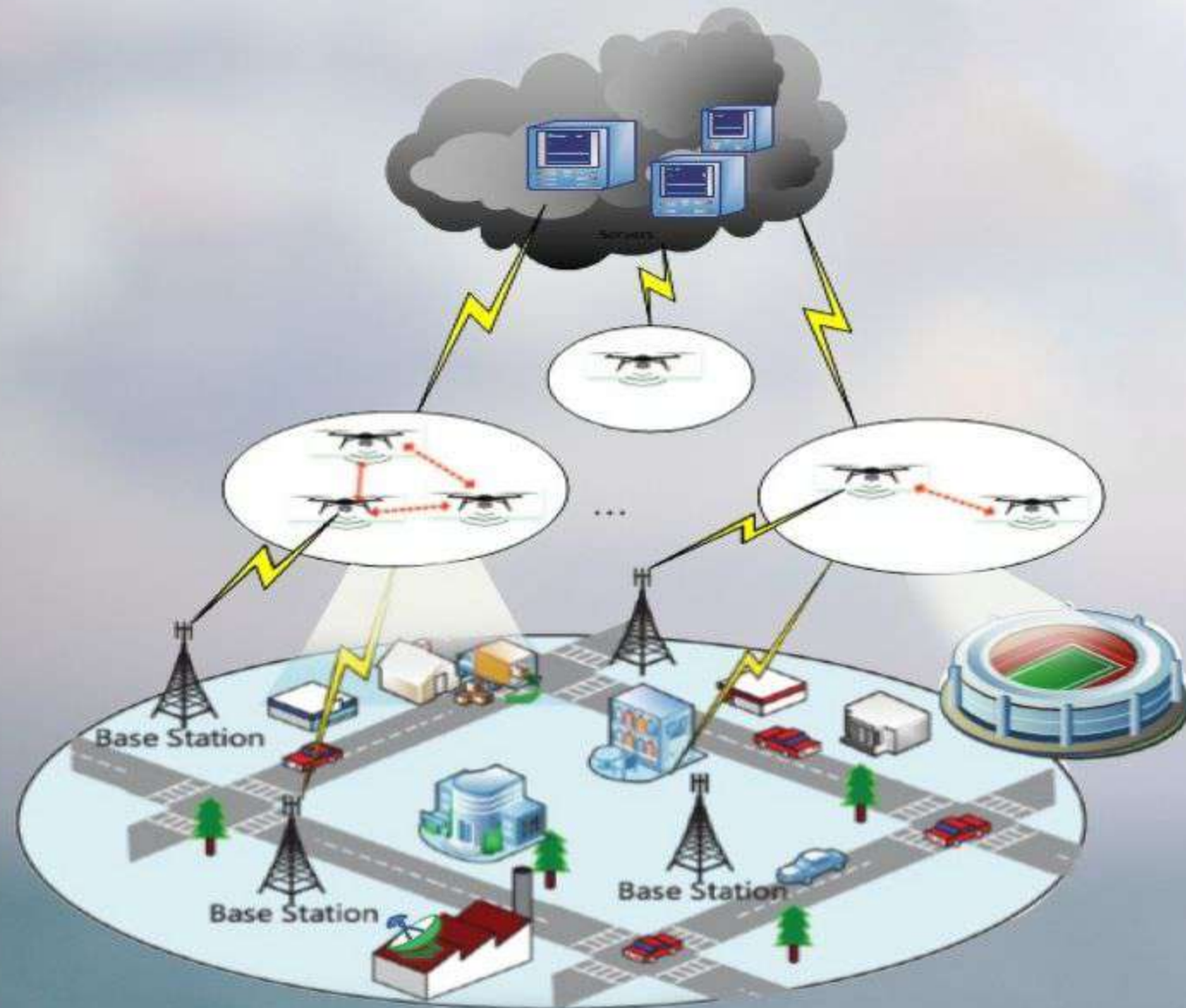
- Discuss the international regulatory landscape for drones.
- Explore ethical considerations surrounding drone usage, focusing on privacy issues.
- Learning Pointers:
- Overview of DGCA, and FAA regulations and their impact on drone operations.
- Ethical debates surrounding drone surveillance and data collection.

Hands-on Drone Programming & Simulation

- Introduction to programming drones using Python.
- Engage in simulation exercises to program and test drone behaviours.
- Learning Pointers:
- Step-by-step guide on basic drone programming.
- Use of simulation software to understand flight dynamics.

Real-World Applications & Case Studies

- Discuss drones' role in precision agriculture for monitoring and crop management.
- Examine drones in emergency response, focusing on search and rescue operations.
- Learning Pointers:
- Case studies on drones in disaster management.
- Analysis of UAV deployment in agriculture for optimizing resource use.

Future of Drones in AI & Automation

Explore how AI is transforming drones into more autonomous, efficient systems.

- Look at the future integration of AI with drones for autonomous decision-making.
- Explore the development of swarm drone technologies for collaborative operations.
- Potential uses of AI in enhancing drone functionalities.
- Concepts of swarm intelligence and its applications in drones.
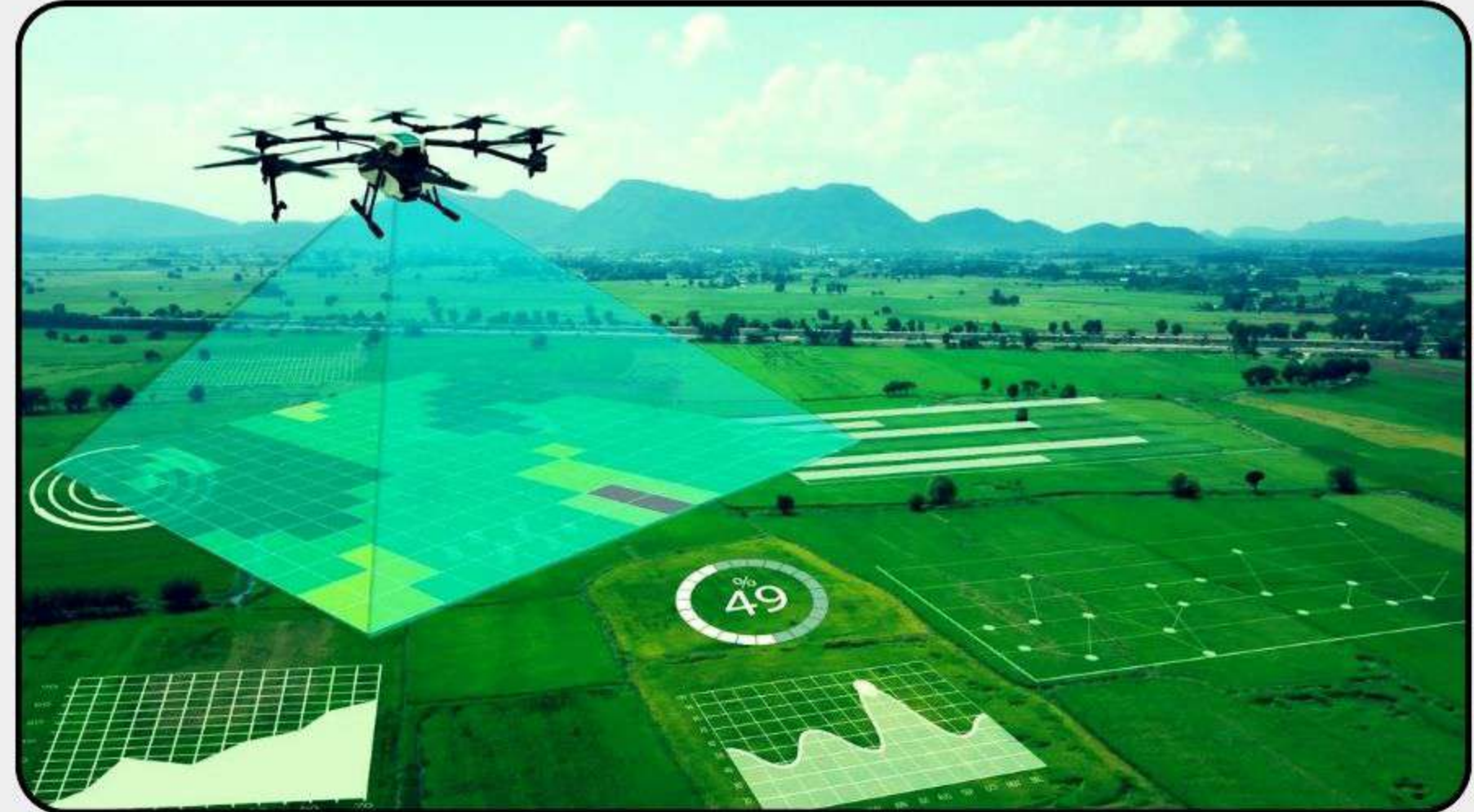
Key Learning Outcome

Gain an overview of cutting-edge drone technologies and their implications for various industries.

Interactive Q&A and Discussion

Engage students in a lively discussion to address their questions and explore topics in depth.

Opportunity for students to clarify doubts and discuss innovative ideas in drone technology.

Drone Technology 2025

Drone technology in 2025 means staying ahead of the curve and being a part of this transformative journey.

Our Experts

The workshop will be conducted by experts, scientists, and researcher of India Space Academy. Our experts are from leading drone industry and prestigious institutions like IITs, NITs, or IIST.

Certificate for Faculty & Students

Workshops Conducted By

AIR TAXI & ADVANCED DRONE TECHNOLOGY WORKSHOP

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Our Guest Speakers

Hon'ble Shri Shekhar Dutt, SM, IAS, Former Governor of Chhattisgarh, Former Defence Secretary, Govt. of India

Dr Sudheer Kumar N, Director of Capacity Building & Public Outreach (CBPO), ISRO

(AICTE) Chairman, Prof. T. G. Sitharam

Thank you

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