



Punj Lloyd Institute of Infrastructure Management (PLIIM)

ANNUAL REPORT

2023-24

MISSION

- Create top-quality educational and training programmes
- Facilitate learning through online programmes
- Undertake research that is contextual to the Indian and developing country context
- Develop tools and decision support systems to support the infrastructure practice
- Undertake continuous outreach to support the sector
- Serve as a "Go to" place for the infrastructure sector in India and abroad.

The Punj Lloyd Institute undertakes various initiatives to guide the infrastructure sector toward efficient and sustainable development through research initiatives, knowledge-sharing events, and training public officials and industry professionals. To meet its vision, the institute works closely with corporates in three verticals, Education, Outreach, and Research.

DEPARTMENT ORGANISATION STRUCTURE WITH TEAM COMPOSITION



DEPARTMENT BROAD LEVEL TARGETS FOR THE ACADEMIC YEAR

1. Study of the infrastructure sector in India across various sub-sectors like roadways, railways, airlines, real estate, and ports.
2. Gain industry leaders' perspectives on the challenges and opportunities in the infrastructure sector. Host a round table conference with industry leaders, policymakers, and NITI Aayog officials to present our findings. Create an industry survey on the ISB research platform to gather primary data from industry experts.
3. Prepare a report focusing on industry-wide observations on the performance of the infrastructure sector and present this report to CII and NITI Aayog. Release of the final report through a formal event.
4. Revise the curriculum of AMPI, increase cohort size, and introduce a short-duration program for the government sector.

ACTIVITIES UNDERTAKEN DURING THE YEAR

Research

Research Report on Indian Infrastructure

Synopsis of the presentation to Shri Atul Punj on the 28th of March, 2023

Prof. Chandan Chowdhury, Prof. Pratap Sundar, and Col. Rajiv Bhargava made a presentation on our research project "A Decade of Infrastructure Development in India: Trends and Insights" to Shri Atul Punj, Chairman, and Managing Director of Punj Lloyd on the 28th of March, 2023, in his office in Delhi. The presentation covered seven sectors: Airlines, Airfreight and Logistics, Road and Rail, Marine, Highways and Rail tracks, Construction and Engineering, and Real Estate.

The presentation focused on the following points:

- (1) A summary of the past performance of the infrastructure sector over the past decade
- (2) Research Methodology
- (3) Methods and outcomes
- (4) The performance of listed and non-listed companies based on thirteen financial parameters
- (5) Overall insights from listed companies
- (6) Comparisons: Global & Domestic

The meeting concluded with a discussion on the next steps to take the research forward.



PLIIM Team with Mr. Atul Punj

A Decade of Infrastructure Development in India: Trends and Insights



The institute has conducted a comprehensive study on India's infrastructure sector using a two-fold approach, involving secondary data analysis and primary research. Here are the detailed findings and ongoing efforts:

Primary Research

1. Industry Interaction:

- Primary research is being conducted to identify gaps and shortcomings in the sector, facilitated by Mr. Atul Punj, Chairman of Punj Lloyd Institute of Infrastructure Management.
- Chandan Chowdhury has engaged with key industry leaders, including:
 - RK Singh: Principal Advisor to MD of InterGlobe Aviation.
 - Amit Kumar Uplenchwar: Director at Kalpataru Projects International Limited.
- Additional interactions with more industry leaders are planned.

2. Survey Distribution:

- Based on insights gathered from industry leaders, a detailed survey will be distributed to companies in the infrastructure sector to pinpoint their pain points.

3. Collaboration with CII:

- The institute is in the process of signing a Memorandum of Understanding (MoU) with the Confederation of Indian Industry (CII) to utilize their extensive database for broader outreach and support in survey distribution.

Secondary Analysis

1. Literature Review:

- An extensive review of the existing literature on the performance of the Indian infrastructure sector was conducted to identify market trends, past performance, major challenges, and recommendations.

2. Financial Analysis:

- Utilized Capital IQ database to analyze financial data from 1,115 companies in the infrastructure sector over the past decade.
- The analysis covered 20 different categories, including water, renewable energy, coal, and gas utilities.
- Generated over 100 graphs to showcase trends from the last 14 years, accompanied by detailed commentaries.

3. Book Publication:

- A book titled "A Decade of Infrastructure Development in India: Trends and Insights" is in preparation.
- The Table of Contents and Summary have been drafted and refined to include insights from the Capital IQ Pro analysis.
- Chapters are being updated with the latest data available as of March 2024, including recent government press releases and reports.
- The chapter on Railways has been updated, with chapters on Real Estate, Ports, and Airports targeted for completion by the end of June.

Purpose and Importance

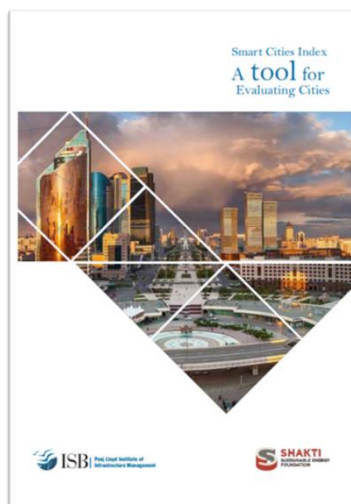
- This initiative aims to provide a thorough assessment of India's infrastructure sector, highlighting trends, challenges, and recommendations.
- The study is considered of national importance and is expected to offer valuable insights for the country's infrastructure development.

Progress and Next Steps

- Data analysis from Capital IQ Pro has been completed and documented.
- Chapters based on literature reviews are being updated with the latest data.
- Primary research through industry leader interactions is ongoing.
- A detailed survey will soon be distributed to further understand sector challenges.
- An MoU with CII is in progress to enhance respondent outreach for the survey.

The project is progressing with a targeted timeline for completing updates to specific chapters by the end of June and aims to publish the book to provide a comprehensive assessment of infrastructure development in India over the past decade.

Smart Cities Index India



- PLIIM had published a report titled report "Smart Cities Index: A Tool for Evaluating Cities" in 2017. Based on recent changes in Smart Cities status in India and the Government emphasis on their establishment, we have decided to revisit the project
- We have collected data from secondary sources such as government databases published by the Ministry of Housing and Urban Affairs at data.gov.in to update key parameters in our report
- Data for 53 cities has been updated for parameters available on secondary sources to compare the development in infrastructure across cities from 2017-2023
- These parameters were further categorized into 5 broad characteristics which constitute the smart cities index
- We have expanded our scope of research and are now in the process of collating data for 47 additional cities from the available secondary sources.

Action Learning Projects

1. Accelerating Growth of Infrastructure in India: Role of InvITs & REITs

India is the fastest-growing major economy in the world and home to the world's largest population. Robust infrastructure is the backbone of any economy and acts as a vehicle of growth. Large infrastructure projects such as roads, highways, power plants, ports, and townships, along with real estate sectors have witnessed growing demand for capital in recent times. Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InvITs) are instruments to raise public money. These instruments address the needs of investors and corporations. Investors get the diversification of their portfolio with regular income whereas corporations get access to large public funds. This ALP intends to study REITs & InvITs model in the Indian context and investors' behaviour and response to take part in the investment cycle to boost the growth of Infrastructure in India.



ALP Team 1

2. A Strategic Approach for a Green Data Centre

In 2022 the number of the data centre is 138 with a power consumption of 637 MW. This is projected to grow to 812 data centres that will consume 5000 MW. Daily CO₂ emissions of a 40 MW data centre is 480,000 kg CO₂/day, which is significantly higher than the daily CO₂ emissions of a typical passenger car (23 kg CO₂/day). Data centres can switch to clean and renewable energy alternatives to reach the net zero goals of India and the world. Power generated by solar energy, wind, geothermal, hydroelectric, biomass, tidal, and fuel cells can reduce the CO₂ emissions of a data centre. The intermittent nature of the availability of these alternative sources of energy needs storage solutions. One such solution is thermal batteries. Chemical batteries have some drawbacks such as limited energy density, slow recharge times, degradation and limited life span, and negative environmental impact. This ALP focuses on evaluating green initiatives and technologies such as thermal batteries, energy optimization strategies, cost analysis and return on investment (ROI), and recommendations for implementing energy-saving measures in the design of a green data centre.



ALP Team 2

3. Strategies for Sustainable Operations of MRTS in India

A large number of metro rail corporations are operating in red. Some significant strategies are required for sustainability. The reasons for losses are twofold: (1) High cost of operations, and (2) Revenue shortfall. This ALP's scope is limited to metro railway corporations in India. The primary data will be collected by visits to Delhi Metro Rail, Noida Metro Rail, Hyderabad Metro, etc. The secondary data will be collected from the annual reports of metro railway organizations across the world, the World Economic Forum, and the World Bank Data. A Pareto analysis of costs will be used to examine the operational costs and revenue streams. A set of recommendations related to cost reduction (cost reduction, use of renewable energy, automation with AI) and revenue increase (community EV facility, licenses to commercial complexes) will be proposed. Financial analysis of solutions (cost-benefit analysis, payback period, return on investment (ROI), and social cost-benefit analysis) will be presented.



ALP Team 3

4. Appraising the Value Proposition of Green Communities

Within the Indian infrastructure space, the adoption of green tech within the commercial and office space is high. However, the same cannot be said for the residential sector, which forms more than 75% of the real estate within India. This ALP develops a business case for the adoption of green technology and methods by end customers within the residential townships. Our research and analysis will include value benefit analysis, financial analysis, review of construction methods, and existing models. Through this exercise, a survey of the existing green infrastructure space will be done, and an analysis based on several metrics. In addition, we will recommend steps and measures to further improve the business case of green infrastructure within the Indian real estate context. This objective is to increase adoption by end users through the presentation of our analysis and findings. The target recipients of the findings of this research will be the end retail customers and the real estate companies.



ALP Team 4

to develop financially viable sustainable satellite cities which is given access to more inclusive, greener, healthier and safer urban infrastructure for our future generations.

Education

AMPI: Co2024



AMPI Class of 2024

The seventh offering of the Advanced Management Programme for Infrastructure (AMPI), with 28 students, commenced its first residency from the 5th of May to the 14th of May 2023 at the Mohali Campus. The cohort has an average experience of 12.8 years, representing a mix of middle, senior, and top management.

Our students represent the following organisations:

Kavirama Designs and Facility Company	Aarvee Associates (Architects, Engineers & Consultants Pvt. Ltd.)
National Thermal Power Corporation Limited	Ministry of Jal Shakthi
Varsity Education Management	HP Power Corporation
Noida Metro Rail Corporation	CtrlS (Cloud Computing Company)
Prima Landmarks	Landmark

Livdiz	Rajapushpa
Tata Realty and Infrastructure Ltd	Square Yards
Larsen & Toubro	NPCC (National Project Construction Corporation Limited)
J Square Designers and Engineering Consultants	Government of India
Siemens Limited	Bharat Heavy Electricals limited



Students with Prof Chandan Chowdhury

Residency 2

The second term of the Co2024 was successfully conducted from the 15th to the 23rd of July at the Mohali campus

- There were two guest speaker sessions during the residency
- The students studied core subjects related to infrastructure during the residency and made presentations on the progress made in their action learning projects.

Residency 3

- The third term of the Co2024 was successfully conducted from the 14th of October to the 22nd of October at the Hyderabad campus.
- There were two speaker sessions during the residency
- The students studied core subjects related to infrastructure during the residency and made presentations on the progress made in their action learning projects.

Residency 4

- The fourth term of the Co2024 was successfully completed from March 2, 2024, to March 10, 2024
- There were numerous speaker sessions during the residency.
- The students studied core subjects related to infrastructure during the residency and made final presentations of their action learning projects.

WORKSHOP ON DIGITAL LEADERSHIP IN THE POWER SECTOR



Attendees of PSPCL Workshop

The PLIIM in association with External Relations hosted a one-day workshop for employees of Punjab State Power Corporation Limited (PSPCL) on 15 July 2023 at the Mohali Campus

The highlights of the workshop are as under:

- Shri Tejveer Singh IAS, Principal Secretary, Power and Department of Governance Reforms and Public Grievances, Government of Punjab: Context setting.
- Professor Madan Pillutla, Dean and Professor, Organisational Behaviour, ISB: The Psychology of Negotiations.
- Professor Pranav Jindal, ISB: Customer-based decision-making.
- Chandan Chowdhury, Senior Associate Dean and Practice Professor (Operations Management and Information Systems), ISB: Business Challenges of power generation companies in India and digital leadership.

The workshop was very well received by the attendees.



The PLIIM has submitted a workshop proposal for the training of employees of Punjab State Power Corporation Limited. Besides the regular management courses, we have also proposed to conduct domain-specific topics like Commercial policies of discoms, Leveraging technology for the transformation of generation and Distribution Business, Understanding Power Scenario: Global Trends and India Perspectives and Tariff determination: Theoretical Insights and Practical Perspectives.

Outreach

Speaker Session by Dr C. Jayakumar, Executive Vice President & Head, Corporate Human Resources (CHRO), Larsen & Toubro

Topic: Development of 'Techno-managers' in Engineering & Consulting Sectors

Dr C. Jayakumar, Executive Vice President and Head of CHRO at L&T, spoke as a distinguished speaker to the Advanced Management Programme for Infrastructure.

In a brilliant talk that enthused an overwhelming response from the audience, Dr C Jayakumar drew upon his 35 years of rich experience with L&T to speak about their HR practices. He covered various subjects, including meritocracy, training, culture, and mentoring. The passionate discussion with the audience covered aspects like the merits of a bell curve, culture adoption, etc. Dr Jayakumar revealed the secret sauce behind the shallow attrition rate at L&T and the culture of completing even mega projects on time with the following strategies.

1. Channelised, merit-based, staged lifelong training for all employees.
2. Astute identification and mentoring of the next-gen leadership.
3. Ability to motivate employees from walk-in interviews to absorb and own the L&T culture.



PLIIM Team with Dr. C. Jayakumar

Speaker Session by Shri B. B. Swain, Secretary of MSME, Government of India

Topic: Unleashing the Potential of MSMEs and Infrastructure in India

Mr. B. B. Swain, Secretary of MSME, delivered an interactive session to the students of our Advanced Management Programme for Infrastructure (AMPI) at the Indian School of Business, Mohali. He shared insights regarding the symbiotic relationship between micro, small, and medium enterprises (MSMEs) and Infrastructure in India.

Mr. B. B. Swain shed light on the integral role of MSMEs in India's infrastructure development. By leveraging the potential of MSMEs, addressing challenges, and embracing innovation, India can unlock remarkable economic growth and employment opportunities. Researchers and Government agencies must heed Mr. Swain's insights to formulate effective policies and initiatives that foster the growth and sustainability of MSMEs and the infrastructure sector. He stressed that the entrepreneurs and startups who take risks must also recognise the countless MSME entrepreneurs who are the true heroes, driving change and shaping the future of India's economy.



PLIIM Team with Shri. B. B. Swain

Approach to Capacity Building for PM Gati Shakti

We are collaborating with the Capacity Building Commission on the PM Gati Shakti project. We want to create leadership capacity in the government (Ministry of Road Transport and Highways, NHAI, and Indian Railways) through our long-term Advanced Management Program for Infrastructure. In connection with the PM Gati Shakti project, we have identified eight short-duration modules for leadership training in the following areas:

- Social and Environmental Issues in Infrastructure
- Infrastructure Project Management
- Contract Management
- Legal Issues and Dispute Resolution
- Infrastructure Regulation
- Strategic Planning for Infrastructure
- Public-Private Partnership (PPP)
- Digital Innovation to accelerate the growth of the infrastructure sector

To popularise AMPI as a niche programme for middle and senior management in Infrastructure and Real Estate Firms:

- Our one-year Advanced Management Programme for Infrastructure has 28 working professionals representing the private sector, government, public sector enterprises, and entrepreneurs with an average experience of 12 years.
- We will continue our efforts to popularise the programme and achieve a cohort size of 50 or more.
- We plan to sign an MoU with the Ministry of Roads Transport and Highways (MoRTH), the National Highway Authority of India (NHAI) and Indian Railways to nominate senior officers from their organisation. We want the officers to benefit from our Advanced Management Programme for Infrastructure. External Relations is supporting us. We can have similar MOUs with other Government and Public Sector organisations in the infrastructure domain.
- Progressing the Action Learning Projects of the students of the Advanced Management Programme for Infrastructure
- We will mentor the students of the Advanced Management Programme for Infrastructure to complete their projects with due diligence and by employing relevant tools and research methodology. They are expected to submit their projects by February 2024.

Panel Discussion on Sustainable and Resilient Cities: The Way Forward

- The Punj Lloyd Institute of Infrastructure Management, in partnership with the Indian Green Building Council (IGBC) organised a panel discussion on “Sustainable and Resilient Cities: The Way Forward” on 7th June 2023.
- The panelists included Col. Shailesh Pathak, Chairman of IGBC Chandigarh Chapter and CEO of Art – N Glass; Ms. Minal Srinivasan, Director of Kesari Infra Build Pvt Ltd., an environmental consultancy and engineering company; Professor Jagdeep Singh, Registrar of IISER Mohali; and Rohit Grover, MD of JREW Engineering and Chairman of CII Mohali Zone. Professor Chandan Chowdhury, Executive Director Punj Lloyd Institute of Infrastructure Management, anchored the panel discussion.



Round table discussion on International North-South Transport Corridor (INSTC)

- Roundtable was organized by the Indian Chamber of Commerce (ICC) in Shangri-La Eros, New Delhi. Dr. Chandan Chowdhury was a part of the knowledge session on 20 June 2023.

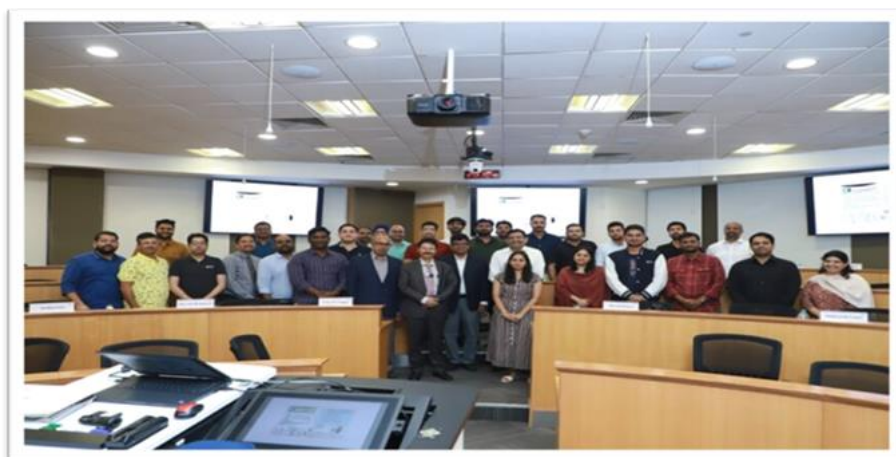
Speaker Session by Dr. Arul Shanmugasundaram, Executive Director, Ayana Renewable Power Pvt. Ltd.

Topic: Energy Transition from Fossil Fuel to Renewables - Opportunities and Challenges

Dr. Arul Kumar Shanmugasundaram, Executive Director, Ayana Renewable Power Pvt. Ltd., delivered a guest lecture on “Energy Transition from Fossil Fuel to Renewables—Opportunities and Challenges” to the Advanced Management Program for Infrastructure as part of the Distinguished Speaker Series.

The lecture commenced with an insightful overview of the global power generation mix from 2020 to 2050. Dr. Shanmugasundaram shed light on the predicted decline of coal and gas, with their share expected to be 31%, while solar and wind energies are projected to rise to 62% by 2050. This energy transition is being observed in numerous countries worldwide, signifying a significant shift towards renewable sources.

The talk received an enthusiastic response from the students.



PLIIM Team with Dr. Arul Shanmugasundaram

Speaker Session by Mr. Manish Kumar, Senior Consultant, World Bank Group

Topic: Institutional and Regulatory Economics of Infrastructure



Mr. Manish Kumar

Mr. Manish Kumar, Senior Consultant, World Bank Group, delivered an online talk to the Advanced Management Program for Infrastructure as part of the Distinguished Speaker Series.

Mr. Manish Kumar gave a talk with an aeroplane perspective on the economics of the infrastructure sector in India. Disrupted infrastructure services have multiple impacts on firms.

He stated that every Re 1 spent on infrastructure returns Rs 3 to society. Infrastructure impacts poorer people much more than the rich. With an annual spend of about 3% of GDP on infrastructure, India has a long way to go. He spoke about market failure with some examples. Imperfect information is a major cause of market failure. He gave a perspective on institutions at various levels and their role as incentive structures of society.

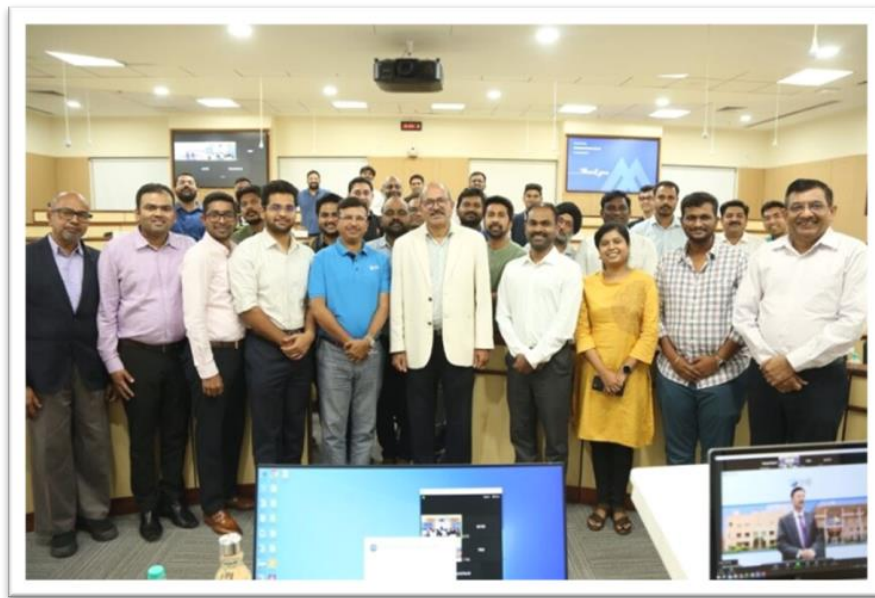
Speaker Session by Mr. Kamesh Rao

Topic: Airport Design and Development from an Indian Perspective

On October 19, 2023, Mr. Kamesh Rao, the Director of GMR Infrastructure, took the stage at our Hyderabad campus as part of the Distinguished Speaker Series for the Advanced Management Programme for Infrastructure. His talk, titled 'Airport Design and Development from an Indian Perspective,' was an eye-opener that brought great insights.

He shattered myths in the process, such as:

- Complexity Beyond Passenger Count: It is not just the passenger that decides the airport's capacity but also the aircraft's movements and the handling of your baggage! The formula is a complex algorithm of the capacities of the runway, the apron, the terminal, and the landside.
- Airlines Are the True Customers: Are passengers the airport's primary customers? Think again. According to Mr. Rao, it's the airline that takes center stage. This perspective is akin to how the primary customers for business schools are companies rather than students.
- Insightful Projections: India will handle over 1.3 billion passengers annually by 2040. Considering that our projected population in 2040 is 1.5 billion, these figures are astonishing.



Students with Mr. Kamesh Rao

Meeting with IGBC at Hyderabad – 26th Oct

On October 26th, Dr. Chandan Chowdhury and Aastha Singh (Research Associate), visited Sohrabji Godrej Green Business Center (GBC) in Hyderabad, which serves as the headquarters of the Indian Green Buildings Council (IGBC). They met Mr. Anand Muthukrishnan, the Deputy Executive Director of IGBC, and his accomplished team and discussed various aspects related to thought leadership, focusing on infrastructure developments and emerging trends within the green building domain. The discussions extended to exploring potential avenues for research collaboration in various domains, such as affordable housing and cutting-edge data centers, reflecting the dynamic nature of the sustainable development landscape. Within this framework, a preliminary set of deliverables was established, complete with well-defined timelines,.

Meeting with Member Admin NHAI

Col Rajiv Bhargava met Member Admin of NHAI for collaboration in research and training. The key areas discussed were:

- **Speaker Engagement for Advanced Management Programme:** We invited Mr. Chauhan to participate as a distinguished speaker in our Advanced Management Programme for Infrastructure. He willingly agreed to participate in the event. His session will undoubtedly be a highlight of the programme.
- **Revitalising Collaboration for NHAI Executives:** The member-secretary expressed his willingness to consider revitalizing our collaboration, particularly in enhancing the capabilities of NHAI executives. We strongly advocate for their participation in our Advanced Management Programme for Infrastructure. The NHAI will shortly take a call on nominations for the programme.

Session on How to Transform into an Infrastructure Leader: Know more from the AMPI alumni.

Our AMPI alumni, Mr. Manas Sahu, Project Specialist, Manassure, Class of 2018, Mr. Srinivasulu Naidu, General Manager Tech, NHAI, Class of 2017, and Ms. Uma Gayatri Ravi, Program Manager, National Institute of Urban Management, Class of 2022, shared their expertise with our AMPI students on how to become Infrastructure Leaders through an online webinar on February 22, 2024. The session was moderated by Col Rajiv Bhargava.

Professor. Athar Shahab took the Faculty Masterclass for AMPI

On February 1, 2024. Professor Athar Shahab visiting faculty at ISB and Managing Director Zuari Industries Limited took the Masterclass Infrastructure Finance: An Overview.

Professor. Rohit Chandak took the Faculty Masterclass for AMPI

On January 9, 2024. Professor Rohit Chandak Ayana Renewable Power Pvt Ltd took a Master faculty class on Trends in Infrastructure Finance.



Speaker Session by Mr. Bhavesh Kumar

Topic: Optimizing Infrastructure Integrity: A Dive into Digital Validation

On March 5, 2024, during his virtual session, Mr. Bhavesh Kumar, Managing Director of Vias3D India, delved into the criticality of digital validation in enhancing infrastructure integrity. His discussion highlighted how digital tools can complement traditional processes to yield strategic insights, thereby optimizing the development and management of infrastructure projects.



Speaker Session by Ms. Swati Pandey

Topic: Role of SPVs in constructing and maintaining airports in India

On March 5, 2024, Ms. Swati Pandey, Vice Chairman and Managing Director (VCMD), Maharashtra Airport Development Company, recently addressed the students of our Advanced Management Programme for Infrastructure (AMPI) at our Mohali campus. She unraveled the complexities and advantages of employing Special Purpose Vehicles (SPVs) for constructing and maintaining airports in India. Her insights shed light on the practical challenges and underscored the pivotal role of SPVs in streamlining operations and enhancing efficiency.



Speaker Session by Mr. Nitin Raj, and Mr. Saurav Atri

Topic: How to 10X your business using Generative AI'

On March 6, 2024, insights on Generative AI were shared by Mr. Nitin Raj, Associate Partner, KPMG and Mr. Saurav Atri, Director, Global Learning, Manulife, who are both distinguished alumni of PGP Co2011. Their session focused on the revolutionary impact of Generative AI in fostering strategic thinking and enhancing project management, offering a glimpse into the future of business expansion and innovation.



Speaker Session by Mr. Smital Pandit and Mr. Anant Ashutosh Sharma

Topic: Sustainable Development in Smart Cities through a Civic Platform

On March 8, 2024, the virtual session by Mr. Smital Pandit and Mr. Anant Ashutosh Sharma, founders of Civic Solutions, explored the transformative potential of a civic platform in fostering sustainable development within smart cities. Their project, SmartCity311, exemplifies how digital platforms can enhance the interaction between citizens and government officials, revolutionizing public grievance management.



Speaker Session by Mr. Rahul Shandilya

Topic: Adoption of Emerging Technologies in the Infrastructure Sectors: Insights from Airport Ecosystem

On March 9, 2024, Mr. Rahul Shandilya, CIDO of the GMR Group, provided a captivating overview of the adoption of emerging technologies within the airport ecosystem, revealing how technological advancements are quietly revolutionizing passenger experiences and operational efficiencies in airports around the globe.



Speaker Session by Ms. Hrydhal Damani

Topic: Could digitalization pave the way for transforming Indian cities?

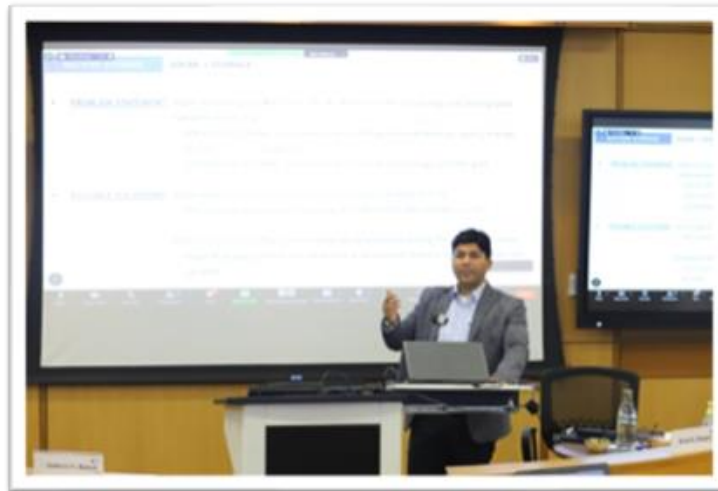
On March 9, 2024, Ms. Hrydhal Damani, Director of Urban Development at ICF, highlighted the instrumental role of digitalization in the evolution of Indian cities towards 'smart' urban environments. Her extensive experience offered insights into government initiatives and smart solutions across various domains, including energy, mobility, and waste management, charting a course for the future of digital urban services.



Speaker Session by Mr. Piyush Srivastav

Topic: Digital Transformation of O&M of Renewable Assets for Improved RoI

On March 10, 2024, Mr. Piyush Srivastav, Deputy General Manager at Ayana Renewable Power Private Limited, spoke on the digital transformation in operation and maintenance (O&M) of renewable assets, emphasizing the significant impact of technological innovation on the renewable energy sector, particularly in enhancing the efficiency of solar cells and optimizing returns on investment.



HIGHLIGHTS OF COMMITTEES ACTIVITIES (IF ANY)

Nil

IMPORTANT TABLES

Nil

CONTINUOUS IMPROVEMENT BASED ON FEEDBACK

1. More industry interaction through speaker sessions by subject matter experts have been incorporated

FUTURE PLANS / TARGETS FOR NEXT ACADEMIC YEAR

1. Release of the book 'A Decade of Infrastructure Development in India: Trends and Insights'.