

# THE MANAGEMENT ACCOUNTANT

ISSN 0972-3528

May 2026 | Vol. 61 | No. 05 | Pages - 124 | ₹ 100

*Beyond the*

## HORIZON

### STRATEGIC COST MANAGEMENT IN THE EVOLVING AEROSPACE SECTOR



*Journal of*



**ICMAI**  
THE INSTITUTE OF  
COST ACCOUNTANTS OF INDIA

भारतीय लागत लेखाकार संस्थान

Statutory Body under an Act of Parliament  
(Under the jurisdiction of Ministry of Corporate Affairs)

[www.icmai.in](http://www.icmai.in)

1



**ICMAI**  
**THE INSTITUTE OF**  
**COST ACCOUNTANTS OF INDIA**  
 भारतीय लागत लेखाकार संस्थान  
 Statutory Body under an Act of Parliament  
 (Under the jurisdiction of Ministry of Corporate Affairs)

www.icmai.in



Real Time  
**TRACKING** Available



Delivery at your  
**DOORSTEP**



Printed Copy (Optional)  
**THE MANAGEMENT ACCOUNTANT JOURNAL**  
 Assured delivery through **MAGAZINE POST**



E-mail:  
**journal.hardcopy@icmai.in**

Scan **QR** code for  
**Instant Payment** to  
 get Hard Copy



**Link for Payment:** [https://eicmai.in/journal\\_mms/PublicPages/UserRegistration/Login-jac.aspx/](https://eicmai.in/journal_mms/PublicPages/UserRegistration/Login-jac.aspx/)

- ⊙ **THE INSTITUTE OF COST ACCOUNTANTS OF INDIA** (erstwhile The Institute of Cost and Works Accountants of India) was established in 1944 as a registered company under the Companies Act with the objects of promoting, regulating and developing the profession of Cost Accountancy.
- ⊙ On 28 May 1959, the Institute was established by a special Act of Parliament, namely, the Cost and Works Accountants Act 1959 as a statutory professional body for the regulation of the profession of Cost & Management Accountancy.
- ⊙ It has since been continuously contributing to the growth of the industrial and economic climate of the country.
- ⊙ The Institute of Cost Accountants of India is the only recognized statutory professional organisation and licensing body in India specialising exclusively in Cost & Management Accountancy.

#### VISION STATEMENT

"The Institute of Cost Accountants of India would be the preferred source of resources and professionals for the financial leadership of enterprises globally."

#### MISSION STATEMENT

"The CMA Professionals would ethically drive enterprises globally by creating value to stakeholders in the socio-economic context through competencies drawn from the integration of strategy, management and accounting."

#### Institute Motto

असतोमा सद्गमय  
तमसोमा ज्योतिर् गमय  
मृत्योर्मांमृतं गमय  
ॐ शान्ति शान्ति शान्तिः

From ignorance, lead me to truth  
From darkness, lead me to light  
From death, lead me to immortality  
Peace, Peace, Peace

#### IDEALS THE INSTITUTE STANDS FOR

- ⊙ to develop the Cost and Management Accountancy Profession
- ⊙ to develop the body of members and properly equip them for functions
- ⊙ to ensure sound professional ethics
- ⊙ to keep abreast of new developments



#### Headquarters:

CMA Bhawan, 3, Institutional Area, Lodhi Road  
New Delhi - 110003



#### Kolkata Office:

CMA Bhawan, 12, Sudder Street, Kolkata - 700016

Behind every successful business decision,  
there is always a **CMA**

*The Management Accountant, official organ of  
The Institute of Cost Accountants of India, established in  
1944 (founder member of IFAC, SAFA and CAPA)*

**Publisher** – Sucharita Chakraborty – The Institute of Cost Accountants of India, 12, Sudder Street, P. S. New Market, Kolkata, West Bengal – 700016.

**Place of Publication** – The Institute of Cost Accountants of India, 12, Sudder Street, P. S. New Market, Kolkata, West Bengal – 700016.

**Printer** – Vinay Baveja, C-66/3, Okhla Industrial Area, Phase - 2, New Delhi, Delhi, 110020.

**Printing Press** – Viba Press Private Limited, C-66/3, Okhla Industrial Area, Phase - 2, New Delhi, Delhi, 110020.

**Editor** – Sucharita Chakraborty – 12, Sudder Street, P. S. New Market, Kolkata, West Bengal – 700016.

**Owner** – The Institute of Cost Accountants of India, 12, Sudder Street, Kolkata, West Bengal – 700016.

#### Chairman, Journal & Publications Committee

CMA Harshad Shamkant Deshpande  
chairman.journal@icmai.in

#### ENQUIRY

- ⊙ **Articles/Publications/News/Contents/Letters/  
Book Review/Enlistment**

editor@icmai.in

- ⊙ **Non-Receipt/Complementary Copies/Grievances**

journal@icmai.in

- ⊙ **Subscription/Renewal/Restoration**

journal@icmai.in

#### EDITORIAL OFFICE

CMA Bhawan, 4<sup>th</sup> Floor, 84, Harish Mukherjee Road  
Kolkata - 700 025, Ph: 033-24540184

#### The Management Accountant technical data

**Periodicity** : Monthly

**Language** : English

**Overall Size** : 26.5 cm x 19.6 cm

#### Subscription

**Inland:** ₹1,000 p.a or ₹100 for a single copy

**Overseas:** US\$ 150 by airmail

**Concessional subscription rates for registered students  
of the Institute:** ₹900 p.a

**The Management Accountant Journal is Indexed and  
Listed at:**

- ⊙ Index Copernicus and J-gate
- ⊙ Global Impact and Quality factor (2015):0.563

**We have expanded our Readership from 1 to 94 Countries**

Afghanistan, Algeria, Argentina, Australia, Azerbaijan, Bahrain, Bangladesh, Belgium, Benin, Botswana, Brazil, British Indian Ocean Territory, Bulgaria, Cambodia, Cameroon, Canada, Chile, China, Colombia, Croatia, Czech Republic, Djibouti, Egypt, France, Gambia, Germany, Ghana, Great Britain, Greece, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lebanon, Liberia, Lithuania, Malawi, Malaysia, Mauritius, Mexico, Morocco, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nigeria, Oman, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Saudi Arabia, Serbia, Seychelles, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Suriname, Sweden, Switzerland, Syria, Taiwan, Tanzania, Thailand, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States of America, Vietnam, Zaire, Zimbabwe

# Inside

May 2026

## Cover Story

**17** REDEFINING VALUE IN AEROSPACE: INTEGRATING LIFECYCLE COSTING, OPERATIONAL AVAILABILITY, AND SUSTAINABILITY IN DEFENCE PROCUREMENTS - *CMA Rajendra Kumar Joshi*

**25** ASSETS TO ACCESS: THE NEW ECONOMICS OF SERVICE AND AVAILABILITY - *CMA Kamal Nath Thakur*

**29** BEYOND ASSET SALES: THE EMERGENCE OF SERVICE AND AVAILABILITY-BASED REVENUE MODELS IN AEROSPACE - *CMA (Dr.) Chandra Sekhar Rajanala*

**36** REVENUE MODELS IN THE POWERBY - THE-HOUR ERA THE SHIFT FROM ASSET OWNERSHIP (CAPEX) TO SERVICEBASED AND AVAILABILITY-BASED MODELS (OPEX) - *CMA Rakesh Kumar Prasad*

**39** UNDERSTANDING PBH AS AN ALTERNATIVE TO TRADITIONAL CAPEX MODEL - *CMA Ajay Deep Wadhwa*

**42** ACCOUNTING FOR THE FINAL FRONTIER: LIFECYCLE VALUE, RISK, AND SUSTAINABILITY IN THE SPACE ECONOMY - *CMA Soumendhra Roy*

**47** OWNING NOTHING, CONTROLLING EVERYTHING: HOW INDIA'S ACCOUNTING, TAX AND INSOLVENCY FRAMEWORKS MUST ADAPT TO THE POWER-BY-THE-HOUR ECONOMY - *CMA Tarun Marimganti*

## Interview



**CMA Venkata Ramana Kudipudi**  
Director  
Finance & Supply Chain - EATON  
Australia

52

## Applied Insights

**55** DIGITAL LENDING BOOM: GROWTH ENGINE OR RISK TIME BOMB? AN APPLIED INSIGHT AND ANALYTICAL PERSPECTIVE ON INNOVATION, INCLUSION, AND FINANCIAL STABILITY IN INDIA - *CMA Pankaj Kapoor*

## CMA - Value Architect

**62** RISE: REIMAGINING THE CMA AS AN ARCHITECT OF ENTERPRISE VALUE - *CMA (Dr.) A S Durga Prasad*



MAY VOL 61 NO.05 ₹100

# Contents

## ERM

**66** ENTERPRISE RISK MANAGEMENT (ERM) - A FRAMEWORK FOR IMPLEMENTATION - *Uma Shankar*

## Business Transformation

**69** IMPACT OF A NOVEL RAPID TRANSFORMATION PROCESS CALLED SYNTEGRATION® ON BUSINESSES AND COMPLEX PROJECTS IN CHANGING THE ECOSYSTEM IN INDIA – A CONCEPT PAPER & PRACTITIONER'S GUIDE - *CMA Srinivash Singh, CMA (Dr.) Raja Ghosh & Dr. Sarojkant Singh*

## Stock Market

**76** HOW AI IS CHANGING THE WAY WE INVEST IN THE STOCK MARKET - *CMA (Dr.) Arindam Banerjee*

## Banking

**80** CUSTOMER-CENTRIC BANKING: TRENDS, PRACTICES AND CHALLENGES IN INDIA - *Biplab Chakraborty*

## ERP

**86** INTEGRATED CLOUD ERP SYSTEMS AND COST TRANSPARENCY: AN EMPIRICAL INVESTIGATION INTO ADOPTION, BENEFITS, AND INTEGRATION ISSUES AMONG INDIAN ENTERPRISES - *Dr. Amit Kumar Nag*

## Case Study

**92** IMPACT OF STRATEGIC COST MANAGEMENT ON THE PROFITABILITY: AN EMPIRICAL ANALYSIS ON SELECT AUTOMOBILE COMPANIES IN INDIA - *CMA (Dr.) V R Sridhar*

From the Editor's Desk	06
President's Communiqué	07
Chairman's Communiqué	15
{Corporate Laws Committee (CLC)}	
ICMAI-CMA Snapshots	16
Down the Memory Lane	100
News from the Institute	102
Advisory for Renewal of Certificate of Practice For 2026-27	118
Papers Invited - The Management Accountant	122

Images in this issue are sourced from Google

## THE COUNCIL

### PRESIDENT

CMA TCA Srinivasa Prasad

### VICE PRESIDENT

CMA Neeraj Dhananjay Joshi

### COUNCIL MEMBERS

CMA (Dr.) Ashish Prakash Thatte

CMA Ashwin G. Dalwadi

CMA Avijit Goswami

CMA Bibhuti Bhusan Nayak

CMA Chittaranjan Chattopadhyay

CMA Harshad Shamkant Deshpande

CMA (Dr.) K Ch A V S N Murthy

CMA Manoj Kumar Anand

CMA Navneet Kumar Jain

CMA Rajendra Singh Bhati

CMA Suresh Rachappa Gunjalli

CMA (Dr.) V. Murali

CMA Vinayaranjan P

Ms. Anita Shah Akella

Shri Jyoti Prakash Gadia

Shri Inder Deep Singh Dhariwal

CS (Dr.) Shyam Agarwal

Shri Sushil Kumar, IAS (Retired)

### EDITORIAL ADVISORY TEAM

CMA (Dr.) Arindam Banerjee

Dr. Ashish Kumar Sana

Shri Basant Kumar Nayak

Dr. Duke Ghosh

CMA (Dr.) Gaddam Naresh Reddy

CMA Malay Paul

CMA Pankaj Kapoor

CMA Sudhir Y Raikar

CMA (Dr.) Swapan Sarkar

Dr. Tanupa Chakraborty

Shri Vikash Goel

Shri Vikash Mundhra

### Secretary (Officiating)

CMA (Dr.) Debaprosanna Nandy

### DISCLAIMER -

- ⊙ The Institute of Cost Accountants of India does not take responsibility for returning unsolicited publication material. Unsolicited articles and transparencies are sent in at the owner's risk and the publisher accepts no liability for loss or damage.
- ⊙ The views expressed by the authors are personal and do not necessarily represent the views of the Institute and therefore should not be attributed to it.
- ⊙ The Institute of Cost Accountants of India is not in any way responsible for the result of any action taken on the basis of the articles and/or advertisements published in the Journal. The material in this publication may not be reproduced, whether in part or in whole, without the consent of Editor, The Institute of Cost Accountants of India. All disputes are subject to the exclusive jurisdiction of competent courts and forums in Kolkata only.

# From the EDITOR'S DESK

The aerospace sector is entering a decisive phase where traditional cost-containment approaches are no longer enough to sustain competitiveness. Intensifying global rivalry and rapid technological disruption—from advanced propulsion systems to digital manufacturing—are compelling organizations to reimagine cost management as a strategic enabler rather than a reactive measure. Escalating input costs, persistent supply chain vulnerabilities, and the immense capital demands of next-generation aircraft programs have exposed the limits of incremental efficiency.

In response, forward-looking enterprises are embedding cost intelligence at the design stage, leveraging digital twins, and adopting modular architectures to optimize lifecycle economics. Cost is no longer a downstream consideration; it is now a defining force shaping innovation, strategy, and long-term value creation.

Success in this evolving landscape will belong to organizations that seamlessly align cost discipline with resilience and innovation, balancing efficiency with adaptability in a high-stakes global environment.

The May 2026 issue, themed “Beyond the Horizon: Strategic Cost Management in the Evolving Aerospace Sector,” brings together a diverse set of thought-provoking articles.

*Redefining Value in Aerospace: Integrating Lifecycle Costing, Operational Availability, and Sustainability in Defence Procurements* examines the integration of sustainability metrics—what it terms “The Green Ledger”—into total cost of ownership models, urging Cost and Management Accountants to adopt multidimensional costing frameworks.

*Assets to Access: The New Economics of Service and Availability* highlights how the Power by the Hour (PBH) model is reshaping traditional revenue paradigms and redefining industry dynamics.

*Beyond Asset Sales: The Emergence of Service and Availability-Based Revenue Models in Aerospace* explores how PBH contracts optimize lifecycle value, reduce financial risks, and encourage innovation while supporting sustainability goals.

*Revenue Models in the Power-by-the-Hour Era-The Shift From Asset Ownership (Capex) to Service-Based and Availability-Based Models (Opex)* underscores India’s strategic opportunity to emerge as a global MRO hub, driven by its expanding aviation market, policy reforms, and engineering capabilities.

*Understanding PBH as an Alternative to Traditional CAPEX Model* provides a detailed conceptual foundation of PBH, offering clarity on its financial and operational implications.

*Accounting for the Final Frontier: Lifecycle Value, Risk, and Sustainability in the Space Economy* introduces a conceptual framework that highlights risk-governed costing, sustainability integration, and lifecycle value that explains the concept of management accounting in the commercial space economy and concludes space capitalism is a finance revolution rather than an industrial revolution and could shake the fundamentals of management accounting.

*Owning Nothing, Controlling Everything-How India’s Accounting, Tax, and Insolvency Frameworks must Adapt to The Power-By-The-Hour Economy* critically examines how India’s accounting, tax, and insolvency frameworks must evolve to keep pace with service-based asset models, identifying key structural and regulatory challenges.

In addition to these thematic contributions, this issue features expert perspectives on emerging trends shaping the future of management accounting and financial strategy. We are honored to include an exclusive interview with CMA Venkata Ramana Kudipudi, Director – Finance & Supply Chain at Eaton Australia, who shares valuable insights into contemporary financial governance and strategic management practices.

By embracing innovation, fostering collaboration, and integrating cost consciousness into every layer of decision-making, organizations can transform challenges into opportunities. The horizon is vast, and those who dare to think beyond it will not only navigate uncertainty but also set new benchmarks for excellence and sustainable growth.

As we move forward, this is a moment of opportunity for all professionals connected to the aerospace and finance ecosystem. By staying curious, embracing new ideas, and continuously learning, we can all play a role in shaping a stronger and more resilient future for the industry. We encourage you to explore the articles in this issue in depth, reflect on the insights shared, and carry these ideas into your own work. Happy reading—and we look forward to your continued engagement in the editions ahead.



# President's Communiqué

**CMA TCA Srinivasa Prasad**

President

The Institute of Cost Accountants of India

*“The butterfly counts not months but moments  
and has time enough.”*

**-- Gurudev Rabindranath Tagore**

My Dear Professional Colleagues,  
Namaskar!

It is with a sense of pride and significance that members, students and other stakeholders are informed of the formal launch of the Institute's new website on 10<sup>th</sup> April 2026, marking a long-awaited milestone in the Institute's journey towards greater connectivity, transparency and service excellence.

With the objective of enhancing accessibility in compliance with the Guidelines for Indian Government Websites (GIGW) and open-source standards, the website is designed to improve access to information, streamline engagement and embody the progressive spirit of the Institute while fostering user-centric digital experiences including Screen Reader facility. Sincere gratitude is conveyed to the IT Committee and the IT Team of the Institute.

### Meeting with dignitaries

1. The undersigned along with CMA Manoj Kumar Anand, Council Member met Shri D. Anandan, IAS, Additional Secretary, Ministry of Finance on 22<sup>nd</sup> April 2026 to discuss the professional matters and presented his membership certificate.
2. The undersigned along with CMA Manoj Kumar Anand, Council Member met Shri Anant Swarup, Secretary General, FICCI on 28<sup>th</sup> April 2026 and discussed professional

matters.

3. The undersigned along with CMA Rajesh Sai Iyer, Secretary, SIRC and CMA K. Gomathisankar, RCM, SIRC met Shri B. Srikumar, ICLS, Registrar of Companies (ROC) Chennai, Ministry of Corporate Affairs on 30<sup>th</sup> April 2026 to discuss the professional matters.

### National CMA Practitioners' Convention (NCPC) 2026

The undersigned along with CMA Neeraj D. Joshi, Vice President, CMA Manoj Kumar Anand, Chairman, PD & CPE Committee and other council members attended the *National CMA Practitioners' Convention (NCPC) 2026* at Chandigarh on 4<sup>th</sup> & 5<sup>th</sup> April 2026.

The inaugural session was graced by **Shri Harpal Singh Cheema, Hon'ble Minister** of Finance, Planning, Program Implementation, Excise and Taxation, Government of Punjab as the Chief Guest. **Shri Yogender Sharma, State President-Bhartiya Janata Yuva Morcha, Haryana** attended the NCPC as the Guest of Honour.

The undersigned while addressing the participants in the presence of the Chief Guest, underscored the valuable role of CMAs in driving efficiency, transparency and competitiveness across sectors while supporting economic growth and governance through cost management and analytics. Also highlighted the profession's expanding strategic role in areas like sustainability, finance and advisory services, while urging CMAs to build technological

skills, uphold ethics and commit to continuous learning to contribute effectively to a resilient and sustainable economy.

### National Seminar on Cost Audit

The Institute hosted a National Seminar on Cost Audit on 10<sup>th</sup> April 2026 in Mumbai, on the theme “*Cost Audit for Viksit Bharat: Value, Vishwas and Vision.*” The event brought together policymakers, industry leaders and professionals to examine how cost audit can further strengthen India’s economic framework and support its goal of becoming a developed nation.

The seminar was graced by **Shri Jishnu Dev Varma, Hon’ble Governor of Maharashtra**, as the Chief Guest of the inaugural session. The undersigned along with CMA Neeraj D. Joshi, Vice-President, CMA Manoj Kumar Anand, Chairman, PD & CPE Committee also addressed the participants during the inaugural session.

The Chief Guest in his address highlighted that achieving Viksit Bharat 2047 requires robust financial governance, with cost audit playing a crucial role in ensuring transparency, efficiency and competitiveness. He advocated expanding cost audit from a compliance-focused practice to a comprehensive framework covering all types of companies, enabling better decision-making, accountability and optimal resource use.

Speakers and Guests collectively emphasized the urgent need to enhance financial governance by increasing the role of finance professionals and expanding the adoption of cost audit across sectors. The crux of the seminar was clear: a broader, technology-driven and systematically implemented cost audit framework is essential for sustainable growth, effective governance and India’s journey toward becoming a *Viksit Bharat*.

### IFAC PAIB Advisory Group meeting

The *IFAC PAIB Advisory Group meeting* was attended by CMA (Dr.) Ashish P. Thatte, Member IFAC-PAIB Advisory Group and CMA Neeraj D. Joshi, Vice President at Hong Kong from 15<sup>th</sup> to

17<sup>th</sup> April 2026. While certain key aspects and areas related with the CMA profession were discussed during the Meeting; CMA Thatte delivered a presentation on the activities and initiatives of the Institute for the Members in Industry at this platform.

### Residential Regional Conference of NIRC

The undersigned attended the *Residential Regional Conference (RRC-2026) of NIRC*, hosted in Manali, Himachal Pradesh during 17<sup>th</sup> to 19<sup>th</sup> April 2026, on the theme “*Samanvay – Prakriti ke Sath Pragati*”. The RRC was graced by Council Members of the North and other Regions, Regional Council Members of NIRC. The RRC was well attended by the Members.

The undersigned while addressing the participants in the inaugural session highlighted the need of balancing economic progress with environmental sustainability, urging responsible and inclusive development aligned with the conference theme. Also underscored the critical role of CMAs in enhancing efficiency, sustainability and regional growth.

### Meeting of Steering Committee for Corporate Mitra

The undersigned, along with CMA Manoj Kumar Anand, Council Member, CMA (Dr.) D.P. Nandy, Secretary (Officiating) and CMA (Dr.) S.K. Gupta, Managing Director, ICAI RVO participated in a *Steering Committee meeting* held on 22<sup>nd</sup> April 2026 under the chairmanship of Shri Rahul Jain, IAS, Joint Secretary (PI), MCA. The discussions focused on the implementation strategy, monitoring framework, stakeholder coordination and necessary measures for timely course correction to ensure alignment with the objectives of the Corporate Mitra Scheme.

### Hearing before PSC on Finance on SEBI Code

The Institute had the opportunity to present its views on the *Securities Markets Code, 2025* before the Parliamentary Standing Committee (PSC)

on Finance during a hearing held on 23<sup>rd</sup> April 2026 in Delhi. The Institute was represented by a delegation led by CMA (Dr.) K. Ch. A. V. S. N. Murthy, Chairman, Corporate Laws Committee and accompanied by CMA Chittaranjan Chattopadhyay, CMA (Dr.) Ashish P. Thatte, Council Members and others.

### Interaction with Members at Pune Chapter

The undersigned along with CMA Neeraj D. Joshi, Vice President and other Council Members visited the Pune Chapter on 24<sup>th</sup> April 2026 and had fruitful interaction with the members of the chapter during the *Members' Interaction with Council Members* in presence of the Council Members, Former Presidents, and Chairman & MC members of the Chapter.

### 3<sup>rd</sup> Regional Tax Conclave at Bhilai

The undersigned along with CMA Neeraj D. Joshi, Vice-President, CMA Ashwin G. Dalwadi, Former President and Council Member and CMA (Dr.) Ashish P. Thatte & CMA Harshad Deshpande, Council Members attended the 3<sup>rd</sup> Regional Tax Conclave of WIRC on the theme *Strengthening Economic Growth through Tax reforms and Compliances Date*, organised by the Bhilai Chapter at Bhilai on 26<sup>th</sup> April 2026.

Addressing the participants the undersigned highlighted the Institute's continued efforts in the areas of professional development, capacity building, enhancing academic delivery, student support services, outreach initiatives, examination and placement systems.

**Shri Chitta Ranjan Mohapatra**, Director In-Charge, SAIL–Bhilai Steel Plant was the Chief Guest of the event while **CMA Praveen Nigam**, Executive Director (F&A), SAIL–Bhilai Steel Plant was the Guest of Honour of the event. Eminent professionals addressed the participants highlighting the significance of tax reforms, compliance, professional adaptability and continuous upskilling in driving economic growth and strengthening the CMA profession. The event concluded with the felicitation of ICAI's Rank

Holder Students of Chhattisgarh.

### Interaction with Members and Students at Raipur Chapter

The undersigned visited Raipur Chapter on 26<sup>th</sup> April 2026 and had a fruitful interaction with the members and students of the chapter in presence of CMA Mihir Vyas, Chairman, WIRC, RCMs of WIRC and MC members of the Chapter.

### Workshop on Income Tax Act, 2025 and Income Tax Rules, 2026

The Tax Research Department of ICAI organised an in-depth workshop on the Income Tax Act, 2025 and Income Tax Rules, 2026, at Bhubaneswar on 26<sup>th</sup> April 2026. The event was graced by **Shri Umakant Dhrupati**, Additional Commissioner of Income Tax, Range–I, Bhubaneswar, as Chief Guest, while **Shri Nihar Ranjan Nayak**, Additional Commissioner of State (CT & GST), Bhubaneswar, attended the event as Guest of Honour, alongside CMA Bibhuti Bhusan Nayak, IFP & Council Member. CMA Ajith Sivadas, CMA Sudhansu Kumar Sahu and Shri Tarun Agarwalla, Resource Persons, led the highly interactive session beneficial for participating students and members.

### DGR-CAT Batches

During the month of April 2026, seven new batches were commenced at the Haridwar–Rishikesh, Lucknow, Cochin, Karnal–Panipat, Jodhpur, Ahmedabad and Faridabad Chapters of the Institute, ensuring broad regional representation and enhanced accessibility.

The Institute successfully concluded batch at SIRC on 10<sup>th</sup> April 2026, followed by the successful completion of batches at the Beawar and Ranchi Chapters of the Institute on 30<sup>th</sup> April 2026.

The valedictory programme at Ranchi Chapter was graced by Lt Col Neeraj Pathak, as the Chief Guest, in presence of CMA Bibhuti Bhusan Nayak, IFP and Council Member, CMA Chittaranjan Chattopadhyay and CMA Avijit Goswami, Council Members, CMA Arati Ganguly, Chairperson, EIRC

and CMA Meera Prasad, Chairperson, Ranchi Chapter.

The Chief Guest appreciated the Institute's commendable initiative in conducting the CAT Course for defence personnel and acknowledged its valuable contribution towards their rehabilitation. Lt Col Neeraj Pathak lauded the Institute's timely and effective delivery of the programme and expressed confidence in the continued growth of the ICAI-DGR partnership.

### Membership Initiatives

During the month of April 2026, 332 new members were granted Associate Membership and 86 members were advanced to Fellowship. Members who have not yet renewed their CoP are requested to apply for renewal at the earliest and in any case not later than 30<sup>th</sup> June 2026. Members may also apply for the '*Members Benevolent Fund*' through the online portal for health benefits. Members are urged to regularly visit the Institute's website to keep themselves updated on all relevant information, facilities and announcements.

### National Seminar on Management Accounting

It is a pleasure to inform that the Management Accounting Committee (MAC) of the Institute is organizing a *National Seminar on Management Accounting: Driving Strategy, Performance and Sustainable Value* on 6<sup>th</sup> May 2026 at KASSIA Auditorium, Bengaluru. The Committee will also be presenting the '*Management Accounting Award*' at the National Seminar.

### N.K. Bose Memorial Lecture

To commemorate the Birth Centenary of Late CMA N.K. Bose, Former President, ICAI, the Institute is organising the *N.K. Bose Memorial Lecture* on 15<sup>th</sup> May 2026 at the J.N. Bose Auditorium, Kolkata. The event seeks to honour the enduring legacy of CMA N.K. Bose, a pioneer of CMA Profession in India, whose visionary contributions laid a strong foundation for transparency, efficiency and accountability in cost management. The event will feature eminent

domain experts sharing insights and reflecting these ideals to inspire the professional community.

### 13<sup>th</sup> National Students' Convocation 2026

The Institute will be organising the 13<sup>th</sup> National Students' Convocation 2026 on 22<sup>nd</sup> May 2026 at the C. Subramaniam Convention Centre, NASC Complex of ICAR, New Delhi. Necessary information regarding the Convocation will be shared by the Examination Department with all eligible students in due course.

As we progress together, the Institute extends its heartfelt greetings and best wishes to all members, students and stakeholders on the auspicious occasions of Buddha Purnima, Guru Rabindranath Tagore Jayanti and Id-ul-Zuha (Bakrid). May these celebrations foster a spirit of unity, renewed commitment and collective purpose in all our pursuits.

Jai Hind!

With warm regards,



**CMA TCA Srinivasa Prasad**

1<sup>st</sup> May 2026

# BRIEF SUMMARY OF THE ACTIVITIES OF VARIOUS DEPARTMENTS/ COMMITTEES/ BOARDS OF THE INSTITUTE DURING THE MONTH OF APRIL 2026

## BANKING, FINANCIAL SERVICES AND INSURANCE BOARD (BFSI BOARD)

### Webinars

1. The Board organized a Webinar on 16<sup>th</sup> April 2026 on Fintech Disruption in India: Opportunities for CMAs, Ms. Jaya Devdas Pai, Former Deputy General Manager (IT), State Bank of India was the Speaker.
2. The Board organized a Webinar on 18<sup>th</sup> April 2026 on Climate Finance-Indian Perspective. CMA Siddhartha Pal, Practicing Cost Accountant and Sustainability Consultant was the Speaker.

### Certificate Courses

1. The Board started the 13<sup>th</sup> batch of the Certificate Course on *Concurrent Audit of Banks* from 18<sup>th</sup> April 2026. CMA Reeny Ajith, Regional Director, Chhattisgarh, Reserve Bank of India was the Chief Guest for the inauguration.
2. The 1<sup>st</sup> batch of the Certificate Course on Project Financing will start from 2<sup>nd</sup> May 2026 and all are requested to join the course which is aimed at capacity building and knowledge enhancement.

### Opportunities for CMAs

1. On representation from the Board, the SBI-SG Global Securities Services Private Limited has included CMA firms for applying in the Request for Proposal of Concurrent Audit Verification for Mutual Funds Clients of SBI-SG Global Securities Services Private Limited.
2. CMAs are eligible to apply for various vacancies in Cosmos Cooperative Bank Limited.
3. CMAs are eligible to apply for the recruitment of Senior Manager, Financial Analyst & Manager Financial Analyst in Indian Bank.
4. CMAs are eligible to apply for the recruitment of Associate Manager – Finance & Accounting in Small Industries Development Bank of

India (SIDBI).

### BFSI Chronicle

The Board released the 24<sup>th</sup> edition of the quarterly issue of the BFSI Chronicle. The link to view the issue is as follows: <https://icmai.in/BFSI/BFSIIndex>

### Printed copies of the publications of the BFSIB

The printed copies of the BFSIB publications can be purchased from the following link: [https://icmai.in/booksale\\_bfsi/Home.aspx](https://icmai.in/booksale_bfsi/Home.aspx)

## CAT DEPARTMENT

### CAT Course Part – I Examination – June 2026

**Term:** The CAT Directorate issued the notification for the CAT Course Part–I Examination – June 2026 term. The examination is scheduled to be held on 13<sup>th</sup> June 2026 in an offline, OMR-based format at designated centres across the country.

**Online Classes for CAT Students:** The CAT Course Part–I e-learning classes commenced on 6<sup>th</sup> April 2026 with a renewed focus on interactivity and student engagement. Led by expert faculty, these sessions are designed to provide conceptual clarity and practical insights, enabling students to prepare effectively for the upcoming examination.

## INTERNATIONAL AFFAIRS COMMITTEE

International Affairs Committee organized a webinar on the Topic “*Strategic Management Accounting in an International Context - Scope and Application*” on 15<sup>th</sup> April 2026 that was well appreciated by the Members.

## STUDIES DEPARTMENT

1. The Institute recorded a milestone admission of around 87,600 students in FY 2025-26, reflecting growing student trust in the CMA Course and the Institute’s strong academic delivery, support services, outreach and examination & placement systems.
2. Upto April 2026, affiliation has been granted to 17 (seventeen) educational institutions under the National Accreditation Policy

(NAP) of the Institute.

- Online Coaching Classes for Postal students of the Intermediate and Final levels have been conducted for the June 2026 term of examination.
- Model Question Papers (MQPs) for Intermediate and Final Levels are being uploaded gradually on the Institute's website for the June 2026 term of examination.

## SUSTAINABILITY STANDARDS BOARD

### Webinars

#### 1. Vasudhaiva Kutumbakam Series

- 55<sup>th</sup> Webinar: The Board organised its 55<sup>th</sup> Webinar of the Vasudhaiva Kutumbakam series on 10<sup>th</sup> April 2026 on the topic “*Anomalies in the BRSR Reporting*”. Shri Kamal Garg, Practising Chartered Accountant was the speaker.
- 56<sup>th</sup> Webinar: The Board organised its 56<sup>th</sup> Webinar of the Vasudhaiva Kutumbakam series on 24<sup>th</sup> April 2026 on the topic “*Achieving Sustainability through Carbon Management*”. Dr. Manoj Kumar Jhariya, Assistant Professor, Department of Farm Forestry, Sant Gahira Guru Vishwavidyalaya was the speaker.

#### 2. Parinayati Series

The Board organized the 6<sup>th</sup> Parinayati Webinar series on the topic of *ESG and Sustainability Reporting in Nigeria*. CMA (Dr.) Aditi Dasgupta, Joint Director, ICAI and CMA Arunabha Saha, Practising Cost Accountant were the speakers.

#### Monthly Newsletter – Sukhinobhavantu

The Board released Volume XXXIII of the monthly newsletter *Sukhinobhavantu* for the month of April 2026. The Download link is as follows:

[https://icmai.in/CIntCourses/SSB\\_Newsletter\\_SUKHINOBHAVANTU](https://icmai.in/CIntCourses/SSB_Newsletter_SUKHINOBHAVANTU)

#### Certificate Course on ESG

The admission for the 7<sup>th</sup> batch of the Certificate Course on ESG has started and members and students are requested to enroll for the course for capacity enhancement and knowledge dissemination.

#### TAX RESEARCH DEPARTMENT (TRD)

##### Webinars on Taxation

- The Income Tax Series 2025:** Held every Tuesday in partnership with the Income Tax Department.

#	Date	Topic	Faculty	Brief About the Webinar
1	07.04.2026	PGBP (Part:1) [Sec 26 -43] under ITA, 2025	Shri Vikash Mundhra	The session covered key sections dealing with the computation of business income, admissible and inadmissible expenses and important practical aspects relevant for tax compliance. It aimed at providing participants with a clear conceptual understanding along with insights into real-world application of these provisions
2	14.04.2026	PGBP (Part:2) [Sec 44 -46] under ITA, 2025	Shri Vikash Mundhra	The session focused on presumptive taxation, computation mechanisms, and specific provisions governing business income under these sections. It also provided practical insights to help participants better understand the application of these provisions in real-life tax scenarios and compliance requirements.
3	21.04.2026	Return of Income under ITA, 2025	CMA Gopal Krishna Raju	The session covered key aspects such as types of returns, due dates, filing procedures, and common compliance requirements. It also highlighted practical considerations and recent updates to help participants ensure accurate and timely filing of returns

4	28.04.2026	Assessment under ITA, 2025	CMA Gopal Krishna Raju	The session covered various types of assessments, procedural aspects, and the roles and powers of tax authorities. It also highlighted practical issues and compliance requirements, enabling participants to better navigate assessment proceedings effectively.
---	------------	----------------------------	------------------------	---

**Kar Kranti Series on Indirect Taxation:** Conducted on the 2<sup>nd</sup> & 4<sup>th</sup> Wednesday of every month.

#	Date	Topic	Faculty	Brief About the Webinar
1	08.04.2026	The burden of proving eligibility of ITC claim lies on taxable person: Section 155 OF CGST Act, 2017	CMA Anil Sharma	The session covered the legal provisions of Section 155, documentation requirements, and common challenges faced during scrutiny. It also provided practical guidance and strategies to effectively respond to notices and ensure compliance under GST law.
2	22.04.2026	Benefits and Schemes under FTP 2015 – 20	Shri Shrenik Mehta	The session covered various incentive schemes, eligibility criteria, and procedural aspects for availing benefits. It also offered practical insights to help participants effectively utilize these schemes and ensure compliance with regulatory requirements.

### Other initiatives

- The classes for the following professional courses have commenced with effect from 18<sup>th</sup> April 2026:
  - ☉ Certificate Course on GST (CCGST-20)
  - ☉ Advanced Certificate Course on GST (ACCGST-16)
  - ☉ Certificate Course on TDS (CCTDS-16)
  - ☉ Certificate Course on Filing and Filling of Return (CCFR-16)
  - ☉ Certificate Course on International Trade (CCIT-10)
  - ☉ Advanced Course on Income Tax Assessment and Appeal (ACITAA-13)
  - ☉ Advanced Course on GST Audit and Assessment Procedure (ACGAAP-13)
  - ☉ Advance certificate course on GST Litigation Management (ACCGLM – 1)
- Certificate course on Income Tax Act 2025 (CCITA – 1) has commenced in April 2026 and has garnered huge response from students, members and non-members. The course is a pro-active initiative of the department for value addition to the knowledge base in Taxation of the people.

- Exams for the Taxation courses were conducted successfully on 8<sup>th</sup> March 2026.

### TRAINING DEPARTMENT

- NPTEL has provided the newly registered students of the June 2026 term with access to specific courses: *Communication and Soft Skills* for Intermediate students and *Business Intelligence and Analytics* for Final students. An orientation session was also conducted by NPTEL to brief them on the modules.
- MS Office, E-filing and Tally classes for the newly registered students of June 2026 term were successfully completed on 27<sup>th</sup> April 2026.

### ICMAI REGISTERED VALUERS' ORGANIZATION (RVO)

ICMAI RVO has successfully organised two (2) “50-Hour Training Programs” for securities or financial asset class and land and Building asset class, also organised eleven (11) “online Professional Development Programs” and in its efforts to bring out relevant publications for the development of the valuation profession. ICMAI RVO also released its monthly journal, *The Valuation Professional*.

## ICMAI SOCIAL AUDITORS' ORGANISATION (SAO)

ICMAI SAO has successfully organised one (1) Preparatory Course for Social Auditors Examination, two (2) online Professional Development Programs and two (2) Physical Awareness Programs on Social Stock Exchange at Nagpur and Kozhikode. ICMAI SAO also released its monthly journal, *The Social Impact Assessor*.

## INSOLVENCY PROFESSIONAL AGENCY OF THE INSTITUTE OF COST ACCOUNTANTS OF INDIA (IPA-ICMAI)

IPA-ICMAI in its endeavor to promote professional development and sharpen the skills of the professionals has undertaken several initiatives, during the month of April 2026.

1. A Webinar Series on “*IBC 2026 Unpacked: A Clause-by-Clause Masterclass*” held on 4<sup>th</sup> April 2026, in association with IP Net. The webinar witnessed enthusiastic participation from professionals and served as a valuable platform for enhancing conceptual clarity and practical understanding of the evolving insolvency framework.
2. IPA-ICMAI organised a two-day Certificate Training Program for Professionals under the IBC Ecosystem on 17<sup>th</sup> & 18<sup>th</sup> April 2026, in Ahmedabad, in association with DBS Bank India and IP Foundation. The program provided valuable insights into the evolving Insolvency and Bankruptcy Code (IBC) framework, with a strong focus on practical aspects, procedural nuances, and recent regulatory developments. It witnessed active participation from professionals across the ecosystem, fostering knowledge exchange and enhancing capacity building within the insolvency domain.
3. IPA-ICMAI, jointly with Association of Corporate Advisors & Executives (ACAE) and IPNet, successfully conducted a Conclave on IBC in Kolkata on 18<sup>th</sup> April 2026. The program witnessed active participation and engaging discussions on key developments in the insolvency landscape. It served as a valuable platform for knowledge exchange

among professionals and stakeholders.

4. IPA-ICMAI conducted a Virtual Workshop on “*Avoidance Transactions including Case Studies & Forensic and Transaction Review Engagements (w.r.t. latest amendments under IBC)*” on 19<sup>th</sup> April 2026. The session focused on practical insights into avoidance transactions and forensic review under the IBC framework. The program was supported by 3i Advisory as the Knowledge Partner.
5. IPA-ICMAI, in association with the Kerala Insolvency Professionals Forum (KIPF), organised a Seminar on “*IBC (Amendment) Act 2026 – A Walkthrough*”. on 23<sup>rd</sup> April 2026. The session focused on key amendments and practical implications under the IBC framework. The program featured Adv. (CA) Nipun Singhvi as the speaker.
6. IPA-ICMAI, in association with the Association of Insolvency Professional Entities (AIPE), organised a virtual webinar on “*Decoding the Amendments: Navigating IBC's Transformative Shifts – Strategy, Compliance and Stakeholder Impact*” on 24<sup>th</sup> April 2026. The session focused on recent amendments and their practical implications on stakeholders within the IBC framework. The program featured Mr. Sumant Batra along with a distinguished panel of experts.
7. A Two-Day Learning Session on “*CIRP Strategy & CoC Management*” was held on 25<sup>th</sup> April 2026. The program covered advanced aspects of the CIRP lifecycle, including Information Memorandum drafting and resolution process management. It also focused on CoC functionality, stakeholder coordination and practical insights through case studies and simulations.
8. In its endeavor to promote the profession, encourage knowledge sharing and enhance sensitization of the insolvency ecosystem, IPA-ICMAI published Au-Courant (Daily Newsletter), a Weekly IBC Dossier, a Monthly e-Journal, a Quarterly Digest and Annual Publication, all of which are hosted on its website.



# Chairman's Communiqué

**CMA (Dr.) K Ch A V S N Murthy**  
Chairman, Corporate Laws Committee (CLC)  
The Institute of Cost Accountants of India

*“In a dynamic regulatory environment, corporate law professionals must remain agile, informed, and forward-looking—through our collective efforts, we are shaping a robust compliance ecosystem for the future.”*

**Dear Readers,**

The landscape of corporate laws in India is undergoing continuous transformation, driven by regulatory reforms aimed at enhancing transparency, accountability, and ease of doing business. The Corporate Law Committee (CLC) of the Institute of Cost Accountants of India remains steadfast in its commitment to supporting members and stakeholders in understanding and adapting to these evolving legal and regulatory frameworks.

During the years, the Committee has been actively contributing to the development of the corporate legal ecosystem by submitting suggestions and representations on various legislative proposals, including amendments to the Companies Act and other allied laws. The Committee recently represented the Institute at the Parliamentary Standing Committee on Finance towards the new Securities Market Code' 2025 which aims to bring dynamic changes to the securities market. The views of the Institute were appreciated by the select committee and opportunity was provided to submit further clarification on the suggestions. These efforts reflect the Institute's thought leadership and its proactive engagement with policymakers.

The Committee has also undertaken several initiatives to enhance professional knowledge and capacity building, including:

- ⦿ Organizing webinars, seminars, and expert

sessions on contemporary corporate law issues

- ⦿ Facilitating dialogue between regulators, industry, and professionals

Our focus remains on equipping members with practical insights and updated knowledge, enabling them to effectively address complex compliance requirements and advisory roles in a rapidly changing business environment.

Looking ahead, the Committee aims to:

- ⦿ Strengthen institutional engagement with regulatory authorities
- ⦿ Promote research and publications in corporate laws
- ⦿ Develop practical toolkits and compliance frameworks for members
- ⦿ Encourage specialization among young professionals in corporate law practice

Our collective endeavour is to contribute towards strengthening corporate governance standards and fostering a culture of compliance and ethical practices across industries.

***“Strengthening compliance, fostering governance, and empowering professionals—this is the vision that guides our journey forward.”***

I extend my sincere gratitude to CMA TCA Srinivasa Prasad, President, ICAI, CMA Neeraj Dhananjay Joshi, Vice-President ICAI, Members of the Corporate Laws Committee, Council Members and all contributors for their continued guidance and support.

With regards,

**CMA (Dr.) K Ch A V S N Murthy**  
1<sup>st</sup> May 2026



CMA TCA Srinivasa Prasad, President along with CMA Rajesh Sai Iyer, Secretary, SIRC and CMA K. Gomathisankar, RCM, SIRC met Shri B. Sri Kumar, ICLS, Registrar of Companies (ROC) Chennai, Ministry of Corporate Affairs on 30<sup>th</sup> April 2026 to discuss the professional matters



CMA TCA Srinivasa Prasad, President and CMA Manoj Kumar Anand, Council Member, ICMAI presented the Institute's Membership Certificate to Shri D. Anandan, IAS, Additional Secretary, Ministry of Finance, GoI



CMA TCA Srinivasa Prasad, President and CMA Manoj Kumar Anand, Council Member, ICMAI met Shri Anant Swarup, Secretary General, FICCI on 28<sup>th</sup> April 2026 and discussed the professional matters



Shri Niraj Kumar Panda, Chief General Manager, Kolkata Circle, State Bank of India is presented with the publication of BFSIB, ICMAI on 21<sup>st</sup> April, 2026 at his Office



CMA Manoj Kumar Anand, Council member, ICMAI met Shri AK Pal on 13<sup>th</sup> April 2026 on his taking over as the Chief Advisor (Cost), Ministry of Finance, Government of India



CMA Navneet Kumar Jain, Council Member - ICMAI congratulating CMA Anand Kumar Pal (ICoAS) on taking charge as Chief Advisor (Cost), Department of Expenditure, Ministry of Finance, Government of India



CMA Navneet Kumar Jain, Council Member - ICMAI conveyed greetings to CMA Anupam Lahiri on assuming charge as ADG, Niti Ayog and also had discussions on possible collaborative engagements between the two Institutions



CMA Navneet Kumar Jain, Chairman, ICMAI - Cooperative and NPO Development Board (CNDB) had a meeting with Shri Bhima Subrahmanyam, Managing Director & CEO - NAFSCOB to apprise him of the activities of the Institute and various initiatives taken by the ICMAI-CNDB, in the presence of RCMs of ICMAI-WIRC

# REDEFINING VALUE IN AEROSPACE: INTEGRATING LIFECYCLE COSTING, OPERATIONAL AVAILABILITY, AND SUSTAINABILITY IN DEFENCE PROCUREMENTS

## Abstract

Traditional defence procurement has long been dominated by the "Lowest Bidder" (L1) paradigm and embedded fixed price Quoting (FPQ) methods, focusing disproportionately on initial acquisition and extrapolated sustainment costs. In an era defined by constrained defence budgets, hyper-advanced aerospace technologies, and growing environmental imperatives, this procurement-based accounting and pricing model is structurally inadequate. This article proposes a paradigm shift toward Total Cost of Ownership (TCO), anchored by a superior valuation metric: Cost per Available Operational Hour (CAOH). By critically examining the mechanics of the Fixed Price Quote method commonly utilized in prevalent domestic defence ecosystems, the analysis demonstrates how rigid cost escalation formulas distort Lifecycle Costing (LCC) and fundamentally alter strategic asset valuation. Furthermore, the article explores the necessary integration of "The Green Ledger" embedding sustainability metrics, carbon footprints of Maintenance, Repair, and Overhaul (MRO) supply chains, and environmental compliance into the TCO model. As atmospheric aviation merges with the emerging frontiers of space power, Cost and Management Accountants (CMAs) navigating pricing policy reviews across defence and civil aviation sectors must champion this multidimensional costing framework. Doing so is critical for ensuring long-term financial efficiency, vendor accountability, and ultimate operational preparedness.



**CMA Rajendra Kumar Joshi**

Senior Vice President (Strategy & Planning)  
Jio Platforms Limited  
New Delhi  
[Rajendra1.Joshi@ril.com](mailto:Rajendra1.Joshi@ril.com)

## Introduction: The Limitations of Procurement Based System

This article is structured as a conceptual and policy-oriented qualitative study. Drawing upon extensive field experience of the author in strategic cost management and defence financial operations, the primary objective of this paper is twofold: First, to critically evaluate the systemic inefficiencies embedded within legacy Fixed Price Quote (FPQ) frameworks; and second, to propose a multidimensional valuation framework that

synthesizes lifecycle finance, engineering reliability, and environmental sustainability.

While financially intuitive in the short term, this approach creates a critical blind spot in Strategic Cost Management, particularly as global military expenditures reach unprecedented highs, necessitating ruthless fiscal optimization (**SIPRI, 2023**). The aerospace and defence sectors operate on capital requirements and time horizons rarely seen in other industries. A modern multi-role fighter aircraft or military satellite constellation is a highly complex system inducted into a lifecycle spanning decades. Historically, procurement frameworks have defaulted to the Lowest Bidder (L1) methodology or relied on strict fixed-price contracts for sustainment. While financially intuitive in the short term, this approach creates a critical blind spot in Strategic Cost Management.

Today, the initial hardware acquisition represents a diminishing fraction of the total economic burden. In the aerospace domain, the purchase price is merely the tip of the iceberg. The submerged mass comprising operating expenses, unscheduled maintenance, and eventual decommissioning often accounts for 65% to 75% of the asset's total financial drain over its lifespan (**NATO Science and Technology Organization, 2021**). To achieve true financial accountability and ensure peak operational preparedness, the valuation of aerospace assets must transition from static procurement systems to dynamic Lifecycle Costing (LCC).

### The Mechanics and Pitfalls of the Fixed Price Quote (FPQ) Method

In domestic defence ecosystems, procurement and sustainment often rely heavily on state-run Defence Public Sector Undertakings (DPSUs). In these monopolistic or semi-monopolistic environments, Pricing Policies and Review Committees (PPRCs) utilize a specific iteration of the FPQ method to benchmark costs for products, spare parts, and MRO services supplied by DPSU to the armed forces. Research indicates that such legacy pricing frameworks in domestic defence manufacturing often struggle to incentivize rapid technological upgrades and lean operational efficiencies (**Manohar Parrikar Institute for Defence Studies and Analyses [IDSA], 2022**). To understand why

this methodology impacts long-term strategic decision-making, it is imperative to narrate how these fixed prices are actually calculated.

The standard accounting mechanism relies on historical verification rather than predictive efficiency. Under this method, a “Base Year” is established. The pricing committees rigorously audit and verify the actual costs incurred by the DPSU for spare parts, direct labour, overheads, and services during that specific base year(s). Once this baseline cost is crystallized, it is locked in. For subsequent years, often structured in fixed blocks of five to seven years, the future pricing is determined not by re-evaluating actual costs, but by applying a predetermined escalation formula to the base year figures. This escalation factor is typically derived from standard indices, such as the Wholesale Price Index (WPI) and Consumer Price Index (CPI), to account for inflation, statutory wage revisions, and material cost increases. Even for the new purchases, the calculations of benchmark prices get impacted as material, labour etc are estimated based on FPQ.

However, DPSUs often try to twist the system to their advantage. On the surface, this fixed-price extrapolation appears to offer fiscal predictability to the exchequer. The defence ministry knows exactly what a spare part or an overhaul will cost three years down the line. However, this method severely distorts the prevailing costs and deeply impacts strategic decision-making in several ways:

- ⦿ **Baking in Inefficiency:** If the chosen Base Year was characterized by sub-optimal manufacturing processes, high scrap rates, or elongated labour hours at the OEM, those inefficiencies are financially crystallized. The escalation formula then compounds those inefficiencies year after year and even gets factored in computing the benchmarking costs through escalated Man Hour Rate (MHR), Material Costs, and overheads. The vendor has no financial incentive to improve Mean Time To Repair (MTTR) or optimize supply chains or cycle time for overhaul, as their profit margins are safely protected within the escalated fixed price.
- ⦿ **Ignoring the Reliability Curve:** Aerospace maintenance does not follow a linear, inflationary curve. It follows a “bathtub

curve” of reliability, where early-stage teething issues and late-stage wear-and-tear dictate massive fluctuations in spare part consumption (**RAND Corporation, 2019**). Applying a flat escalation rate to a fixed basket of spares completely ignores the actual operational consumption rates driven by the platform’s Mean Time Between Failures (MTBF).

- ⊙ **Skewing the Acquisition Matrix:** Because MRO and spare parts constitute up to 70% of aircraft’s LCC, this fixed-price methodology artificially inflates or misrepresents the sustainment cost. When a domestic platform, priced via this rigid escalation method, is compared against a competing global platform priced via Performance-Based Logistics (PBL), where the vendor guarantees availability rather than just selling parts—the cost comparison is fundamentally flawed (**Deloitte, 2021**). Decision-makers are forced to compare apples to oranges, often resulting in the selection of platforms with higher hidden long-term costs.

### Paradigm Shift to Lifecycle Value

With the private sector increasingly entering the defence manufacturing ecosystem in a major way, efficiency and competitive market dynamics will inevitably rule. Private aerospace manufacturers operate on lean principles, optimized supply chains, and predictive maintenance algorithms. Consequently, the archaic, rigid FPQ system is facing challenges to exist, and being replaced by dynamic, performance-based pricing models that align vendor profits with actual fleet availability.

Lifecycle Costing in the aerospace sector requires the aggregation of all costs incurred from the conceptual design to the final decommissioning of a platform. To escape the trap of the fixed-price escalation method, decision makers must evaluate the Present Value (PV) of future sustainment costs using rigorous Discounted Cash Flow (DCF) analyses over a 30 to 40-year horizon, relying on predictive engineering data rather than mere historical cost escalation (**Institute of Cost Accountants of India, 2024**). The mathematical representation of this is:

$$PV = \Sigma [ Ct / (1+r)^t ]$$

**Where:**

Ct = Net cash outflow (sustainment, MRO, fuel, upgrades) during the period t

r = Discount rate reflecting the sovereign cost of capital

n= Total number of periods (lifespan in years)

Σ = Summation from year 1 to year n

To evaluate operational readiness structurally, this financial data must be married to engineering reliability to calculate Operational Availability (Ao). The fundamental formula is:

$$Ao = MTBF / (MTBF + MTTR + MLD)$$

**Where:**

MTBF = Mean Time Between Failures (Engineering reliability)

MTTR = Mean Time To Repair (Base or depot-level repair time)

MLD = Mean Logistics Delay (Time spent waiting for spare parts to arrive)

A procurement and pricing system that ignores Ao in favour of simplistic cost escalation fundamentally fails the armed forces it serves.

**Methodological Limitation:** It is acknowledged that the efficacy of this LCC framework assumes transparent and accurate engineering data sharing from Original Equipment Manufacturers (OEMs). In practical procurement ecosystems, validating OEM claimed MTBF before active deployment remains a challenge.

### Box 1: The Fleet Sizing Paradox

When procurement ignores Operational Availability (Ao), it artificially inflates long term capital expenditure. If a sovereign Air Force requires a minimum of 30 aircraft airborne at any given time to secure its airspace, an aircraft model with 80% availability requires a total fleet purchase of 38 jets. However, a cheaper model

with only 50% availability requires a fleet purchase of 60 jets to achieve the exact same operational outcome. Thus, the “cheaper” aircraft paradoxically forces the procurement, housing, and staffing of 22 additional airframes, completely negating any initial acquisition savings generated by the L1 process.

**The Impact of FPQ vs. LCC on Strategic Decision Making**

To illustrate how the Fixed Price Quote method directly distorts strategic procurement decisions compared to a true Should-Cost/Lifecycle approach, consider the following comparative analysis of MRO procurement for a fleet’s critical avionics suite.

**Table 1: Strategic Decision Impact – FPQ Escalation vs. LCC Evaluation**

Evaluation Metric	Scenario A: Domestic Procurement from DPSU under FPQ Model	Scenario B: Global Procurement under LCC/ PBL Model
Initial Spares/ MRO Contract Value	₹150 Crores (Based on L1 bidding)	₹220 Crores (Premium for high reliability)
Vendor Pricing Methodology	Base Year actuals + 5% annual statutory escalation	Performance Based Logistics (PBL) fixed to flight hours
Engineering Reliability (MTBF)	1,500 Hours (Vendor protected by escalation)	4,000 Hours (Vendor incentivized by PBL)
Projected 30 Year Replacements	20 cycles required per aircraft	7.5 cycles required per aircraft
True 30 Year Lifecycle Cost	₹680 Crores (Compounded escalation on frequent repairs)	₹340 Crores (Fewer repairs, guaranteed availability)

Evaluation Metric	Scenario A: Domestic Procurement from DPSU under FPQ Model	Scenario B: Global Procurement under LCC/ PBL Model
Operational Consequence	High hangar downtime, artificial cost certainty masking massive long-term financial drain.	High flight line availability, alignment of vendor profit with operational readiness.

*(Note: Data in Table 1 relies on conceptual models illustrative of structural pricing dynamics.)*

Details in the above table demonstrates that while the FPQ method (Scenario A) appears cheaper in the initial contract phase, the mathematical certainty of the escalation formula applied to an unreliable product results in a lifecycle cost exactly double that of a highly engineered alternative.

**The Crucial Metric: Cost per Available Operational Hour (CAOH)**

An aircraft sitting in a hangar undergoing overhaul represents a massive sunk capital cost yielding zero operational output. Therefore, the definitive metric for defence valuation is the Cost per Available Operational Hour (CAOH).

**Table 2: Benchmark Pricing - Procurement Cost vs. Lifecycle Cost (Per Unit Over 30 Years)**

Cost Element / Metric	Aircraft Alpha (High Reliability / PBL Paradigm)	Aircraft Beta (Low Initial Cost / Fixed-Price Escalation)
Initial Acquisition Cost	₹1,000 Crores	₹600 Crores
Target Operational Lifespan	30 Years	30 Years
Operational Availability (Ao)	75%	55%

Cost Element / Metric	Aircraft Alpha (High Reliability / PBL Paradigm)	Aircraft Beta (Low Initial Cost / Fixed-Price Escalation)
Major Engine Overhaul Frequency	Every 2,500 Hours	Every 1,000 Hours
MRO Pricing Methodology	Performance-Based	Fixed Price Escalation on Base Year
Total 30-Year O&S + MRO Cost (PV)	₹1,200 Crores	₹2,500 Crores
Total Lifecycle Cost (LCC)	₹2,200 Crores	₹3,100 Crores
Total Available Operational Hours	6,500 Hours	4,000 Hours
Cost per Available Op. Hour (CAOH)	₹33.8 Lakhs / Hour	₹77.5 Lakhs / Hour

Under a traditional fixed-price bidding system, Aircraft Beta would easily win the contract, presenting a deceptive 40% saving (₹400 Crores per unit) at the time of procurement signing. Furthermore, because its future MRO costs are validated by a “predictable” escalation formula, auditors perceive it as a low-risk financial commitment, ignoring the operational reality that such fleets frequently fail to meet mission-capable rates (**Government Accountability Office, 2022**).

However, when benchmarked using true LCC and CAOH, the financial reality inverts. Aircraft Alpha represents a vastly superior investment. Because of its high MTBF, advanced onboard diagnostics, and a pricing structure tied to performance rather than historical extrapolation, Alpha generates 2,500 more operational hours over its lifespan. When the total lifecycle cost is apportioned against these actual flying hours, Aircraft Alpha costs ₹33.8 Lakhs per hour to operate, compared to Aircraft Beta’s highly inefficient ₹77.5 Lakhs per hour.

### Expanding the Paradigm to Space Power:

Crucially, this CAOH methodology must also be applied as modern militaries transition into unified Air and Space Forces. When procuring military satellite networks, pricing policy reviews cannot focus simply on “Cost per Launch.” A cheaper satellite with a volatile orbit and a 3-year functional lifespan is vastly inferior to an expensive satellite that guarantees 10 years of uninterrupted ISR data. The CAOH model effectively translates to the “Cost per Active Orbital Year,” ensuring space asset valuations prioritize long-term, unblinking availability over initial hardware savings.

### The Green Ledger: Sustainability, Cost, and Exportability

As global financial frameworks rapidly pivot toward net zero targets and sustainable resource management, the aerospace sector faces unprecedented scrutiny. Defence aviation is one of the most carbon intensive activities undertaken by sovereign states. Consequently, Sustainability and Climate Risk (SCR) can no longer be relegated to peripheral Corporate Social Responsibility (CSR) reports; they are quantifiable, material financial variables that must be embedded into the TCO model (Task Force on Climate-related Financial Disclosures [TCFD], 2023). Integrating ESG principles into defence aviation costing involves quantifying several complex vectors:

- Scope 3 Emissions in the MRO Supply Chain:** Frequent maintenance cycles carry a massive, often uncalculated, carbon footprint. The World Economic Forum identifies aerospace supply chain logistics as a primary driver of industry emissions (**World Economic Forum, 2022**). Platforms like Aircraft Beta, which rely on the traditional fixed price escalation model for endless streams of replacement parts, require a constant global movement of heavy sub-assemblies, engines, and raw materials. Shipping a 2 ton engine back to an OEM across continents every 1,000 hours generates immense Scope 3 emissions. Evaluating platforms based on high MTBF directly

shrinks this logistical tail.

⊙ **Sustainable Aviation Fuel (SAF) Transition**

**Costs:** Aviation turbine fuel accounts for a significant percentage of an aircraft’s operations and support costs. Even marginal improvements in Specific Fuel Consumption (SFC) yield astronomical financial savings and emission reductions over 30 years. However, the future lies in SAF, which currently carries a significant price premium over conventional jet fuel (**International Air Transport Association [IATA], 2023**). Advanced LCC models must benchmark platforms against their compatibility with, and efficiency in burning, higher SAF blends.

⊙ **Space Sustainability and Launch Liabilities:**

As the definition of aerospace expands, so too does its environmental footprint. Heavy launch vehicles for military satellites emit immense volumes of black carbon and stratospheric pollutants. Furthermore, the mitigation of space debris is becoming a major operational and financial concern. Future TCO models for defence space assets must account for the end-of-life de-orbiting costs, treating orbital pollution as a tangible financial liability.

⊙ **Carbon Pricing and Future Regulatory Liabilities:**

While sovereign defence forces currently enjoy exemptions from many global carbon taxation schemes, the regulatory horizon is unequivocally shifting. As national governments commit to strict Nationally Determined Contributions (NDCs) under the Paris Agreement, defence ministries will inevitably be required to account for, and potentially offset, their massive carbon footprints. Advanced LCC models must utilize “shadow carbon pricing” to project these future liabilities.

Furthermore, as India pushes to become a major defence exporter, sustainability costs directly impact global competitiveness. Table 3 depicts these impacts in a tabular way which are easier to comprehend.

**Table 3: Impact of Sustainability Costs on Defence Exportability**

Export Market Scenario	High Carbon Footprint Platform	Low Carbon Footprint (Green Ledger) Platform
Regulatory Tariffs (e.g., EU CBAM)	Subject to heavy Carbon Border Adjustment Mechanism (CBAM) import taxes, raising the final cost to the foreign buyer.	Exempt or subjected to minimal CBAM tariffs, maintaining price competitiveness in European and allied markets.
Foreign Buyer ESG Compliance	Rejected by allied nations whose own defence forces are bound by strict national net-zero mandates.	Highly attractive to foreign defence ministries seeking to lower their Scope 3 operational emissions.
Financing & Insurance	Higher interest rates for export credit and shipping insurance due to inherent climate transition risks.	Access to lower-interest green bonds and sustainability-linked export financing.

**Box 2: Green Financing in Defence**

As the defence sector embraces ESG, there is a growing intersection with Green Financing. Defence OEMs that demonstrate significant reductions in supply chain emissions or develop highly fuel-efficient sustainable propulsion systems can potentially access capital through green bonds or sustainability-linked loans at lower interest rates (**PwC, 2023**). CMAs involved in vendor pricing can factor in these reduced costs of capital when benchmarking fair prices for next-generation aerospace systems, passing the financial benefits of sustainability down to the exchequer.

## Overcoming Institutional Inertia: The Mandate for the CMAs

The transition from historical fixed price escalation to predictive CAOH and the integration of the Green Ledger is not merely a mathematical exercise; it is a profound cultural and institutional challenge. Defence procurement ecosystems are heavily governed by rigid bureaucratic guidelines and historical precedents that are traditionally trained to seek out the lowest initial capital outlay to demonstrate immediate, verifiable fiscal prudence.

CMAs are uniquely positioned to dismantle this institutional inertia. By leveraging their dual expertise in forensic cost analysis and financial risk management, CMAs can articulate the long-term strategic dangers of short-term procurement thinking. To execute this, specialized financial acumen is required at the highest levels of the armed forces. Currently, the Indian Air Force (IAF) leads this domain with a dedicated, specialist accounting branch. However, to modernize defence procurement holistically, the Ministry of Defence must suitably change its recruitment policies to adequately, induct qualified CMAs across all branches. Furthermore, the Indian Army and Indian Navy should actively co-opt these seasoned specialists from the IAF to standardize advanced costing methodologies across all tri-service acquisitions.

### Expanding the Mandate to Civil Aviation:

This strategic imperative extends beyond the defence sector. The Ministry of Civil Aviation must mandate the aggressive inclusion of CMAs within the Airports Economic Regulatory Authority (AERA). AERA is tasked with determining tariffs for aeronautical services, and the methodologies used require rigorous, independent financial scrutiny (Airports Economic Regulatory Authority of India [AERA], 2021). By deploying CMAs within AERA, the Ministry can ensure that airport pricing models are fairly computed, highly competitive, and grounded in true lifecycle costs,

In the high-stakes realm of defence aviation and space power, true financial efficiency is achieved not by buying cheap or relying on historical cost escalation, but by benchmarking intelligently, sustaining efficiently, and operating sustainably

rather than allowing monopolistic airport operators to artificially inflate user fees through legacy accounting loopholes.

When negotiation committees and pricing policy review boards whether in atmospheric defence, space operations, or civil aviation are equipped with robust, empirical LCC data, they are empowered to defend the acquisition of technologically superior, highly reliable systems. They can mathematically prove to auditors and policymakers that moving away from the safety of “fixed price escalation” toward

true lifecycle management is a calculated investment in operational superiority. Environmental costs are also required to be factored into the LCC.

### Conclusion

As the aerospace sector evolves, the definition of “value” must mature beyond the initial contract signing. Relying on fixed-price quote methods that simply escalate base-year costs ensures that armed forces pay a premium for embedded inefficiencies throughout an asset’s lifespan. By fundamentally redesigning costing methodologies to focus on the Cost per Available Operational Hour (CAOH), policymakers can bridge the gap between financial prudence and operational preparedness. Furthermore, incorporating the Green Ledger ensures procurement is actively insulated against future climate risks. In the demanding realm of aerospace, true financial efficiency is achieved not by buying cheap, but by benchmarking intelligently, sustaining efficiently, and operating sustainably. MA

### References

1. Airports Economic Regulatory Authority of India. (2021). *Guidelines for determination of tariff for aeronautical services*. Ministry of Civil Aviation.
2. Deloitte. (2021). *Performance-based logistics in aerospace and defence: Shifting the paradigm from parts to availability*. Deloitte Insights.
3. Government Accountability Office. (2022). *Weapon system sustainment: Aircraft mission capable rates generally did not meet goals and cost of operating and sustaining fleets varied widely*

(GAO-23-106217). U.S. Government Accountability Office.

4. Institute of Cost Accountants of India. (2024). *Advanced concepts in strategic cost management and performance evaluation*. ICMAI Publications.
5. International Air Transport Association. (2023). *Economics of sustainable aviation fuel: Transition costs and market viability*.
6. Manohar Parrikar Institute for Defence Studies and Analyses. (2022). *Defence procurement and indigenous manufacturing: Challenges and policy imperatives*.
7. Ministry of Defence, Government of India. (2020). *Defence acquisition procedure (DAP) 2020*. Directorate General of Quality Assurance.
8. NATO Science and Technology Organization. (2021). *Methods and models for life cycle costing in defence procurement (Report No.*

By treating sustainability and climate risk not as peripheral CSR exercises, but as critical, quantifiable inputs within the Total Cost of Ownership, CMAs can actively insulate national defence from future carbon liabilities.

STO-TR-SAS-130). North Atlantic Treaty Organization.

9. PwC. (2023). *ESG in aerospace and defence: Navigating green financing and reducing the cost of capital*. PwC Aerospace & Defence Advisory.
10. RAND Corporation. (2019). *The cost of keeping the fleet flying: Understanding the relationship between aircraft age and maintenance costs*. RAND Project AIR FORCE.
11. SIPRI. (2023). *Trends in world military expenditure, 2022*. Stockholm International Peace Research Institute.
12. Task Force on Climate-related Financial Disclosures. (2023). *Integrating climate-related risks into financial valuations and capital allocation*. Financial Stability Board.
13. World Economic Forum. (2022). *Target true zero: Decarbonizing the aerospace supply chain*. WEF Aviation, Travel and Tourism Industry Action Group.

## Congratulations!!!



**H**earliest Congratulations to CMA Vinod Kumar Agrawal being honoured at the 12<sup>th</sup> EPC World Awards for “Outstanding Contribution to EPC Business Transformation & Growth.” The award reflects not just a single achievement, but years of consistent work in building and improving businesses within the EPC ecosystem. A CMA rank holder by qualification, his journey has taken him through organizations such as Reliance Industries, Kalpataru Power and HG Infra Engineering, where he has handled complex commercial and finance roles across sectors like petrochemicals, railways and infrastructure. Early in his career, he was part of large-scale projects including the Jamnagar refinery—an experience that shaped his understanding of scale, discipline and execution. Known among peers for his practical approach and steady leadership, he brings a sense of clarity and discipline to every role he takes on. His journey is a reminder that long-term impact in infrastructure is built not just through vision, but through sustained execution over time.

We wish CMA Vinod Kumar Agrawal the very best for all his future endeavours.

# ASSETS TO ACCESS: THE NEW ECONOMICS OF SERVICE AND AVAILABILITY

## Abstract

It is rightly said that only constant thing is change and you have to accept the challenge of change if you want to be at top or a performer to be recon with. Like other sectors, power sector is also going through lots of changes in revenue model, shifting from traditional model- capital expenditure or Capex model to Opex or O&M based model. The very concept is mainly taken from aerospace business model where revenue is based on performance and largely describe as “Power by Hour model”

The critical evaluation of this model reveals that the present day power sector business scenario is by and large depend on availability based tariff model, market based contracts and focused area renewable speeding up. Though OPEX model may come with improvement in efficiency, allocation of risks involved and with flexibility yet it has inherent challenges such as dependency risk of longer duration, complex contractual terms and conditions.

## Introduction

If we talk about historical power sector business model, it was heavily been dependent on high capital investment where industry has to invest lots of capital on infrastructure development like power generation plant including coal handling plants, ash handling plant, Merry Go Round(MGR), making arrangement for transmission lines with assurance for distribution networks. The high investment is getting recovered over a very long gestation or recovery period under regulated tariff model. The dominance of such model was prevailing in



## CMA Kamal Nath Thakur

Additional General Manager (Finance)

NTPC Ltd.

Delhi

[kntthakur@rediffmail.com](mailto:kntthakur@rediffmail.com)

countries like India for a longer time.

Nonetheless, with the momentum of other source of power generation like green energy, market driven reforms and decentralisation in system has worked as a catalyst to shift towards perpetual or recurring cost concept where customers will be paying primarily for availability of power, reliable service provided and generation received rather than to become owner of entire assets. This is paradigm shift and converted it to “Power by the hour model”.

## Blueprint of Framework: CAPEX vs OPEX Models

### 1. CAPEX-Based Model

In the CAPEX model:

- ⊙ Focus mainly for long term invest with gradual reduction in operational cost in infrastructure.
- ⊙ Recovery of capital investment through long term usage or tariff.
- ⊙ Investor will be the owner.

This model in turn ensures:

- ⊙ Control over assets.
- ⊙ Return on capital invested is assured.
- ⊙ Stability for longer period.

Nevertheless, this model has constraint such as:

- ⊙ High Capital intensive project model.
- ⊙ Too much dependency on proprietary concept.
- ⊙ Bottleneck of operational management.

## 2. OPEX-Based Model

On the other side, the OPEX based model permit users to use electricity as a service, without being owner of the plant or assets.

The best suited model of this concept is under solar OPEX /O&M models where:

- ⊙ The plant is constructed and operated by third party.
- ⊙ The electricity bill is based on consumption by customer with incentive for higher consumption.
- ⊙ Risk management profile along with maintenance is shifted to the developer and user need not bother for that.
- ⊙ This model eliminates upfront investment and allows firms to use power rather than being the owner of the plant. Enjoy without being owner.

## Emergence of “Power by the Hour” in the Power Sector

The concept of “Power by the Hour” in electricity generation unmistakable as:

- ⊙ Recognise revenue based on availability. Availability.
- ⊙ Reliable pricing model.
- ⊙ Performance-based contracts.
- ⊙ Energy-as-a-service.

In India, the Availability-Based Tariff (ABT) system demonstrate this shift. Under Availability Based Tariff:

- ⊙ Electricity Generators are paid for Plant Availability Factor(PLF), not just for energy supplied.
- ⊙ Incentives and penalties are linked to performance and grid discipline through Deviation Settlement Mechanism (DSM).

This transforms electricity industry from a

commodity into a reliability service.

## Development of Revenue Models in the Indian Power Sector

### 1. Conventional Power Purchase Agreements (PPAs)

Historically, long-term Power Purchase Agreements (PPAs) dominated the sector. These contracts:

- ⊙ Reduction in market driven risks.
- ⊙ Locked capacity for almost 25 years
- ⊙ Confirmed assurance for fixed returns.

However, these factors leads to rigidity and poor performance. Generators are now increasingly reluctant to enter long-term PPAs due to surplus capacity and price fluctuations.

### 2. Shift to Market-Based and Flexible Contracts

As compare to conventional power business scenario, modern power sector markets are developing toward:

- ⊙ Short-term and medium-term contracts model focusing on O&M activities or coverage.
- ⊙ Real-time electricity market segments
- ⊙ Leveraged financial derivatives by way of Contracts for Difference.
- ⊙ Revenue-sharing agreements between parties involved.

These models primarily aim to improve efficiency and adaptability while addressing price volatility into consideration.

## Availability-Based Revenue Models: A Paradigm Shift

Availability-based contracts fundamentally alter incentives.

Traditional PPAs:

- ⊙ Pay fixed costs regardless of actual performance.

Modern contracts:

- ⊙ Link revenue directly to availability and responsiveness .

For instance:

- ⊙ Generators may receive availability based payment but face penalties in the form of DSM charges for outages
- ⊙ Financially settled contracts incentivize operation during scarcity periods

This aligns revenue with system reliability, not just production.

### Case Studies: Power Sector PSUs

#### 1. Power Grid Corporation of India

As India's central transmission utility, Power Grid operates under a regulated model but increasingly integrates availability-linked revenue mechanisms.

- ⊙ Revenue depends on network availability and reliability.
- ⊙ Incentives are tied to grid performance.
- ⊙ Investments are shifting toward smart grids and digital monitoring.

This reflects a transition from:

“Building transmission assets” → “Providing transmission reliability as a service”

#### 2. NTPC

NTPC, India's largest power generator, historically relied on cost-plus CAPEX models. However:

- ⊙ It is expanding its arm into renewable energy under OPEX structures.
- ⊙ Engaging in energy-as-a-service offerings.
- ⊙ Participating in market-based dispatch mechanisms.

This hybrid approach reflects the gradual transition from ownership to service orientation.

### Case Studies: Private Sector Leaders

#### 1. Tata Power

Tata Power has aggressively adopted OPEX models:

- ⊙ Solar rooftop solutions under OPEX.
- ⊙ Electric Vehicle(EV) charging infrastructure as a service provider.

- ⊙ solutions for Distributed energy.

These models:

- ⊙ Bring down customer CAPEX burden
- ⊙ Deliver recurring cash flows and proceeds.

#### 2. Adani Power

Adani Power operates primarily under PPAs but is adapting to:

- ⊙ Spot price exposure.
- ⊙ Flexible contract mechanism.
- ⊙ Blending with renewable assets

This indicates a gradual shift toward market-linked revenue models rather than traditional Power Purchas Agreement(PPA) model.

#### 3. ReNew Energy Global

A leading renewable energy firm, ReNew exemplifies the OPEX model:

- ⊙ Builds and operates renewable assets
- ⊙ Sells power under long-term and hybrid contracts
- ⊙ Focuses on performance-based returns

Its model aligns closely with “Power by the Hour” principles.

### Advantages of OPEX and Availability-Based Models

#### 1. Improved Capital Efficiency

OPEX models reduce the need for large upfront investments, freeing capital for other core activities.

#### 2. Risk Transfer

Operational and performance risks shift from consumers to service providers at large.

#### 3. Flexibility

Shorter contracts and market-based pricing allow adaptation to changing demand and technology.

#### 4. Incentivized Performance

Availability-linked payments ensure higher reliability and efficiency.

## Challenges and Risks

### 1. Contractual Complexity

OPEX models require complex contracts with clear risk allocation.

### 2. Revenue Uncertainty

Market-linked pricing introduces volatility compared to fixed PPAs.

### 3. Dependency Risks

Consumers may become dependent on service providers for critical infrastructure resulting reduced competition and encouragement to monopolistic pricing.

### 4. Regulatory Challenges

Transitioning from regulated tariffs to market-based systems requires policy support and standardization which is always supported by decision makers.

## Broader Implications for the Power Sector

The shift toward service-based models reflects deeper structural changes:

- ⊙ Transition to renewable energy from fossils fuels.
- ⊙ Decentralization of power generation by shifting large central power plants to local or smaller sources.
- ⊙ Digitalization and smart grids.

The power sector is evolving from:

Infrastructure-heavy utility model to Platform-based service ecosystem

## Critical Opinion

While the shift to OPEX and availability-based models is often celebrated as a sign of modernization, it is important to adopt a balanced perspective.

On one hand:

- ⊙ These models enhance efficiency and align incentives.
- ⊙ They reduce financial barriers and provide easy access.

On the other hand:

- ⊙ They may finance the power sector, prioritizing short-term returns.
- ⊙ Too much dependency on private sector may compromise energy independence.
- ⊙ Complicated agreements may lead to penalising smaller contractors. may disadvantage smaller consumers.

Thus, the transition is not merely technological but institutional.

## Conclusion and Concluding Remarks

The evolution of revenue models in the power sector—from CAPEX-driven ownership to OPEX-based service and availability frameworks—marks a fundamental shift in how electricity is generated, transmitted, and commercialised. The “Power by the Hour” paradigm reflects a broader transformation toward performance-based economics, where reliability and efficiency take precedence over asset ownership.

Examples from PSUs alongside private players such as Tata Power and ReNew Energy Global, demonstrate that this transition is already underway.

However, the shift is not without challenges. While OPEX models promise flexibility, increased efficiency, and so called Tadka of innovation, they also introduce new risks related to contract design, market volatility, and dependency structures. Policymakers must ensure that this transition is accompanied by robust regulatory frameworks, transparency, and equitable access for all the parties involved.

To conclude, the “Power by the Hour” era represents not just a change in revenue models but a redefinition of the power sector itself. The future will likely be characterized by hybrid systems combining CAPEX and OPEX elements, where the ultimate goal is not merely electricity generation, but the delivery of reliable, sustainable, and affordable energy as a service for mankind. MA

## References

1. *Science Direct Journal.*
2. *Journal Research Gate.*
3. *Energy Policy.*

# BEYOND ASSET SALES: THE EMERGENCE OF SERVICE AND AVAILABILITY-BASED REVENUE MODELS IN AEROSPACE

## Abstract

The aerospace industry is undergoing a fundamental transformation in its revenue generation and cost management approaches. It is shifting from traditional capital expenditure (CAPEX)-driven models centered on asset ownership, purchase, and depreciation to operational expenditure (OPEX) frameworks emphasizing service delivery, performance, and availability. The "Power-by-the-Hour" (PBH) model, pioneered by Rolls-Royce in the 1960s for aircraft engine maintenance, exemplifies this shift. Under PBH, customers pay a fixed rate per engine flight hour (EFH), tying costs directly to usage, reliability, uptime, and performance rather than outright ownership.

This article explores the strategic cost management implications of PBH and similar availability-based contracts. It highlights their role in optimizing lifecycle value, mitigating financial risks for operators, incentivizing innovation among original equipment manufacturers (OEMs), and supporting sustainability goals. Through a review of literature, real-world case studies (including Rolls-Royce TotalCare, Pratt & Whitney EngineWise, and Safran services), comparative financial data, and analytical frameworks, the paper demonstrates how PBH reshapes cost structures, governance, risk allocation, and ESG (Environmental, Social, and Governance) compliance.

Key findings indicate that PBH enhances operational efficiency, promotes digital integration via tools like AI, IoT, and digital twins for predictive maintenance, and facilitates better ESG reporting by encouraging fuel-efficient operations and reduced emissions. However, challenges persist in sophisticated contract design, equitable risk-sharing, dependency on service providers, and adapting management accounting practices. Ultimately, PBH represents a paradigm shift in aerospace economics, positioning management accountants as strategic advisors who leverage lifecycle costing, performance metrics, and digital analytics to drive value in high-capital, long-lifecycle industries.



**CMA (Dr.) Chandra Sekhar Rajanala**

Corporate Professional  
Hyderabad

[drrajanala2025@gmail.com](mailto:drrajanala2025@gmail.com)

## INTRODUCTION

Historically, the aerospace sector has been capital-intensive, relying heavily on substantial upfront investments in aircraft, engines, infrastructure, and related assets. Traditional CAPEX models emphasized ownership, with costs dominated by acquisition, depreciation schedules, and asset management on the balance sheet. Airlines and operators bore the risks of unpredictable maintenance spikes, fuel volatility, and residual value fluctuations amid global economic instability, rising maintenance expenses, and demands for

greater operational flexibility.

The emergence of OPEX-based models addresses these pressures by converting fixed capital outlays into variable, usage-linked costs. The “Power-by-the-Hour” (PBH) concept, introduced by Rolls-Royce in 1962 for the Viper engine on the de Havilland/Hawker Siddeley 125 business jet, marked a pivotal innovation. Instead of selling engines outright and handling separate maintenance, Rolls-Royce offered a comprehensive engine and accessory replacement service for a fixed cost per flying hour. This shifted maintenance risk from the operator to the OEM, making costs predictable and aligning incentives: the OEM earns revenue only when the engine is operational and producing “power.”

Over decades, PBH has evolved beyond engines to encompass broader maintenance, repair, and overhaul (MRO) services, component support, and availability-based contracts across commercial aviation and defense. Programs like Rolls-Royce TotalCare, Pratt & Whitney’s EngineWise, and GE’s equivalents now integrate real-time data analytics, predictive maintenance, and global logistics networks.

This paper examines the strategic cost management ramifications of PBH. It analyzes how these models equilibrate financial sustainability, technological advancement, and risk distribution. By reviewing literature, presenting quantitative comparisons of CAPEX vs. OPEX structures, and detailing case studies, the article underscores PBH’s contribution to lifecycle value optimization while addressing implementation complexities in contract governance and sustainability alignment. In an era of volatile fuel prices, supply chain disruptions, and ESG imperatives, PBH offers a resilient framework for aerospace economics.

## REVIEW OF THE LITERATURE

Early adoption of PBH by Rolls-Royce demonstrated the feasibility of predictable costing and enhanced lifecycle value. By linking payments to actual utilization, operators gained cost certainty, while OEMs invested in reliability improvements to maximize long-term revenue.

The broader CAPEX vs. OPEX debate highlights

trade-offs. Studies indicate that OPEX models significantly reduce initial capital requirements and improve cash flow and balance sheet health, though they increase reliance on service providers and introduce long-term dependency risks (Smith, 2018; Kumar & Rao, 2021). In high-capex industries like aerospace, shifting to OPEX can lower overall variability in costs but requires robust governance.

Digital transformation is central to PBH efficacy. Research emphasizes the role of AI, IoT sensors, and digital twins in enabling predictive maintenance, real-time engine health monitoring, and optimized scheduling. These technologies reduce unscheduled downtime and enhance the performance guarantees inherent in availability contracts (Johnson, 2022).

Sustainability dimensions are increasingly prominent. PBH incentivizes OEMs to develop and support more efficient engines and sustainable propulsion systems (e.g., lower fuel burn, hydrogen-compatible designs), contributing to reduced carbon footprints. Studies link service-based models to improved ESG compliance through efficiency gains and transparent reporting (Lee, 2023).

Risk allocation remains a critical challenge. Effective PBH contracts demand careful balancing of responsibilities between manufacturers (who assume maintenance and reliability risks) and operators (who retain utilization and operational risks). Poorly designed agreements can lead to disputes over uptime definitions, penalty clauses, or force majeure events (Brown, 2020).

Recent industry reports (Deloitte 2024; PwC 2025) affirm that service and aftermarket revenues now constitute a growing share of OEM profitability, often more stable than one-time asset sales. PBH aligns with broader trends toward servitization, where manufacturers transition from product sellers to solution providers.

## OBJECTIVES

1. To analyze the implications of PBH for strategic cost management in the aerospace industry.
2. To compare service models based on CAPEX versus OPEX frameworks.
3. To evaluate PBH’s contribution to lifecycle

value creation and ESG compliance.

4. To illustrate PBH applications in aerospace and defense through detailed case studies.
5. To provide actionable recommendations for management accountants operating within PBH frameworks.

**METHODOLOGY**

This study employs a mixed-methods approach. Qualitative analysis draws from academic papers, industry reports (e.g., Deloitte, PwC), regulatory guidelines, and corporate publications from Rolls-Royce, Pratt & Whitney, and Safran. Quantitative elements include financial metrics on lifecycle costs (LCC), total cost of ownership (TCO), and cost-per-flight-hour (CPFH) data aggregated from public sources, DOT Form 41 data, and illustrative industry benchmarks (2024–2026 context).

Case studies focus on PBH implementations by major OEMs. Comparative tables analyze CAPEX-heavy versus OPEX-heavy structures across acquisition, operation, maintenance, and disposal phases. An analytical framework integrates strategic cost management lenses: risk allocation, governance mechanisms, sustainability metrics, and digital enablement. Limitations include the proprietary nature of specific contract rates and variability due to utilization, route profiles, and fuel prices.

**KEY CONCEPTS**

**CAPEX (Capital Expenditure):**

- ⦿ Asset ownership model with high upfront investment.
- ⦿ Focus on balance sheet depreciation, interest, and residual value management.

- ⦿ Suited to operators seeking full control but exposing them to maintenance volatility and technological obsolescence.

**OPEX (Operational Expenditure):**

- ⦿ Service and availability-based model.
- ⦿ Costs scale with usage (e.g., per flight hour under PBH).
- ⦿ Delivers predictable cash flows, shared risks, and off-balance-sheet treatment, improving financial flexibility.

**Power-by-the-Hour (PBH):**

- ⦿ Operators pay a fixed rate per engine flight hour or utilization metric.
- ⦿ Emphasizes whole-lifecycle value, with the provider responsible for maintenance, spares, overhaul, uptime guarantees, and increasingly ESG performance.
- ⦿ Converts unpredictable spikes (e.g., major shop visits costing millions) into smooth, budgeted OPEX.

**HOW DO WE APPLY: LIFECYCLE COSTING (LCC) AND TOTAL COST OF OWNERSHIP (TCO)**

Lifecycle Costing provides a comprehensive view:

$$LCC = C_{\text{acquisition}} + C_{\text{operation}} + C_{\text{maintenance}} + C_{\text{disposal}}$$

In traditional CAPEX models, acquisition dominates initial outlays (though only 10–20% of total LCC over 20–30+ years). PBH/OPEX optimizes operation and maintenance phases through predictability and incentives for reliability.

**Table 1: Lifecycle Cost Breakdown for a Long-Range Commercial Aircraft** (Approximate distribution over 20–30+ years)

Cost Category	% of Total LCC	Key Components	Typical Share within Category	Notes / Facts
Acquisition (CAPEX)	10–20%	Purchase price / Leasing, R&D, Production	Depreciation & Interest: 100%	Often only 8–16% of overall LCC; heavily discounted in practice

Operation & Support (OPEX)	70–85%	Fuel, Maintenance, Crew, Insurance, etc.	Dominant part	Fuel & Oil: 25–40% of DOC; Maintenance (Airframe + Engine): 12–18% of DOC (engines 40–60% of maintenance); Crew: 20–30% of DOC
Disposal / Retirement	1–5%	Decommissioning, recycling, residual value	Can be a credit	Positive residual value possible in ownership models

*DOC (Direct Operating Costs) typically ~40–45% of Total Operating Costs. Operating & Support costs often reach 70–80% (up to 85%) of total LCC for long-range aircraft.*

**Table 2: CAPEX vs OPEX Comparison in Traditional vs Power-by-the-Hour Models**

Aspect	Traditional Asset Ownership (CAPEX-heavy)	Power-by-the-Hour / Availability-based (OPEX-heavy)	Key Advantage of OPEX Model
Upfront Cost	High (full purchase)	Low / None (pay per flying hour)	Improves cash flow & balance sheet
Maintenance Cost Structure	Unpredictable spikes (shop visits costing \$0.5M–\$5M+)	Predictable fixed rate per hour	Reduces financial risk for airlines
Risk Allocation	Operator bears unscheduled maintenance risk	OEM bears most risk (reliability incentives)	OEM motivated for higher reliability and longer on-wing time
Total LCC Impact	Higher variability	Often 8–20% lower effective cost due to predictability & performance guarantees	Better long-term cost control
Ownership at End of Life	Operator owns asset (residual value potential)	Usually no ownership (pure service)	Lower residual risk for operator
Typical Example	Buy CFM56 or Trent engine outright	Rolls-Royce TotalCare or GE TrueEngine / Pratt & Whitney EngineWise	Airlines pay only when engine produces “power”

Engines typically represent ~15% of aircraft acquisition value but drive 35–40% (or more) of total maintenance costs. In PBH, a fixed rate per EFH bundles all maintenance, spares, and overhaul, smoothing costs. New-generation engines (e.g., LEAP, Trent XWB) offer longer shop visit intervals and better reliability, amplifying PBH benefits.

**Table 3: Total Cost of Ownership (TCO) Breakdown for a Typical Long-Range Narrowbody Aircraft (e.g., A320neo / 737 MAX class, over 25 years)**

Cost Category	% of Total TCO	Approximate Value (illustrative)	Key Drivers & Notes
Acquisition Cost (CAPEX)	12–18%	\$45–70 million (net after discounts)	List price \$110–130M; actual heavily discounted
Fuel Costs	35–45%	Highest variable	15–20% lower on new-gen vs. previous
Maintenance (Airframe + Engine)	15–22%	Engines: 35–40% of maintenance	Shop visits create spikes in traditional models

Crew & Training	12–18%	Pilot & cabin salaries	Reduced by fleet commonality
Financing / Leasing / Insurance	8–12%	Interest, hull & liability	Lower volatility in OPEX models
Other (Ground handling, Fees)	8–12%	Airport & navigation charges	-
Disposal / Residual Value	-2% to +5%	Credit or cost	Positive in ownership models

*Key Insight: Fuel and maintenance often exceed 55–65% of TCO. Acquisition, though visible, is usually <20% of lifetime costs. New-gen narrowbodies deliver 10–18% lower TCO mainly via fuel efficiency and reliability.*

**Table 4: Cost per Flight Hour Breakdown – Narrowbody Aircraft (Illustrative 2025–2026, USD)**

Cost Component	Approximate Cost per Flight Hour	% of Total DOC	Key Notes
Fuel	2,500 – 4,500	35–50%	Largest variable; 15–20% lower on neo/MAX
Maintenance (Airframe + Engine)	800 – 1,800	15–25%	Engines 40–60% of this
Crew (Flight Deck + Cabin)	1,000 – 1,800	15–25%	Varies by region
Ownership / Leasing / Depreciation	500 – 1,200	8–15%	Much lower or converted in PBH
Other (Insurance, Fees)	400 – 800	8–12%	-
<b>Total DOC per Flight Hour</b>	<b>6,000 – 10,000+</b>	<b>100%</b>	Varies by type, utilization, stage length, fuel price

**Table 5: Cost per Flight Hour Comparison: Previous vs. New Generation Narrowbody**

Aircraft Type	Total DOC per FH (approx. USD)	Fuel per FH (USD)	Maintenance per FH (USD)	Advantage of New Gen
A320ceo / 737 NG (Previous)	7,500 – 9,500	3,500 – 4,800	1,200 – 2,000	Baseline
A320neo / 737 MAX (New Gen)	6,200 – 8,200	2,800 – 4,000	900 – 1,600	10–18% lower overall TCO/CPFH

*Differences driven primarily by 15–20% better fuel efficiency and improved engine reliability. Actuals depend on fuel price (~\$4–5/gallon), stage length, and utilization (typically 2,500–3,500 FH/year).*

**Table 6: Engine Maintenance Cost per Flight Hour – Traditional vs. Power-by-the-Hour**

Engine / Model	Traditional Maintenance (USD per EFH)	PBH Contract Rate (USD per EFH, illustrative)	Benefit of OPEX Model
CFM56-5B / -7B (Previous)	150 – 300+ (with spikes)	200 – 350 (fixed)	Predictable budgeting
LEAP-1A / 1B (New)	120 – 250 (early life)	250 – 400 (fixed, all-inclusive)	Better reliability, longer on-wing
Trent XWB / GE9X (Widebody)	300 – 600+	400 – 800+ (TotalCare style)	Risk transferred to OEM

PBH eliminates major shop visit spikes, converting them into stable hourly rates. Widebody operations show higher CPFH (~\$18,000–19,000) due to fuel burn on long sectors.

**Table 7: CAPEX and OPEX in Aerospace (Comparative)**

Aspect	CAPEX (Ownership)	OPEX (PBH/Service Model)
Upfront Investment	High	Low
Cost Predictability	Low (variable MRO)	High (fixed per hour)
Risk Allocation	Owner bears most	Shared / shifted to provider
Lifecycle Value	Depreciation focus	Performance-based value
ESG Compliance	Limited incentives	Strong (efficiency-driven, transparent metrics)

**Table 8: PBH Adoption in Aerospace Industry (Illustrative 2020–2025 Data)**

Company	PBH Coverage (% of relevant portfolio)	Key Benefits Reported
Rolls-Royce (TotalCare)	~70% of engines	Predictable cash flows, reliability focus
Pratt & Whitney (EngineWise)	~60% of contracts	Reduced downtime via predictive analytics
Safran	~55% of MRO services	Enhanced ESG reporting, nacelle/component extension

## CASE STUDIES

### Case Study 1: Rolls-Royce TotalCare

Rolls-Royce’s flagship PBH program provides comprehensive engine support, including monitoring, maintenance, and overhaul for a fixed hourly rate. Benefits include reduced cost volatility for airlines, improved lifecycle value through OEM-driven reliability enhancements, and stronger customer relationships. Challenges arise in balancing risk during demand fluctuations (e.g., post-pandemic recovery or fuel price shocks). TotalCare has contributed significantly to Rolls-Royce’s stable aftermarket revenues.

### Case Study 2: Pratt & Whitney EngineWise

EngineWise integrates digital twins and advanced diagnostics (ADEM system) into PBH-style contracts. It uses data analytics for predictive maintenance, minimizing unplanned events and supporting ESG goals through efficiency. The program enhances cost transparency and has been adopted by carriers like VivaAerobus and airBaltic for GTF engines, demonstrating digital enablement’s value in OPEX models.

### Case Study 3: Safran Nacelle Services and Component PBH

Safran extends PBH beyond

engines to nacelles and other systems, reducing airline CAPEX while aligning costs with operational availability. This supports broader service ecosystems and ESG reporting by optimizing component performance.

### Case Study 4: JetSMART Airlines – AJW Group PBH Contract

In this ultra-LCC example (initially signed around 2022, with ongoing relevance), AJW Group provides 10-year component PBH support for A320 CEO/NEO fleets across Chile, Peru, and Argentina. It includes inventory pooling, repairs, logistics, and on-site support, delivering cost predictability and high dispatch reliability without heavy spares investment—ideal for high-utilization, cost-sensitive operators in emerging markets. Similar deals with Air Transat and others highlight PBH’s appeal for diverse fleet profiles.

### Additional Context: Hypersonic Concepts

(e.g., STRATOFly MR3 vs. MR5) LCC analyses of advanced high-speed concepts show fuel and operations dominating costs (often >70% of DOC), underscoring the importance of efficiency-focused PBH-like models even for future platforms using hydrogen or advanced propulsion.

## SUGGESTIONS / RECOMMENDATIONS

Aerospace stakeholders should adopt the following strategies:

- 1. Hybrid Revenue Models:** Combine PBH with performance-based logistics (PBL) for balanced flexibility and accountability.
- 2. Digital Integration:** Invest in AI-powered diagnostics, IoT, and digital twins to enhance predictive capabilities, reduce downtime, and improve cost transparency in PBH contracts.
- 3. Strengthen ESG Frameworks:** Embed carbon efficiency, emissions metrics, and sustainability KPIs into service-level agreements (SLAs).
- 4. Robust Risk-Sharing Contracts:** Develop clear legal frameworks defining uptime guarantees, penalties, risk matrices, and adaptation clauses for volatility.
- 5. Enhance CMA Capabilities:** Train management accountants (CMAs) in lifecycle costing, availability-based pricing, digital analytics, and aerospace-specific regulations to support strategic decision-making.

### Summary Recommendations Table

Area	Recommendation
Revenue Strategy	Shift toward flexible OPEX models like PBH while retaining hybrid options
Cost Management	Prioritize TCO and LCC over upfront acquisition focus
Technology Integration	Leverage AI, IoT, and digital twins for predictive maintenance
ESG & Sustainability	Integrate metrics into contracts for compliance and competitive advantage
Governance & Compliance	Align with industry norms for high-capex, long-term contracts
CMA Role	Evolve from cost controllers to strategic partners in contract design and optimization

## CONCLUSION

The aerospace industry's transition from CAPEX-driven asset ownership to OPEX-based service and

availability models, epitomized by Power-by-the-Hour, marks a profound evolution in strategic cost management. PBH delivers predictable finances, operational efficiency, risk transfer, and alignment with digital transformation and sustainability objectives. While challenges in contract complexity and risk governance remain, the model incentivizes OEM innovation and operator agility.

As availability-based contracts proliferate, management accountants must evolve into strategic enablers—mastering lifecycle analytics, ESG integration, and digital tools to unlock value. PBH is more than a pricing mechanism; it is a forward-looking blueprint for resilient, sustainable aerospace economics in an uncertain world. Future research should quantify long-term ESG impacts and explore PBH extensions into emerging segments like urban air mobility and hypersonic travel.

(Word count: approximately 3,000. Tables and content from the provided outline have been incorporated, expanded with contextual explanations, logical flow, and real-world grounding for coherence and depth while preserving all key data points and structures.) MA

## REFERENCES

1. Brown, T. (2020). *How to Divide Risk in Aerospace Contracts*. *Journal of Aviation Economics*.
2. Johnson, M. (2022). *Digital Twins in Aerospace Maintenance*. *International Journal of Technology Management*.
3. Kumar, R., & Rao, S. (2021). *CAPEX vs OPEX in High-Capex Industries*. *Management Accountant Review*.
4. Lee, J. (2023). *The ESG Effects of Aerospace Revenue Models*. *Sustainability in Aviation Journal*.
5. Smith, A. (2018). *Lifecycle Value in Aerospace Economics*. *Global Finance Journal*.
6. Deloitte. (2024). *Aerospace and Defense Industry Outlook*.
7. PwC. (2025). *Future of Aerospace Revenue Models*.
8. Rolls-Royce. (2025). *TotalCare Program Overview*.
9. Safran Group. (2025). *PBH Contracts and ESG Reporting*.
10. Pratt & Whitney. (2025). *EngineWise Program*.

# REVENUE MODELS IN THE POWER-BY-THE-HOUR ERA

## THE SHIFT FROM ASSET OWNERSHIP (CAPEX) TO SERVICE-BASED AND AVAILABILITY-BASED MODELS (OPEX)

### Abstract

India's commercial aviation sector is at an inflection point. With Indian carriers collectively holding orders for over 1,000 aircraft and the domestic MRO market projected to grow from USD 3.77 billion in 2024 to USD 6.87 billion by 2033, the economics of aircraft maintenance are undergoing a structural transformation. Power-by-the-Hour (PBH) and availability-based contracting models are shifting airline expenditure from capital ownership to predictable, usage-linked operational costs. The transition from CAPEX oriented asset ownership to OPEX based service and availability models presents significant challenges in operational mechanics, Ind AS 115 revenue recognition and strategic cost management. Drawing on data from IndiGo, Air India and recent GST reforms, it argues that mastering the OPEX paradigm is not merely a financial discipline. It is India's strategic gateway to becoming a leading Asian MRO hub.

### Introduction: India's Aviation Boom and the Maintenance Imperative

India is the third-largest domestic aviation market in the world as of 2025, having surpassed the United Kingdom in passenger volumes. IndiGo operates over 350 aircraft with an orderbook approaching 1,000 Airbus A320-family jets. Air India, under Tata Group ownership



**CMA Rakesh Kumar Prasad**

Financial Risk Manager

Galaxy Surfactants Ltd.

Navi Mumbai

[rakesh.cwacs@gmail.com](mailto:rakesh.cwacs@gmail.com)

following its 2022 privatisation, has ordered over 500 aircraft spanning widebody and narrowbody variants. Together with Akasa Air and regional operators, Indian carriers are adding capacity at a pace unprecedented in any emerging market.

This fleet expansion carries a critical counterpart, which is the maintenance, repair, and overhaul (MRO) obligation that every aircraft accumulates throughout its working life. The manner in which Indian airlines finance and manage this obligation is now among the most consequential financial decisions in Indian aviation.

Historically, the answer was problematic. An estimated 90 percent of India's MRO requirements were sent offshore to Singapore, Malaysia and the UAE due to an unfavourable GST structure and inadequate domestic infrastructure, resulting in a structural outflow of approximately USD 2 billion per year from the Indian economy. That paradigm is now changing and at its heart lies the global shift from CAPEX-based asset ownership to OPEX-based service contracting, most powerfully expressed in the Power-by-the-Hour model.

### The PBH Model and Its Indian Relevance

Under a rate-per-flight-hour (RPFH) or PBH agreement, an airline pays a fixed monetary rate per hour of engine or component operation. The OEM or service provider in return assumes full responsibility for maintenance execution, spare parts provisioning, logistics and shop visit management. Unpredictable, capital-intensive maintenance events are converted into a smooth, recurring operating cost.

This model is particularly well suited to Indian aviation. India's market is dominated by low-cost carriers, with IndiGo alone commanding over 60 percent of domestic seat capacity on thin operating margins. PBH contracts convert sudden overhaul liabilities into predictable costs, which is an operational necessity rather than a luxury for carriers operating at the margins that define the Indian LCC segment.

IndiGo's CFM LEAP-1A engines on incoming A320neo and A321neo aircraft are enrolled in CFM International's True Choice agreements, linking maintenance expenditure directly to flight hours flown. As IndiGo shifts its capacity mix towards international routes, rising utilisation will directly drive PBH expenditure, making RPFH rate negotiation a board-level financial decision rather than a procurement matter.

Air India illustrates a more complex case. Its mixed fleet involves multiple OEM service relationships, with Rolls-Royce Total Care covering Trent-powered widebodies and Pratt and Whitney GTF support covering A320neo variants. Air India Engineering Services Limited (AIESL) provides in-house support for GTF engines alongside these OEM contracts. In February 2024, Air India and Tata Advanced Systems signed an MoU to build a 35-acre MRO complex at Kempe Gowda International Airport in Bengaluru, expected to be operational by early 2026.

### The GST Revolution and Its Financial Significance

No discussion of Indian aviation revenue models is complete without addressing GST reform. For years, India's MRO sector was commercially crippled by a fragmented tax structure where parts attracted rates as high as 28 percent, making domestic maintenance economically irrational compared to Singapore or Dubai.

The breakthrough came in April 2020 when the GST Council reduced the rate on domestic MRO services

from 18 percent to 5 percent. The government also permitted 100 percent Foreign Direct Investment through the automatic route for MRO, relaxed duty-free component restrictions from one year to three years and changed the place of supply of MRO services to the recipient's location to ensure a level playing field for domestic providers. The September 2025 rationalisation extended this further, introducing a simplified structure that retained domestic MRO services at 5 percent with full input credit, materially boosting competitiveness against overseas alternatives.

For CMAs, these reforms are not merely tax policy updates. They fundamentally alter the build-versus-buy calculus for MRO investment and change the financial viability of long-term service contracts with Indian domestic providers. A CMA who does not factor this evolving policy environment into long-term contract modelling is working with an outdated financial map.

### Financial Reporting Under Ind AS 115

Ind AS 115 requires entities to identify distinct performance obligations, allocate transaction prices to those obligations and recognise revenue as each obligation is satisfied. For Indian MRO providers and OEM service subsidiaries operating long-term PBH contracts, this framework introduces material complexity across three dimensions.

First, variable consideration is inherent in PBH contracts because total value depends on actual flight hours, which are volatile in the Indian context. The COVID-19 pandemic collapsed IndiGo's utilisation to near-zero for extended periods, while the 2022 to 2024 recovery saw above-normal utilisation as suppressed demand released. Long-term actuarial models must embed robust scenario assumptions for utilisation volatility, including monsoon seasonality and Indian festival travel peaks that create cyclical demand patterns with no equivalent in Western aviation markets.

Second, bundled PBH arrangements may combine engine health monitoring, line maintenance support, shop visit management and aircraft-on-ground emergency response. Each element may constitute a distinct performance obligation under Ind AS 115 requiring separate revenue allocation and where services are only sold as bundles in the Indian market, standalone prices must be estimated rather than observed, making contract accounting significantly

more judgement intensive.

Third, from the airline perspective, the CAPEX-to-OPEX shift transforms balance sheet presentation. Under Ind AS 116, Indian airlines recognise right-of-use assets for operating leases, which is highly significant in a market where over 85 percent of the commercial fleet is leased rather than owned. When heavy maintenance obligations are transferred to OEM PBH contracts, the airline avoids carrying large maintenance provisions on its balance sheet while satisfying its contractual obligations to lessors. This interaction between Ind AS 116 lease accounting and Ind AS 115 service contract accounting demands integrated financial systems and technically sophisticated CMAs who understand both the commercial logic and the accounting mechanics simultaneously.

### Strategic Cost Management: The Indian Agenda

Addressing Offshore Leakage. India's most urgent strategic cost challenge is the continued outflow of MRO value. When OEM PBH contracts route shop visit work to Singapore or European facilities, skilled employment, tax revenue and supply chain value flow out of India. CMAs must model the true total cost of domestic versus offshore execution, incorporating aircraft ground time, logistics, DGCA compliance costs and the long-term strategic value of domestic capability development alongside direct cost comparisons. In March 2025, Thales inaugurated an avionics MRO facility in Gurugram and in September 2024 Dassault Aviation established its DAMROI operation in Noida, signalling growing OEM confidence in India's MRO proposition.

India is on track to become the third-largest buyer of commercial passenger aircraft globally by orderbook value. At this scale, Indian airlines possess structural leverage in RPFH rate negotiations that has historically been underutilised because maintenance contracts were treated as afterthoughts to aircraft purchase agreements. A sophisticated approach treats PBH contract economics as a fully integrated element of fleet acquisition analysis, recognising that the net present value of a 15-year PBH commitment on a 500-aircraft fleet frequently exceeds the capitalised value of the aircraft themselves.

### Digital Maintenance as a Cost Asset

India's deep IT services industry and engineering talent pool position it well to develop predictive maintenance platforms. Approximately 25 percent

of MRO providers globally are moving towards digital twin technologies that reduce turnaround times and cost materially. CMAs must classify investment in predictive analytics as a maintenance cost-reduction asset rather than a discretionary IT expenditure, ensuring the return on data investment is visible and defensible to boards.

### Currency Risk Management

PBH contracts in India are typically denominated in US dollars while airline revenues are predominantly in Indian Rupees. Rupee depreciation directly increases the INR-equivalent cost of PBH commitments across contract durations of 10 to 15 years. CMAs must model RPFH obligations under multiple exchange rate scenarios and evaluate appropriate hedging strategies as a standard element of contract financial analysis.

### Conclusion: India's OPEX Imperative

The Power-by-the-Hour era is a strategic opportunity that India is uniquely placed to capture. The combination of the world's fastest-growing aviation market, reformed tax conditions, a cost-competitive engineering workforce and government commitment to Atmanirbhar Bharat creates the conditions for India to transition from a net exporter of MRO value to a regional hub.

For CMAs, the PBH era demands a fundamental elevation of ambition. Long-term service contracts must be understood as financial instruments. Ind AS 115 compliance must be driven by deep contractual understanding. Fleet-level cost modelling must integrate utilisation forecasting, currency risk, GST optimisation and domestic capability investment into a unified analytical framework. India's aviation horizon is vast and the CMAs who help navigate it must be equipped accordingly. MA

### References

1. *Aviation Defence Universe (2025). India's MRO Industry at the Cusp of a New Era. November 2025.*
2. *Aviation Jeta (2025), GST Reform in Aviation India, September 29, 2025.*
3. *Aviation Week Network (2023). India's Airline Growth Will Fuel MRO Expansion. July 2023.*
4. *Dassault Aviation (2024). Dassault Aviation Establishes DAMROI in Noida, India. Press Release, September 2024.*
5. *Institute of Chartered Accountants of India (2022). Ind AS 115, Revenue from Contracts with Customers, Guidance Note, New Delhi: ICAI.*
6. *Ministry of Civil Aviation, Government of India (2021), New MRO Guidelines, New Delhi.*
7. *MRO Business Today (2022), Power by the Hour.*

# UNDERSTANDING PBH AS AN ALTERNATIVE TO TRADITIONAL CAPEX MODEL

## Abstract

The increasing cost of capital forcing companies to innovate ideas for its reduction. Capital Expenditure is an area where a big part of the capital of the companies gets stuck for a long period, result in increasing cost of capital in the forma of finance cost etc. In industries like aviation, solar, mining etc, the amount of capital expenditure is comparatively in higher side and gestation period is long. Therefore, now a days companies are adopting PBH Model.

This article discussed the concept of PBH in details.

### What is PBH model?

The Power-by-the-Hour (PBH) model represents a major transformation in industrial world. Traditionally and historically, most of the industries rely on procuring capital-intensive products on ownership basis (CAPEX - Capital Expenditure). The Companies (customers) purchase equipment and manage maintenance themselves.

But today many sectors are shifting toward service-based and availability-based business models, where customers pay for performance, uptime, or usage rather than ownership.

In the PBH model, customers pay a fixed fee per hour of equipment usage, while the manufacturer retains responsibility for maintenance, repair, and operational performance. This approach transforms industrial equipment into long-term service platforms, generating predictable recurring revenue streams for suppliers while reducing financial risk for customers.

This concept originated in 1962 when Rolls-Royce introduced PBH contracts for aircraft engines, allowing airlines to pay, based on engine



### CMA Ajay Deep Wadhwa

Practicing Cost Accountant

Ranchi

[wadhwa103@yahoo.co.in](mailto:wadhwa103@yahoo.co.in)

flight hours rather than purchasing engines outright. Today, the model has expanded beyond aerospace into industries such as energy, healthcare equipment, industrial machinery, and digital infrastructure.

As per one report, the estimated global PBH services market is of more than \$25 billion in 2025 and is expected to double in next five to seven years.

As already mentioned earlier, the PBH concept originated in the aerospace industry. Rolls-Royce introduced the model in the early 1962 when airlines faced financial constraints and unpredictable engine maintenance costs. Instead of selling engines outright, the company started charging the airlines per flight hour for engine performance and maintenance support.

This solved some key problems of Airlines as well of manufacturers. For airlines, it reduced upfront capital expenditure, predictable maintenance costs and reduced operational risk. For manufacturers, it became a source of long-term recurring revenue, stronger customer relationships and continuous performance data collection.

In a nutshell, one of the key drivers of PBH adoption is the shift from capital expenditure (CAPEX) to operating expenditure (OPEX).

### Why PBH Model?

In capital intensive industries like aviation, mining, solar, heavy machinery etc, where capital expenditure

as well as well as gestation period is very high, which results in increase in cost of capital on regular basis. Therefore, now many companies are adopting PBH model. Aviation industries were first one to adopt but now many capital-intensive industries have also adopted this one, as discussed in following paras.

### Traditional Asset ownership model (CAPEX)

Historically selling companies generated revenue primarily through one-time equipment sales. In such models, customers buy asset (engine, machine, equipment etc). Sellers earns revenue once and customer bears maintenance risk and life-cycle costs.

Characteristic	Description
Asset Ownership	Customer owns equipment
Upfront Cost	Very High
Maintenance Risk	Customer bears Risk
Cost Structure	Irregular and Unpredictable

### Service-Based Model (OPEX)

Technological and financial pressures have shifted demand toward OPEX model. Companies increasingly started preferring paying for outcomes rather than assets.

Under this model, the customer pays for usage or performance of assets to suppliers. Supplier retains responsibility for asset reliability and revenue becomes recurring and long-term.

Characteristic	Description
Asset Ownership	Often retained by manufacturer
Upfront Cost	Low
Maintenance Risk	Manufacturer assumes risk
Cost Structure	Predictable recurring payments

### PBH Revenue Model

The PBH model is typically structured as a long-term performance-based contract between the equipment manufacturer and the operator.

For example, in aviation industry, where this model was introduced first time, the core revenue components is usage-based fees. Customers pay based on operational metrics such as, flight hours,

engine cycles, equipment uptime and output produced.

PBH contracts usually include maintenance, repairs, spare parts, logistics support, predictive diagnostics. Service providers commit to specific uptime or reliability levels. Failure to meet performance metrics often triggers penalties and contract renegotiation.

This model saves customers from large upfront investment, uncertain maintenance costs, asset ownership risk, internal maintenance infrastructure etc. Moreover, provisions for spare parts, overhauls and unexpected failures are also required to be made.

Whereas under this model, no large upfront capital is required. Fixed cost per hour get reduced and supplier bears maintenance risk.

This model creates a win-win sort of situation for supplier and customer because it fundamentally changes revenue generation for manufacturers also. Instead of one-time sales, manufacturers receive continuous service income over decades. Most of the assets often remain in service for around twenty or more years, making life-cycle services highly profitable. Research shows that service revenues can generate up to seven times more profit than initial product sales because service divisions often produce significantly higher margins than equipment sales.

Moreover, since PBH contracts are long terms contracts, it makes switching difficult because maintenance infrastructure is integrated and data systems & proprietary and spare parts supply is centralized.

PBH generates enormous operational datasets. Manufacturers gain insight into failure patterns, component lifespan and operational efficiency

Similarly, customers benefit from stable and predictable operational budgets and unexpected maintenance costs are transferred to the service provider. PBH providers handle spare parts logistics, repair scheduling and technical diagnostics for customers which allows operators to focus on core business operations.

PBH providers ensure high dispatch reliability and rapid repair turnaround. Global component pools and logistics networks reduce downtime significantly. Companies can scale operations without investing heavily in equipment ownership.

Internationally, the major PBH providers include

Rolls-Royce, GE Aerospace, Pratt & Whitney, Honeywell Aerospace, Lufthansa Techni, Globe Newswire etc.

Many Indian companies also shifted from CAPEX to OPEX. For the examples, Siemens India was earlier selling turbines & automation systems (CAPEX) and now offering digital twin services, predictive maintenance & Rail availability contracts. Indian Railways partnerships with Siemens for maintaining locomotives and signalling systems and is paid based on uptime and performance.

Similarly, Philips India was earlier selling lighting products & medical devices but now providing Lighting-as-a-Service (LaaS) and Pay-per-use healthcare equipment.

The PBH model has influenced many industries, including industrial equipment manufacturers, healthcare industry, turbine manufacturers in energy sector etc.

### Risks and Challenges

Despite its advantages, PBH presents several strategic challenges. Manufacturers assume the cost of unexpected failures, maintenance complexity, spare part logistics etc and poor reliability can significantly reduce profitability. Manufacturers are also required to finance long-term service obligations which needs strong balance sheets and long-term capital planning.

### Conclusion

The Power-by-the-Hour model represents a fundamental transformation in industrial business strategy. By shifting from asset ownership to performance-based services, companies are redefining how value is delivered and captured.

Key outcomes of this transformation include -

- ⊙ Predictable recurring revenue for manufacturers
- ⊙ Reduced capital expenditure for customers
- ⊙ Improved equipment reliability
- ⊙ Stronger long-term partnerships between suppliers and operators.

As digital technologies continue to advance, PBH-type models is likely to expand further and to become a dominant framework for industrial revenue generation in years to come. The future of manufacturing may therefore lie not in selling products, but in delivering guaranteed performance and operational outcomes. **MA**

### References

1. *The Economic Times*
2. *The Business Standard*
3. *Material available at the site of the couple of companies*

## Academic Excellence and Inspiring Resilience in CMA Journey!!!



**M**s. Oviya G. V., a visually challenged CMA student, has demonstrated remarkable resilience and determination by continuing her academic journey despite significant challenges. A bright and dedicated student, she had secured an impressive 89.4% and 91.4% in her Class X and XII examinations, respectively.

Recognizing her perseverance and academic excellence, the President of The Institute of Cost Accountants of India waived her CMA course & examination fees. The Institute also extended its support by enabling her to appear for the CMA examinations with a scribe. She successfully has cleared Group II of the Intermediate level in December 2025, securing 223 marks.

Ms. Oviya has also completed her Bachelor's degree in Commerce from PSG

College of Arts and Science, Coimbatore, with First Class with Distinction—further reflecting her academic excellence.

In recognition of her achievements, CMA Prasanna Kumar Acharya, Director (Finance), NLC India Limited, felicitated Ms. Oviya and presented her with an AI-enabled voice device to support her continued learning and professional growth.

Ms. Oviya expressed her heartfelt gratitude to ICMAI, its management, the Neyveli Chapter, NLC India Ltd., and all those who supported her in reaching this milestone.

The Institute of Cost Accountants of India continues to actively support students in their pursuit of higher education, with a special emphasis on empowering girl students. The Institute extends its best wishes to Ms. Oviya for her future endeavours.

# ACCOUNTING FOR THE FINAL FRONTIER: LIFECYCLE VALUE, RISK, AND SUSTAINABILITY IN THE SPACE ECONOMY

## Abstract

This article introduces a conceptual framework that highlights risk-governed costing, sustainability integration and lifecycle value that explains the concept of management accounting in the commercial space economy. There is a discrepancy between space economy and traditional accounting methods which is brought into light in this article which brings a multi-dimensional approach which can enhance the commercial performance, effective decision-making and sustainably increase the value creation as this sector evolves into a capital-intensive industry.

## Introduction

Until now the outer space was government controlled and it is shifting to a commercially vital ecosystem which indicates that the world's economic order is going through a tectonic shift. Indian Space Research Organization and other private players like Blue Origin and SpaceX are redefining the value that needs to be created. The size of the global space economy was around \$630 billion and is projected to reach \$1.8 trillion by 2035 due to integration into terrestrial sectors and rapid commercialization. (World Economic Forum).

This change is basically financial in nature and not just technological. The traditional accounting system which is designed for the terrestrial industries day by day is becoming ineffective and anachronistic to address the complexities of space-based industries.

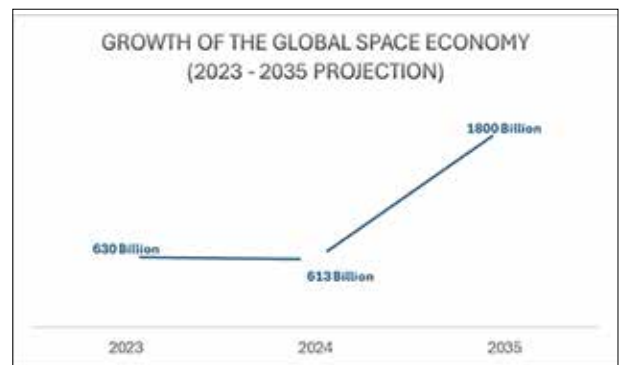


## CMA Soumendra Roy

Assistant Professor  
Globsyn Business School  
Kolkata

[soumendra.roy@gmail.com](mailto:soumendra.roy@gmail.com)

The sector of Commercial space is more capital – intensive industry due to long asset lifestyles, new sustainability risks and uncertain top-line revenues along with complexities of debris accumulation and orbital congestion. These strategic changes led us to rethink the accounting systems from basic cost tracking to framing financial decision-making in terms of risk integration and modeling lifecycle value.



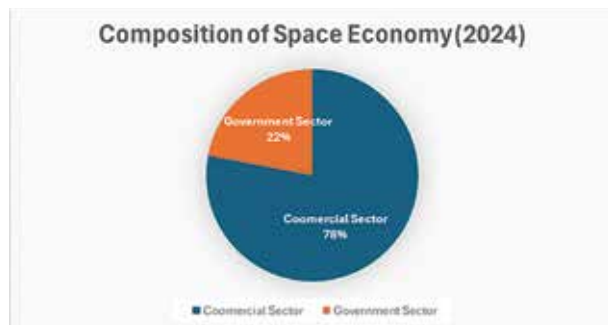
**Figure 1: Growth of the Global Space Economy (2023–2035 Projection) (Source: Author's compilation based on World Economic Forum (2024) and Space Foundation (2025)).**

### Structural Shifts in the Space Economy

Recent empirical trends highlight the need for a re-visioning of accounting regimes.

- ⊙ The global space economy was about \$630 billion in 2023 and in 2024 it was \$613 billion which is about 78% of the total value contribution by the commercial sector (Space Foundation)
- ⊙ Space economy has exploded from about 200 satellite launches per year in 2013 to more than 2,600 by 2023 (OECD, 2024).
- ⊙ It was estimated that more than 9,500 operational satellites are circulating in orbit alongside tens of thousands of debris objects as of early 2024 reports (OECD, 2024; ESA, 2024).

These trends testimonies the shift towards a more persistent, service design economic systems from the one – off missions.



**Figure 2: Composition of Space Economy (2024) (Source: Space Foundation (2025))**

### Literature Gap and Problem Statement

The present space economy literature focuses mainly on macroeconomic potential, advanced engineering technology and policy frameworks and the management accounting framework which are not fully developed needs an in-depth upgradation. Clear correlation between costs and revenues, relatively short lifecycle and predictable utilization of assets are all assumptions on which conventional accounting systems relies. When we turn our attention to space-based operations these assumptions do not hold true. Space assets have

high levels of uncertainty due to technological, regulatory and operational risks, multi – phased delayed realization of revenues and long gestation period. So, conventional accounting does not reflect the investment risk and actual economic value related to them in the space economy firms which can give a distorted results and wrong performance evaluation.

### Theoretical Foundations

Multiple theoretical perspectives inform the proposed framework to encapsulate the complex finance and strategic dynamics of the space economy. Theory of Lifecycle Costing expands conventional cost consideration model by including cost analysis throughout all phases of mission: carbon footprint generating design stage, expensive launch phase (both horizontal and vertical launch), operational phase, decommissioning (reuse or litter) which needs standard to ensure holistic view on value generations. In this regard, Real Options Theory holds special significance; it acknowledges the value of managerial flexibility in conditions of extreme uncertainty, providing firms with the ability to modify their investment decisions according to changing technological and market environments. The resource-based view (RBV) emphasizes that unique capabilities, such as proprietary launch technologies, superior data analytics and optimal orbital positioning are strategically significant because they can create sustained competitive advantage. In a highly specialized ecosystem, Transaction Cost Economics explains why firms structure partnerships, outsourcing arrangements and vertical integration decisions to minimize coordination and governance costs. ESG Accounting incorporates environmental and sustainability risks into a much broader scope of financial analysis, which impacts space debris as well as regulatory compliance issues, to name just two. Together, these theories enable the formulation of a multi-dimensional accounting architecture that correlates financial assessment with the specific traits within the commercial space industry.

Conceptual Constructs for Space Accounting

Table 1: Basic Accounting Constructs in the Space Economy

Construct	Definition	Accounting Implication	Example KPI
Orbital Asset Valuation	Multi-phase valuation of space assets	Dynamic asset pricing	Revenue per orbit-hour
Risk-Governed Costing	Probability-adjusted cost structures	Inclusion of launch and operational risk	Risk-adjusted ROI
Lifecycle Monetization	Revenue across mission lifecycle	Multi-period revenue recognition	Lifecycle revenue yield
Space Sustainability Accounting	ESG beyond Earth	Cost of debris mitigation	Sustainability-adjusted margin
Regulatory-Embedded Accounting	Compliance-driven costing	Integration of licensing costs	Compliance cost ratio

This table identifies what the core construction for a management accounting fits will look like for this new space-economy, and how financial evaluation should be redesigned, allowing us to match operational reality with some economic measures. Orbital Asset Valuation focuses on the time-phased value of space assets; quantifying revenue produced over periods such as revenue per orbit-hour. Risk Governed Costing introduces probabilistic factors like launch failure and operational uncertainty into the cost structures, allowing for more realistic metrics such as risk-adjusted ROI. Lifecycle Monetization understands that revenue is captured over several epochs, necessitating multi-period accounting methods which are manifested in lifecycle revenue yield. Sustainability – adjusted profits can be achieved when Space Sustainability Accounting can be applied to ESG principles which will help in cost mitigation effort for environmental impact and debris. Regulatory realities can be ensured by applying Regulatory – Embedded Accounting which can incorporate licensing costs and compliance with financial analysis as a modifier in decision-making processes by calculating various compliance cost ratios.

**Competition to be the furthest from impact: Orbital Congestion and Sustainability as Accounting Variables**

One of the consequences of a denser orbital space is new economic risk. The OECD (2024) placed an estimation for objects greater than 1 cm in the order of more than 10,00,00,000 debris object

and ESA has identified a total of 35,000 tracked potential projects objects including around 26,000 fragments large than 10cm. This congestion has direct implications:

- ⊙ increased collision risk
- ⊙ higher insurance premiums
- ⊙ regulatory compliance costs
- ⊙ reduced asset lifespan

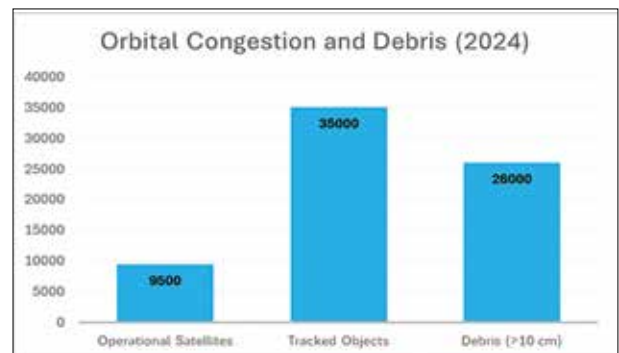


Figure 3: Orbital Congestion and Debris (2024) (Source: OECD (2024), ESA (2024))

Proposed Conceptual Framework



Figure 4: Conceptual Framework for Space Management Accounting (Source: Author’s Compilation)

The above model explains a casual chain where Accounting Capabilities may affect the Strategic Decision Making which can enhance the Long

– term Value Creation and Commercialization Performance. It highlights the strategic function of accounting as a value enabler rather than just a reporting tool.

### Accounting Capabilities:

Here we are introducing four costing techniques: regulatory integration, lifecycle costing, sustainability accounting and risk-governed costing methods so that organization can go for an overall approach to evaluate the financial aspects of the project without undermining the complexities associated with the space sector.

### Mediators:

Good accounting system will help in taking better strategic decision-making and allocation of capital which can lead to effective operational investment success.

### Moderators:

The framework of the space economy is very highly regulated and dynamic in nature where the technological uncertainty and regulatory intensity can play big role in determining the relationship strengths.

### Lifecycle Value Chain in Space Economy



**Figure 5: Space Asset Lifecycle (Source: Author's Compilation)**

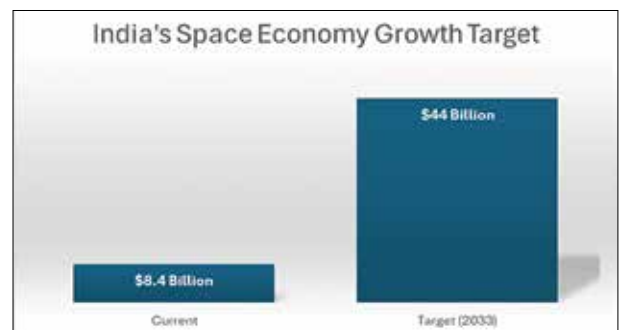
There are multiple phases in space economy's lifecycle value chain like decommissioning, design, operation and launch which have different revenue streams, risk exposure and different cost drivers at various phases. This multiple phase structure explains how value is accumulated over time and it is not instantaneously captured. It is necessary to adopt a lifecycle approach which is capable for accounting for risk, value generation and long – term profitability for any financial evaluation from the space segment operations.

### Commercialization and Investment Trends

New accounting frameworks are very important as they bring us back to the finalization of space. Data for 2024 talks about the volume of 259 orbital launches and about 2,900 spacecraft with small satellites comprising of 97% of the total indicates a very cost – effective and scalable model for deployment. There is a clear signal towards the shift to commercial dynamics where commercial launches accounted for 70% of all the launches. A 25% higher investment of around \$8.4 billion in 2024 as against 2023 suggests financial sophistication and higher level of confidence from the investors.

### India as a Strategic Case

India has strong policy framework and high growth prospects which makes her a strong contributor to the evolution of the space economy. The sector has a target of reaching \$44 billion by 2033 from the present worth level of \$8.4 billion. Over 400 space startups in 2026 have contributed to the innovation supported by a corpus fund of around ₹1000 crore (Indian Rupees) for a venture fund. Indian Space Policy 2023 and FDI liberalization are some recent initiatives which have paved the way towards private sector involvement and commercialization.



**Figure 6: India's Space Economy Growth Target (Source: IN-SPACe (2023), Government of India)**

### Propositions

Within the proposed conceptual framework, the following propositions are Proposed to study the impact of accounting capabilities on performance outcomes in space economy:

P<sub>1</sub>: Lifecycle costing (LCC) capability makes an impact at the level of mission-level economic viability among space-based enterprises, because

construction was a substantive portion of cost, and LCC enables all types of costs to be considered across the lifecycle.

$P_2$ : Uncertainty-capable costing effectiveness enhances capital allocation efficiency through the integration of uncertainty and risk into financial judgement.

$P_3$ : The ability to monetize the lifecycle positively influences revenue stability as it allows for cross-phase revenue recognition throughout the asset lifecycle.

$P_4$ : The integration of sustainability impact and ESG considerations into financial reporting enhances investor confidence and perceived firm value.

$P_5$ : The quality of strategic decision mediates the positive relationship between accounting capabilities and commercialization performance, such that better insights from accounting will improve decision-making and therefore lead to better performance.

$P_6$ : Regulators decrease – accounting capabilities and organizational outcomes relationship.

These statements serve as the foundation for empirical testing with methods including (but not limited to) Structural Equation Modeling.

### Managerial Implications

Space organizations now must shift from cost accounting to value based accounting while implementing new KPIs like cost per orbit – hour, lifecycle ROI, sustainability adjust profits and also risk integrated costing systems which should be rather predictive rather than based on historical costing. This shift can put accounting as an enabler of sustainable value creation and informed decision-making and not just function as a reporter.

### Policy Implications

Financial disclosures need to be revamped by the regulators as there is a need to establish accounting standards for the space economy to embed sustainability indicators and promote lifecycle – focused reporting. These measures will address asymmetry of information; investor confidence can be restored and also improve transparency to ensure the sustainable growth of the fast-evolving space sector over the long term.

### Future Research Agenda

We can use the findings of this study for future research to adopt various approaches that can enhance the level of evidence in this space sector. We can test these relationships with Structural Equation Modelling (SEM) between the accounting capabilities and performance outcomes. DID can be used to measure the policy implication and can establish causality, panel data allows for more stringent analyses and case – studies to provide rich firm – level context.

### Conclusion

Space capitalism is a finance revolution rather than an industrial revolution and could shake the fundamentals of management accounting. Traditional accounting system needs to adapt to include probabilistic risk, sustainability factors, capturing lifecycle value and regulatory complexity.

We propose a conceptual framework that can be used to guide accounting for the space economy and that provides an ideal point of departure for empirical research and subsequent implementation efforts. The future of the space economy will rely not just on technology, but how well we measure and manage value.

**Final frontier is not only technological; it is accounting.** MA

### References

1. BryceTech. (2025). Article precise in trend space launch and deployment globally 2024 Bryce Space and Technology.
2. European Space Agency (ESA). (2024). Space debris by the numbers. [https://www.esa.int/Safety\\_Security/Space\\_Debris/Space\\_debris\\_by\\_the\\_numbers](https://www.esa.int/Safety_Security/Space_Debris/Space_debris_by_the_numbers)
3. IN-SPACe. (2023). Published by: Indian Space Economy, An overview of Indian space economy and growth predictions. Indian National Space Promotion and Authorization Center <https://www.inspace.gov.in>
4. OECD Organisation for Economic Co-operation and Development (2024). Space economy in numbers: trends and forecasts OECD Publishing. <https://www.oecd.org/space>
5. Seraphim Space. (2025). Space investment quarterly report 2024. Seraphim Space Investment Trust. <https://seraphim.vc>
6. Space Foundation. (2025). The investment is seen as a significant but logical step, considering the country has space plans of its own. Space Foundation.
7. World Economic Forum. (2024). The space economy of the future: Outlook to 2035. World Economic Forum. <https://www.weforum.org>

# OWNING NOTHING, CONTROLLING EVERYTHING: HOW INDIA'S ACCOUNTING, TAX AND INSOLVENCY FRAMEWORKS MUST ADAPT TO THE POWER-BY- THE-HOUR ECONOMY

## Abstract

The Power-by-the-Hour (PBH) model, originated by Rolls-Royce in 1962, represents the foundational template of availability-based servitization — a structural shift from CAPEX asset ownership to OPEX service consumption where the provider bears performance risk. Using a doctrinal and analytical methodology, this article examines how India's accounting standards, insolvency law, GST framework, and income tax rules respond to service-based asset models, using Battery-as-a-Service (BaaS) as a contemporary domestic illustration. The analysis identifies fault lines under Ind AS 115, 116, and 37; the IBC–Cape Town conflict addressed by the Protection of Interests in Aircraft Objects Act, 2025; GST inverted duty distortions; India's MRO hub ambition; and data integrity risks in PBH billing.

## INTRODUCTION

When MG Motor India launched the Windsor EV in late 2024, it separated the battery from the purchase transaction entirely — renting it per kilometre. The model cut upfront cost by 30 to 40 per cent. It was widely described as novel.

It was, structurally, sixty-two years old.

In 1962, Rolls-Royce introduced the Power-by-the-Hour model for the Viper engine on the Hawker Siddeley 125 business jet: operators paid a fixed rate

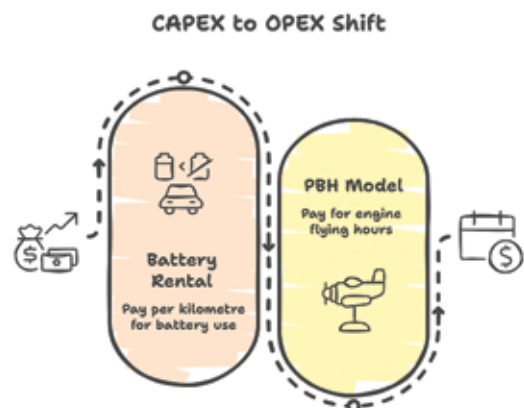


### CMA Tarun Marimganti

Practicing Cost Accountant  
Hyderabad  
[mail@taruncma.com](mailto:mail@taruncma.com)

per engine flying hour, and Rolls-Royce assumed full maintenance liability. Battery-as-a-Service is the consumer-facing descendant of PBH. This article takes PBH as its primary subject, using BaaS only where its domestic context sharpens the analysis.

The CAPEX-to-OPEX shift touches four areas, each examined in turn: who bears performance risk, how revenue is recognised, where assets sit on the balance sheet, and how existing law responds when arrangements built on use — not ownership — encounter insolvency or tax classification.



## LITERATURE REVIEW AND METHODOLOGY

### Prior Literature

The academic foundation for servitization draws from Vandermerwe and Rada (1988), who first theorised bundled goods-service-knowledge offerings, and Neely (2008), who documented the manufacturing shift to outcome-based models.

Datta and Roy (2011) identified incentive alignment as the central design principle in aerospace MRO contracts — directly corroborated by the PBH structure analysed here. In the Indian legal context, Sengupta and Sharma (2022) identified the IBC's Section 14 moratorium as a structural weakness in cross-border lease enforcement — a vulnerability confirmed by the Go First proceedings.

### Methodology

This article adopts a doctrinal and analytical methodology. Primary sources — the CGST Act, IBC, , Ind AS 115/116/37, and the Protection of Interests in Aircraft Objects Act, 2025 — are examined against PBH contract structures.

The analytical layer applies these frameworks to real-world stress tests: the Rolls-Royce COVID-19 catch-up, the Go First insolvency, the AWG CTC downgrade and recovery, and the July 2024 aviation GST reform. No primary fieldwork was conducted.

### THE POWER-BY-THE-HOUR MODEL

Under a Flight Hour Agreement — TotalCare (Rolls-Royce), OnPoint Solutions (GE Aviation), or Eagle Services (Pratt & Whitney) — an airline pays a fixed rate per Engine Flying Hour (EFH). The OEM retains ownership, schedules all maintenance, and guarantees airworthiness.

If the engine is grounded, the OEM receives nothing. That single fact is the entire commercial logic of the model.

*The OEM is rewarded only when the engine flies. That alignment has done more for commercial aviation reliability than any maintenance schedule ever written.*

Engines represent roughly 15 per cent of aircraft value at delivery. Over a 10 to 12-year cycle, the flight-hour revenue stream generates margins that

are multiples of the original manufacturing profit — a durable annuity escalated annually against inflation and labour cost indices.

**Table 1: CAPEX Ownership vs. PBH Service Model**

Dimension	Traditional CAPEX Ownership	PBH / Availability Model (OPEX)
Initial Outlay	Full asset cost at acquisition	Usage fees over contract term only
Maintenance Risk	Entirely borne by operator	Transferred to OEM / service provider
Cash Flow	Irregular; large overhaul spikes	Predictable, usage-linked OPEX
Maintenance Posture	Reactive — fix on failure	Predictive — optimise for uptime
Balance Sheet	Asset at cost less depreciation	ROU asset (if lease) or off-balance-sheet

### ACCOUNTING UNDER IND AS: THREE STANDARDS, THREE RISKS

PBH arrangements do not fit neatly under one accounting standard. Three standards apply at the same time. Treating the arrangement as a single transaction is the most common preparer error.

#### Ind AS 115 — Revenue Recognition: The Catch-Up Risk

Under PBH, revenue is earned over time as engine availability is delivered. Progress is measured by costs incurred against total expected costs over the contract life.

The risk: long contracts are sensitive to changes in utilisation and cost. If estimates change, a catch-up adjustment is required — wiping out revenue recognised in earlier periods, all in one reporting period. Rolls-Royce faced this in 2020. COVID-19 reduced flying hours sharply, and a large reversal hit a single year's results.

*A contract profitable at inception can turn negative in a single reporting period — not because the business failed, but because the estimates changed.*

## Ind AS 116 — Leases: The Hidden Balance Sheet Entry

Many operators choose PBH to keep assets off their balance sheet. Ind AS 116 often defeats this.

If one specific engine is assigned to one specific aircraft and the operator controls its use, the arrangement is a lease — not just a service. A Right-of-Use asset and lease liability must be recognised. The full PBH payment cannot be treated as a simple operating expense. Operators with leverage-based debt covenants face a real risk of technical breach if this bifurcation is not done.

## Ind AS 37 — Provisions: The Onerous Contract Trap

Engine Maintenance Reserves are a prepaid asset — not a period expense. Treating them as an expense overstates costs before shop visits occur.

The bigger risk: if a PBH contract becomes loss-making, the entire expected loss must be recognised immediately — in one go. It cannot be spread over the remaining years. Preparers who do not track contract-level profitability at each reporting date will be caught off-guard.



## THE IBC CONFLICT AND THE 2025 RESOLUTION

The Go First airline collapsed in 2023. Its aircraft were all leased — the airline owned nothing. When insolvency proceedings began, Section 14 of the IBC automatically froze all repossession. Foreign lessors who owned the aircraft could not take them back. The aircraft sat on the ground for months.

India had signed the Cape Town Convention,

giving lessors the right to repossess within 60 days of a default. But India had never enacted it into domestic law. The consequences unfolded in three stages:

**Table 2: The IBC–Cape Town Conflict — Trigger, Response, and Resolution**

Stage	Event	Consequence
Trigger (2023)	Go First CIRP — Section 14 moratorium applied. NCLT treated leased aircraft as debtor assets. Lessors blocked from repossession despite clear default.	AWG downgraded India's CTC Compliance Index from 63.5 to 50. Outlook designated 'negative'. India placed on AWG watchlist. Higher lease rates priced into all Indian carrier transactions.
Correction (2024)	April 26, 2024: Delhi High Court ordered aircraft deregistration despite IBC moratorium — establishing CTC obligations cannot be indefinitely suspended by Section 14. November 25, 2024: AWG Score Adjustment Notice removes India from watchlist.	CTC Compliance Index revised to 61. India moved to Medium compliance category — before any legislation was enacted. AWG recognised shift in institutional predictability.
Resolution (2025)	Protection of Interests in Aircraft Objects Act, 2025 enacted April 16, 2025; in force May 1, 2025. Section 9: overriding effect over all inconsistent laws including IBC. Alternative A adopted: mandatory 60-day cure period. High Courts have exclusive jurisdiction; NCLT bypassed.	Repossession rights legally enforceable. Electronic dues tracking system prevents surprise liens. India's lessor jurisdiction risk materially reduced.

The significance goes beyond aviation. Grid-scale batteries, EV fleets, and industrial equipment under long-term service contracts face the same Section

14 problem today. The aviation Act is the template; a broader mobile-asset framework remains the outstanding gap.

**GST DISTORTIONS IN SERVICE-BASED ASSET MODELS**

Before July 2024, aircraft parts were taxed at rates from 5 to 28 per cent by classification. A single engine overhaul involved components at five different rates. The result: input tax credits piled up unused, working capital was locked, and Indian Maintenance, Repair and Overhaul (MRO) facilities could not price competitively against Singapore or Malaysia.

The July 2024 GST reform fixed this. A single 5 per cent rate now applies to all aircraft parts. Domestic MRO services dropped from 18 to 5 per cent with full input credit. The pricing gap narrowed and new investment followed.

*This is the clearest available evidence of what targeted GST correction does to a service-based asset sector: align the rate on the service with the rate on the asset, and the market responds.*

The same distortion exists in BaaS — and has not been fixed:

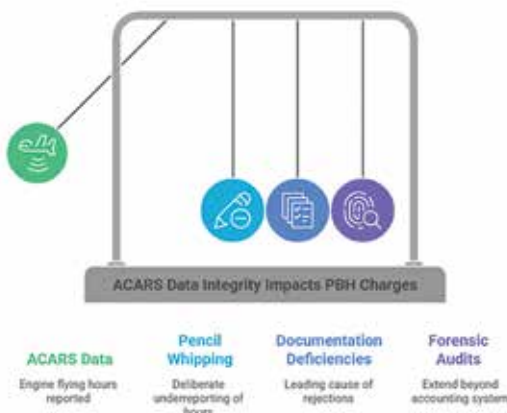
- ⦿ **Buying** an EV attracts 5 per cent GST.
- ⦿ **Renting** the battery per kilometre attracts 18 per cent.
- ⦿ **The 56th GST Council’s September 2025 reforms** reduced rates on small cars and sub-350cc motorcycles to 18 per cent — narrowing the EV price advantage — without touching battery rental.

India taxes owning an EV at 5 per cent and using one through a service model at 18 per cent. The correction is available. It has not been applied.

**Table 3: GST Rate Comparison — Pre- and Post-Reform**

Item / Service	Previous Rate	Current Rate	Effect
Aircraft Parts	5%–28% (HSN-dependent)	5% uniform IGST (Jul 2024)	Eliminates inverted duty
Domestic MRO Services	18%	5% with full ITC (Jul 2024)	Restores price competitiveness
EV Purchase	5%	5% (unchanged)	Consistent ownership incentive
BaaS Battery Rental	18%	18% (unchanged)	Tax penalty persists on service model

**DATA INTEGRITY: THE FORENSIC DIMENSION**



PBH invoices are built on one number: Engine Flying Hours. These are reported through ACARS

— the Aircraft Communications Addressing and Reporting System — which sends timestamped signals every time an engine starts, takes off, lands, and shuts down. Those four timestamps drive every flight-hour charge.

The vulnerability: 99 per cent of ACARS traffic travels in plaintext — readable by anyone with basic radio equipment. In a PBH model, the usage record has the same financial value as the asset itself. Standard internal financial controls do not reach this layer.

*In a PBH model, the usage record has the same financial value as the asset itself. It is a target for manipulation in exactly the same way a financial record is.*

**Table 4: PBH Forensic Audit Framework — Data Layer Controls**

Audit Control	What It Checks	Why It Matters
ACARS vs. ATC Reconciliation	Cross-check engine Out-Of-On-In timestamps against air traffic control records	Detects deliberate underreporting of flying hours at source
Fuel Burn Anomaly Detection	Compare reported engine hours against actual fuel consumption patterns	Flags inconsistencies between billed hours and physical evidence
LLP Serial Verification	Physically verify Life-Limited Part serial numbers against on-wing maintenance logs	Confirms reported maintenance history matches physical component records
FMS Sensor Calibration Audit	Review calibration history of sensors feeding the Flight Management System	Ensures the source data for hour calculations is accurate at origin
EFB Log Reconciliation	Use Electronic Flight Bag data logs as an independent secondary check on billed engine hours	Provides a parallel data stream not derived from ACARS

### CONCLUSION AND POLICY PRESCRIPTION

The Power-by-the-Hour model is sixty-two years old and still defining how high-value assets are financed and accounted for. The table below summarises what India has achieved and what remains to be done.

**Table 5: India's PBH Readiness — Progress and Policy Gaps**

Area	Progress Made	Gap / Action Required
Legal Framework	Protection of Interests in Aircraft Objects Act, 2025 (enacted April 16; in force May 1, 2025). Section 9 overriding effect. IBC moratorium cannot delay aircraft repossession.	No equivalent framework for non-aircraft high-value mobile assets — grid-scale storage, EV fleets, industrial equipment — under PBH-style contracts.
GST	July 2024 reform: uniform 5% IGST on aircraft parts; MRO services reduced from 18% to 5% with full ITC. Indian MRO now price-competitive.	BaaS battery rental still taxed at 18% vs. 5% on EV purchase. Align rate on battery rental service with the rate on the underlying asset.
MRO Hub Ambition	MRO facilities grew from 96 (2014) to 154 (2025). Safran–GMR LEAP engine facility inaugurated Hyderabad 2025. \$4B domestic MRO target by 2030 reaffirmed by PM Modi, IATA AGM, June 2025.	India must become the jurisdiction where PBH contracts are written and enforced — not just a location where maintenance work is performed.

The Right to Use an asset is a property right. It warrants the same legal protection, accounting clarity, and tax consistency as the Right to Own one. Until India's frameworks reflect that parity — and as India moves to become a provider of PBH contracts, not just a consumer — the shift from CAPEX to OPEX will carry a regulatory cost that neither the investor nor the operator should be required to absorb. **MA**

### REFERENCES

- Vandermerwe, S. & Rada, J. (1988), 'Servitization of Business: Adding Value by Adding Services', *European Management Journal*, 6(4), 314–324
- Neely, A. (2008), 'Exploring the Financial Consequences of the Servitization of Manufacturing', *Operations Management Research*, 1(2), 103–118
- Datta, P.P. & Roy, R. (2011), 'Operations Strategy for Integrated Industrial Product-Service Offerings', *Int. Journal of Operations & Production Management*, 31(5), 579–607
- Sengupta, A. & Sharma, R. (2022), 'Cross-Border Lease Enforcement Under the IBC: Structural Gaps and Reform Pathways', *NLSIU Law Review*, Vol. 34
- Rolls-Royce Holdings plc, 'Power-by-the-Hour: 50th Anniversary', October 2012
- Morgan Lewis, 'A Practical Guide to Aircraft Engine RPFH Agreements', January 2024
- KPMG India, *Ind AS Implementation Guide — Revenue (Ch. 6) and Leases (Ch. 7)*, 2020
- IATA, *Airline Disclosure Guide: Maintenance Accounting*
- IBC Laws, 'The Protection of Interests in Aircraft Objects Act, 2025', Agarwal & Bhalse
- Aviation Working Group, *CTC Compliance Index Score Adjustment Notice — India*, 25 November 2024, [awg.aero](http://awg.aero)
- AZB & Partners, 'Cape Town Convention Compliance — India Update', 27 November 2024
- Khaitan & Co, 'Tweaking IBC to Resolve Airline Insolvencies', *IBBI*, October 2024
- Business Standard, 'India aims to become \$4 billion MRO hub by 2030, says PM Modi at IATA AGM', June 2, 2025
- PIB, 'PM Inaugurates Safran Aircraft Engine Services India Facility, Hyderabad', 2025
- MG Motor India, *BaaS FAQ for MG Windsor EV*, [mgmotor.co.in](http://mgmotor.co.in)

# Interview



## **CMA Venkata Ramana Kudipudi**

Director - Finance & Supply Chain - EATON  
Australia

[VenkataramanaK@eaton.com](mailto:VenkataramanaK@eaton.com)

*CMA Venkata Ramana Kudipudi currently serving as Director – Finance & Supply Chain, ANZ for Eaton’s Electrical Sector. Appointed to this dual leadership role in July 2021, he brings over 22 years of experience in the electrical equipment industry. CMA Venkata Ramana Kudipudi career spans India, The United Kingdom, and Australia, reflecting a steady rise through finance roles in diverse markets. After early career foundations he joined Eaton in 2007. Over the next decade and beyond, he assumed roles of increasing responsibility – from Plant Finance Manager in India, to Group Management Accountant in the UK, to Finance Controller for Eaton’s Electrical Sector in India, and later ANZ. In 2018 he relocated to Sydney as the division’s Finance Controller, and subsequently*

*advanced to his current director position in mid-2021. He also leads Eaton’s ANZ supply chain operations – managing procurement, inventory optimization– aligning operational execution with financial objectives to support on-time delivery and cost efficiency*

*CMA Venkata Ramana Kudipudi is a Postgraduate in Commerce from Acharya Nagarjuna University and a Fellow Member of The Institute of Cost Accountants of India*

*A member of the regional leadership team, He is responsible for strategic planning, forecasting, capital governance, and cost management, underpinned by strong financial controls and compliance with US GAAP, Statutory requirements, and SOX/ICOFR. He has played a key role in strengthening governance frameworks and leveraging SAP/ERP platforms to enhance transparency and decision-making. A committed people leader, he is known for building high-performing teams through coaching and succession planning.*

***Q1. How can professionals at a power-management leader like Eaton transition from “cost controllers” to “strategic architects” of national economic resilience?***

**Ans.** At Eaton, finance professionals move beyond cost control by becoming strategic partners to operations and customers. Eaton’s finance function is explicitly positioned to “drive strategy and results,” not just report outcomes. This translates into supporting local engineering, manufacturing customization, and shorter supply chains. By partnering closely with operations, engineering, and supply chain, finance professionals help ensure that resilience is built by design, not retrofitted after failures. Management accountants contribute by linking cost discipline with supply continuity, Pricing discipline and longterm capital allocation, all of which underpin national economic resilience. When cost insight is aligned with infrastructure resilience, finance becomes a builder of economic strength, not just a scorekeeper.

***Q2. Given Eaton’s global footprint, what specific steps should ICMAI take to ensure the Indian CMA designation becomes the preferred global standard for management accounting in multinational boardrooms?***

**Ans.** For ICMAI to elevate the Indian CMA globally, the path is clear: align skills with multinational needs and demonstrate relevance in global enterprises. This includes a strong focus on IFRS awareness, sustainability, analytics, and strategic decisionmaking, all increasingly embedded in the CMA syllabus. ICMAI should also deepen international partnerships and mutual recognition. Strengthening international collaborations and recognition pathways that enhance professional mobility. Actively showcasing CMA contributions in global organizations. Boards value professionals who explain the why behind numbers—precisely the CMA’s strength.

***Q3. How is the shift toward sustainable power redefining Value Creation through Activity-Based Costing (ABC) at Eaton, specifically in e-mobility and grid automation?***

**Ans.** Eaton leadership in energy transition, electrification, and grid modernization has reshaped how value is defined and delivered. Innovation in these domains brings complexity—advanced engineering, digital platforms, compliance requirements, and long lifecycle obligations. Traditional costing approaches alone are insufficient.

Within this context, ActivityBased Costing (ABC) supports better strategic clarity by identifying the true cost of activities such as product development, system integration, testing, software enablement, and aftermarket services. ABC allows decisionmakers to distinguish between valuecreating complexity and costadding inefficiency. Importantly, ABC also complements sustainability goals. As environmental and energyefficiency considerations increasingly influence design and investment decisions, cost systems must support transparent tradeoffs between financial performance and environmental impact. By improving visibility into resource consumption and process efficiency, ABC enables to scale sustainable solutions without eroding margins. In this way, cost management evolves from a control mechanism into a valueshaping discipline—supporting profitable growth while advancing sustainability objectives.

***Q4. The “CMA Lens” in Action: Can you share a specific instance where applying a “CMA Lens”-focusing on cost-structure redesign or resource optimization - helped turn around an unprofitable project at Eaton?***

**Ans.** Within Eaton, the “CMA Lens” is applied through coststructure analysis, process standardization, and resource optimization, supported by the Eaton Business System and continuous improvement disciplines. Rather than isolated cost cutting, management accountants help redesign cost models to fit strategy—reducing

complexity, improving margins, and strengthening delivery performance across global electrical platforms. The result is consistent execution in large, technically complex projects. When cost structures align with strategy, execution becomes repeatable and scalable.

**Q5. If you were starting your CMA journey today under the latest ICMAI syllabus, which core subject would you master first to survive and thrive in a high-tech industrial environment?**

**Ans.** Under the latest ICMAI syllabus, Business Data Analytics (within Financial Management & Business Data Analytics) is the most critical early focus. Eaton Electricals digital factories, realtime performance monitoring, and analyticsdriven decisionmaking require finance professionals who can interpret data and influence outcomes. Analytics enables CMAs to translate operational signals into insights on cost, risk, and profitability across global electrical operations.

**Q6. Looking toward Viksit Bharat 2047, what legacy do you hope today's generation of Management Accountants - including Eaton's finance team - will leave for the next century?**

**Ans.** As India advances toward Viksit Bharat 2047, management accountants—working in global organizations like Eaton—have a responsibility to embed cost competitiveness, transparency, and sustainability into growth. CMAs act as quiet enablers of infrastructure, manufacturing, and energy transition by ensuring disciplined use of resources and ethical decisionmaking. Their legacy should be institutions that grow responsibly and nations that compete efficiently.

**Q7. Many students struggle with the gap between textbooks and the “factory floor.” How can CMAs practically prepare for IoT-based cost tracking and real-time production analytics used in Eaton's smart factories?**

**Ans.** Eaton Industry 4.0 journey demonstrates

how realtime data improves productivity, reliability, and cost control. CMA students can prepare by developing analytics skills, understanding manufacturing KPIs, and learning how IoT data flows into cost and performance systems. For students and earlycareer CMAs, preparation means actively building analytics skills, seeking exposure to manufacturing environments through internships or simulations, and developing the habit of working closely with operations and engineering teams. Companies play a critical role in bridging this gap by partnering with educational institutions, offering structured internships and rotations in digitally enabled plants, and providing ongoing training in data analytics and smart manufacturing concepts. When organizations invest in hands-on learning, mentoring, and continuous upskilling, they accelerate the transition from classroom theory to real-world application—enabling CMAs to contribute early as business partners who turn real-time factory data into better decisions.

The future CMA must be fluent across engineering, operations, Supply chain and finance, turning live data into strategic insight. Those who understand realtime operations will shape realtime decisions.

**Q8. In an era of intense competition, what is your message to students about protecting the CMA's identity as an ethical steward?**

**Ans.** In a globally competitive environment, the CMA's defining strength remains ethical stewardship. As data volumes grow and sustainability reporting gains prominence, ethical judgment becomes even more critical. As financial custodians in organizations like Eaton, CMAs safeguard trust through integrity in costing, reporting, sustainability disclosures, and data usage. Longterm value creation depends on governance and accountability—areas where CMAs must lead consistently. Skills create opportunity, but ethics create longevity. **MA**

# DIGITAL LENDING BOOM: GROWTH ENGINE OR RISK TIME BOMB?

## **AN APPLIED INSIGHT** AND ANALYTICAL PERSPECTIVE ON INNOVATION, INCLUSION, AND FINANCIAL STABILITY IN INDIA



**CMA Pankaj Kapoor**

Assistant Professor  
School of Commerce  
SVKM's NMIMS  
Chandigarh

[pankaj.kapoor@nmims.edu](mailto:pankaj.kapoor@nmims.edu)

### Introduction - Credit at the Speed of Technology

The Indian financial ecosystem is undergoing a structural transformation, with digital lending emerging as a key driver of change. Traditionally, access to credit in India was constrained by rigid documentation requirements, lengthy approval processes, and a heavy reliance on collateral-based lending. These barriers excluded a major chunk of population, especially individuals in the informal sector and small enterprises lacking formal credit histories.

### Abstract

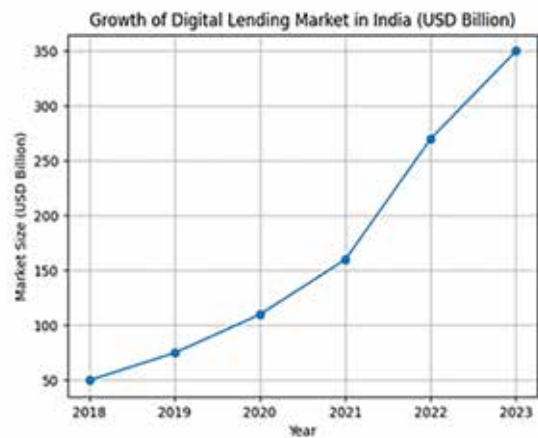
India's digital lending ecosystem has grown exponentially, driven by fintech innovation, data-driven credit models, and expanding digital infrastructure. The sector has significantly enhanced financial inclusion by enabling instant, collateral-free credit for underserved segments, including first-time borrowers and small businesses. However, this rapid expansion raises concerns related to credit risk, regulatory arbitrage, data privacy, and consumer protection. Rising default rates in unsecured lending segments and increasing regulatory scrutiny highlight the fragility underlying this growth. This article critically examines the drivers, operational dynamics, and emerging risks of digital lending, supported by Indian case insights and recent data trends. It argues that while digital lending serves as a powerful growth engine, its long-term sustainability depends on aligning technological innovation with prudent risk management, robust governance, and evolving regulatory frameworks.



The acceptance of digital lending platforms has changed this paradigm. Leveraging the IT developments and rapidly evolving ecosystem such as big data analytics, AI, ML and fintech firms have introduced streamlined processes that enable loan approvals and disbursements within minutes. This transformation has been further accelerated by the widespread adoption of digital infrastructure such as Aadhaar, e-KYC, and UPI, which have significantly reduced transaction friction.

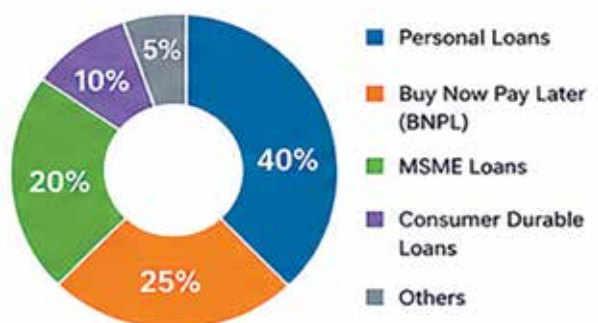
### Exponential Rise of Digital Lending Market Witnessed by India

Phenomenal growth in digital lending market of India is witnessed, especially after 2018, as market size which was nearly USD 50 billion in 2018 rose to USD 350 billion by end of 2023. Further According to estimates, digital lending market in India is projected to grow to over USD 1 trillion by 2030. This remarkable expansion reflects both the demand for accessible credit and the scalability of digital lending models.



If we talk with respect to loan type then market is led by Personal Loan followed by Buy Now and Pay Later and MSME Loans as number two and three with share of around 40%, 25% and 20% respectively. Now Buy Now and Pay Later (BNPL) are growing at whopping pace due to growth of digital selling platforms

DIGITAL LENDING MARKET SHARE BY LOAN TYPE



However, such rapid growth also raises fundamental concerns regarding sustainability, risk management, and systemic stability. The central question remains whether digital lending represents a sustainable engine of growth or a latent financial risk waiting to materialize.

### Drivers of whopping growth in Indian Digital Lending Landscape

The incremental numbers of digital lending in India are the result of a convergence of technological, economic, and institutional factors. Significant driver of such growth is the rapid penetration of smartphones and affordable internet connectivity. India’s digital user base, now exceeding 800 million internet users, provides a vast foundation for fintech adoption.

Equally important is the role of digital public infrastructure. Aadhaar-based identity verification and UPI-enabled payments have revolutionized financial transactions, enabling seamless onboarding and real-time disbursements. These systems have reduced operational costs and increased accessibility, making digital lending viable at scale.

Alternative data has become a critical driver in credit assessment within India, addressing the significant “credit invisible” population i.e. individuals who lack traditional financial records like credit card history or loan repayment records. Digital lenders, however, analyse diverse data points, including transaction patterns, mobile usage behaviour, and even social indicators, to evaluate creditworthiness. This approach has significantly expanded access to credit for underserved populations.

Demand-side factors also contribute to the sector’s growth. Rising consumption aspirations, coupled with the need for short-term liquidity, have created strong demand for quick and flexible credit solutions. Digital platforms cater to this demand by offering instant loans with minimal documentation, particularly appealing to younger, tech-savvy consumers.

#### KEY GROWTH DRIVERS

-  Smartphone & Internet Penetration
-  Digital Infrastructure (Aadhaar, e-KYC, UPI)
-  Alternative Data & AI/ML in Credit Assessment
-  Rising Demand for Instant Credit
-  Fintech Innovation & Partnerships

### Operational Advantages and Growth Potential

Digital lending platforms offer several operational advantages that enhance efficiency and scalability. Automation reduces the time required for credit assessment and approval, enabling lenders to process high volumes of applications with minimal human intervention. This not only lowers operational costs but also improves customer experience.

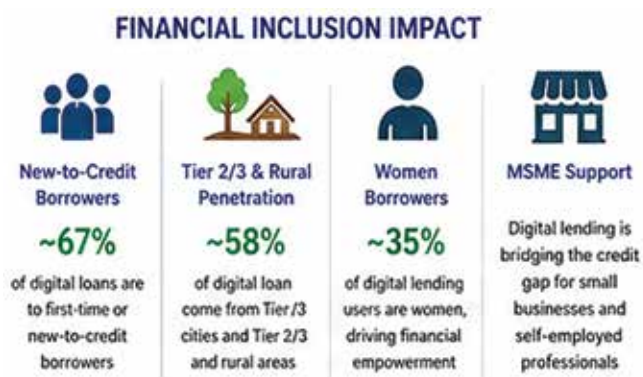
#### HOW DIGITAL LENDING WORKS



The use of advanced analytics allows for real-time risk assessment and personalized loan offerings. By continuously analyzing borrower behavior, lenders can adjust credit limits, interest rates, and repayment terms dynamically. This flexibility enhances both risk management and customer satisfaction.

The asset-light model adopted by many fintech firms further accelerates growth. By partnering with traditional financial institutions, digital lenders can leverage existing regulatory frameworks while focusing on technology and customer acquisition. This collaborative approach results in hybrid models with benefits of duo the fintech and traditional banking.

Filling or bridging the credit gap that India had is among critical role of digital lending, from a macroeconomic perspective. In India, MSMEs that contributed the major chunk of economic transactions, used to face challenges in getting the credit in formal set-up. Digital platforms provide these businesses with timely financing, enabling them to expand operations, manage cash flows, and contribute to economic growth.



### Indian Case Insights: Growth in Practice

The practical implications of digital lending can be observed through leading Indian platforms.

**Paytm**, for instance, has integrated credit products such as Paytm Postpaid into its digital payments ecosystem. This seamless integration allows users to access credit at the point of transaction, enhancing convenience and driving consumption. However, the ease of access also raises concerns about over-borrowing, particularly among users with limited financial literacy.

Similarly, **LazyPay** has popularized the buy-now-pay-later (BNPL) model in India. By targeting young consumers and offering short-term credit with minimal checks, the platform has achieved rapid user growth. Yet, BNPL models often rely on high repayment discipline, and any deterioration in economic conditions can lead to rising defaults.

Another significant player, **KreditBee**, focuses on providing personal loans to individuals with limited credit histories. Its use of alternative data has enabled it to scale rapidly, demonstrating the potential of fintech innovation. However, maintaining asset quality remains a challenge as the borrower base expands into higher-risk segments.

Platform	Model	Target Users	Key Risk
Paytm Postpaid	BNPL	Mass Users	Over-spending
LazyPay	BNPL	Young Consumers	Defaults
KreditBee	Personal Loans	Low Credit History	Asset Quality

These examples highlight the dual nature of digital lending. While innovation drives growth and inclusion, it also introduces vulnerabilities that require careful management.

### Emerging Risks and Structural Concerns

Despite being boons due to potential that can transform the economy for good, digital lending is associated with several banes or risks that could undermine its sustainability. One of the most critical concerns is the deterioration of credit underwriting standards. The emphasis on rapid growth and customer acquisition can lead to relaxed credit assessment processes, increasing the likelihood of defaults.

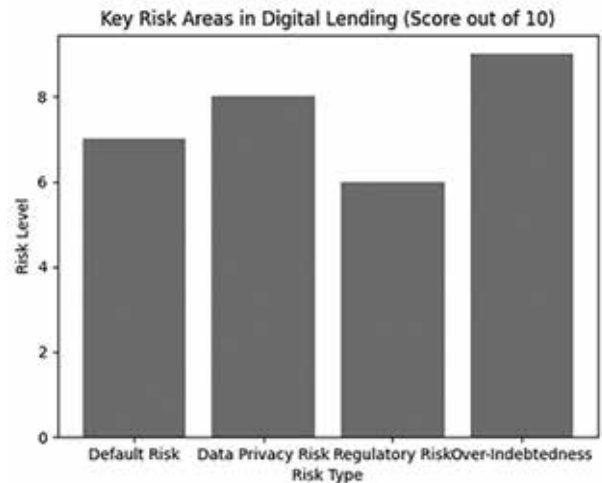
Recent trends indicate rising delinquency rates in unsecured digital loans, particularly in the small-ticket segment. As borrowers accumulate multiple loans across platforms, the risk of over-indebtedness increases, creating potential systemic concerns.

Transparency issues further exacerbate these risks. Many digital lending platforms have been criticized for

unclear loan terms, hidden charges, and aggressive recovery practices. Such practices not only harm consumers but also erode trust in the financial system.

Data privacy and security represent another significant challenge. Digital lenders collect extensive personal and behavioral data, which, if not adequately protected, can lead to misuse. Instances of data breaches and unethical recovery practices have attracted regulatory scrutiny and public concern.

Regulatory arbitrage also poses a structural risk. Some fintech firms operate through partnerships with licensed entities while maintaining control over key lending functions. This creates ambiguity in accountability and complicates regulatory oversight.



### The Regulatory Response

In response to these challenges, the Reserve Bank of India has introduced comprehensive guidelines for digital lending. Rate of interest, any fees to be charged, and terms of repayment shall be clearly disclosed by lender as per these regulations. They also mandate strict data protection measures and limit the use of third-party lending service providers.

### REGULATORY RESPONSE (RBI GUIDELINES)



The RBI has further stressed the importance of direct disbursement of loans to borrower accounts, reducing the scope for intermediaries to misuse funds. Additionally, grievance redressal mechanisms have been strengthened to protect consumer interests.

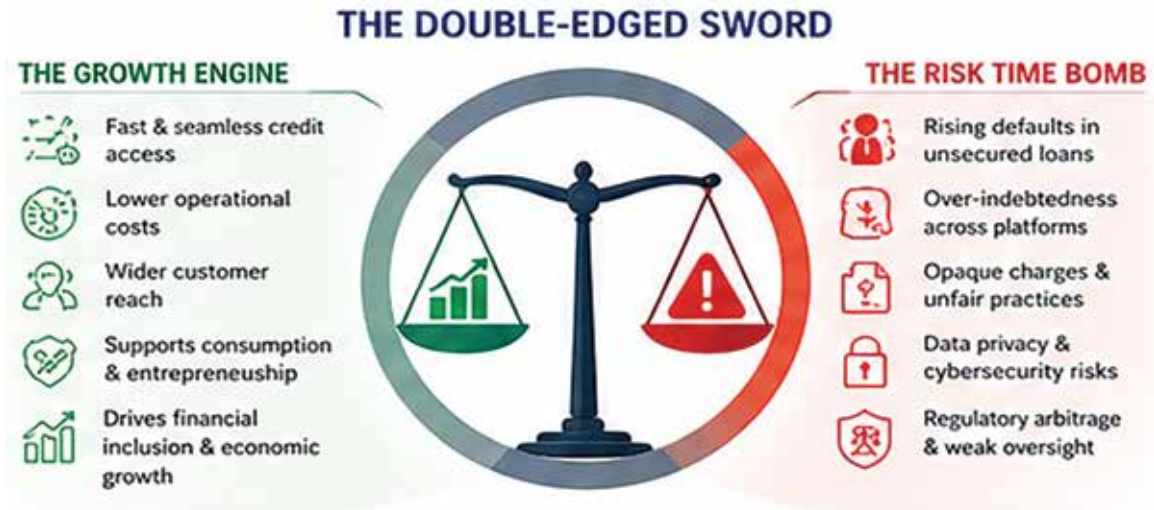
While these measures represent a significant step toward improving governance, but the dynamic fintech innovations require continuous regulatory adaptation. Reaching out to a state of balance between the technological and procedural innovation and financial stability is indeed a key challenge.

### Balancing Innovation with Risk Management

The sustainability of digital lending depends on the ability to integrate technological innovation with prudent risk management. Lenders must prioritize responsible lending practices, ensuring that credit decisions are based on comprehensive and reliable data. Strengthening underwriting standards and monitoring portfolio performance are essential to maintaining asset quality.

Governance frameworks must also be enhanced. Transparent operations, ethical practices, and accountability mechanisms are critical for building trust among stakeholders. Fintech firms must move

beyond short-term growth objectives and adopt a long-term perspective focused on sustainability.



From a managerial standpoint, balancing growth and risk is crucial. Excessive focus on customer acquisition can lead to deteriorating credit quality, while overly conservative approaches may limit market potential. Achieving the right balance requires strategic alignment, data-driven decision-making, and continuous monitoring.

### The Way Forward: Building a Resilient Digital Credit Ecosystem

The future of digital lending in India lies in developing a balanced and resilient ecosystem. Investments in advanced risk analytics, cybersecurity, and customer education will be critical in addressing emerging challenges. Collaboration between regulators, financial institutions, and fintech firms can facilitate the development of standardized practices and shared risk frameworks.

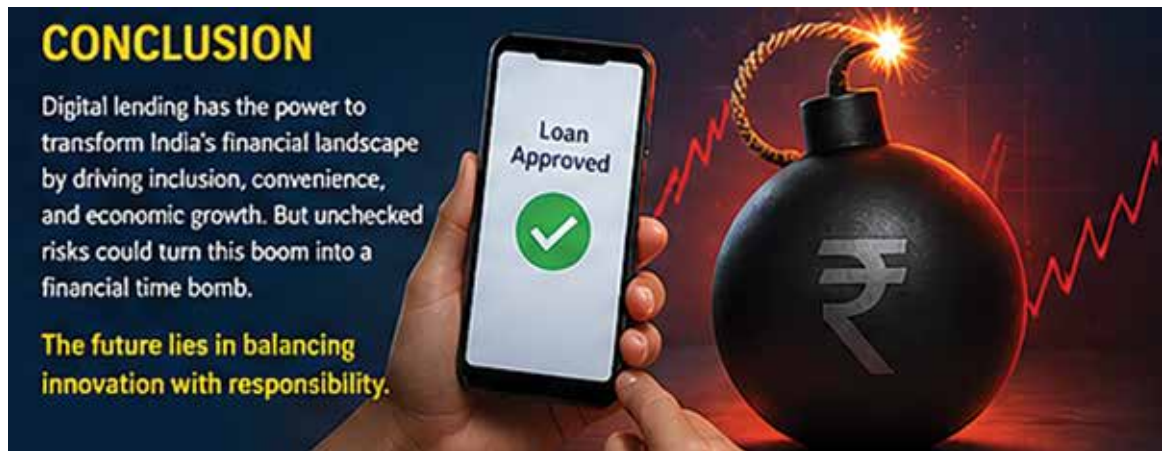


Financial literacy also plays a vital role. Educating borrowers about responsible credit usage can reduce the risk of over-indebtedness and improve repayment behaviour. At the same time, lenders must design products that align with the financial capabilities of their target customers.

Sustainable growth in digital lending requires aligning business incentives with broader economic and social objectives. By focusing on sustainable goal congruence for long that any sub-optimisation for short-term gains, the sector can achieve both inclusion and stability.

### Conclusion: Growth Engine or Risk Time Bomb?

The digital lending boom represents a classic management puzzle, characterized by the interplay between opportunity and risk. On one hand, it serves as a powerful growth engine, expanding access to credit and supporting economic development. On the other hand, it introduces vulnerabilities that, if not properly managed, could pose significant risks to financial stability.




The answer lies in balance. Digital lending can sustain its role as a growth engine only if supported by strong governance, disciplined risk management, and effective regulation. Without these safeguards, it risks evolving into a systemic threat.

The success of digital lending will rest on the stakeholder’s ability to integrate innovation with responsibility. By building a transparent, resilient, and inclusive financial ecosystem, India can harness the full potential of digital lending while mitigating its risks. **MA**

**References**

1. Arner, D. W., Barberis, J., & Buckley, R. P. (2016). *The evolution of fintech: A new post-crisis paradigm*. *Georgetown Journal of International Law*, 47(4), 1271–1319.
2. Gomber, P., Koch, J. A., & Siering, M. (2017). *Digital finance and fintech: Current research and future research directions*. *Journal of Business Economics*, 87(5), 537–580.
3. Philippon, T. (2016). *The fintech opportunity*. *National Bureau of Economic Research Working Paper No. 22476*. <https://www.nber.org>
4. Reserve Bank of India. (2022). *Guidelines on digital lending*. <https://www.rbi.org.in>
5. World Bank. (2022). *Digital financial services*. *World Bank Publications*. <https://www.worldbank.org>
6. KPMG. (2023). *Pulse of fintech H1 2023: Global analysis of fintech investments*. <https://www.kpmg.com>
7. CB Insights. (2023). *State of venture report 2023*. <https://www.cbinsights.com>

## Congratulations!!!



**CMA Rajesh Kumar Agarwal**

Our heartiest congratulations to CMA Rajesh Kumar Agarwal on his appointment as Director (Finance) of Power Finance Corporation Limited. CMA Rajesh Kumar Agarwal has over 31 years of rich experience across the power and financial sectors. A commerce graduate and a member of The Institute of Cost Accountants of India.

Since joining PFC in 2009, he has handled several key functions, including corporate accounts, taxation, fund management, lending compliance, and loan disbursements. He has also played a significant role in driving digital transformation initiatives and strengthening financial reporting systems within the organisation.

Prior to joining PFC, he worked with leading power sector entities such as NTPC, Nuclear Power Corporation of India Limited, and Delhi Transco Limited, where he gained extensive experience in tariff matters, power purchase agreements, and sectoral reforms.

The Institute conveys its best wishes to CMA Rajesh Kumar Agarwal for continued success and excellence in his new role.

# RISE: REIMAGINING THE CMA AS AN ARCHITECT OF ENTERPRISE VALUE

## Abstract

The Cost and Management Accountant (CMA) profession is at a defining inflection point. Rapid technological disruption, real-time performance ecosystems, capital volatility, and increasing governance expectations are reshaping enterprise decision-making structures. Traditional cost control and retrospective variance analysis, while foundational, are no longer sufficient. This article presents the RISE framework—Reposition, Intensify, Strengthen, and Enhance—as a structured strategic transformation pathway for the CMA profession. Each dimension is conceptualized as a progression from functional efficiency to enterprise value architecture. The paper argues that the future CMA must evolve into an architect of performance systems, a designer of value frameworks, and a strategic insider embedded in leadership decision ecosystems.



**CMA (Dr.) A S Durga Prasad**

Former President

The Institute of Cost Accountants of India  
Hyderabad

*dp.anapindi@gmail.com*

### Introduction: A Defining Moment for the CMA Profession

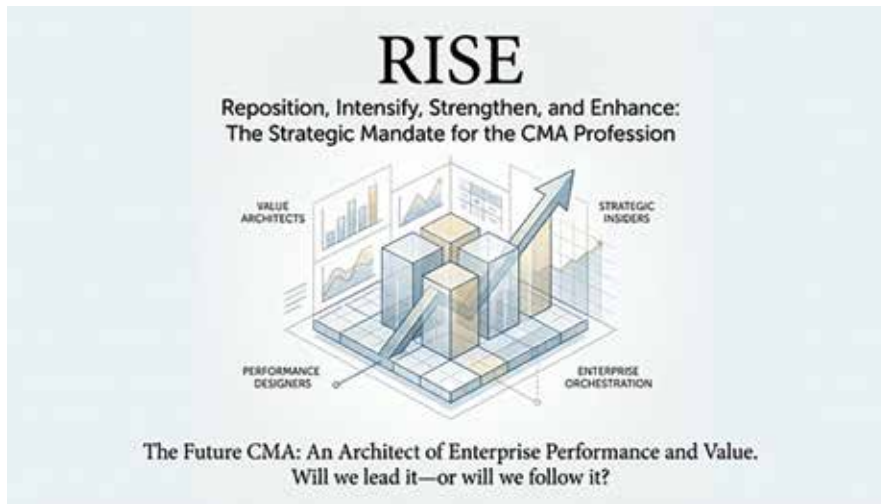
Every profession encounters defining moments when incremental adaptation is insufficient and structural reinvention becomes imperative. The CMA profession stands at such a moment. Enterprises today operate within an environment characterized by dynamic cost structures, digitized operational systems, continuous strategic recalibration, and heightened stakeholder scrutiny. In this evolving landscape, performance is monitored in real

time, decisions are data-driven, and competitive advantage increasingly depends on integrated value orchestration.

Historically, CMAs have excelled in cost measurement, budgetary discipline, and financial stewardship. However, the digital enterprise demands more. Leadership now seeks predictive foresight, capital efficiency design, cross-functional performance integration, and sustainable value creation. The CMA must transition from cost controller to enterprise value architect.

**Conceptual Framework: The RISE Mandate**

The RISE framework—Reposition, Intensify, Strengthen, and Enhance—represents a structured mandate for professional evolution. It moves beyond rhetorical transformation and offers a sequential architecture for redefining identity, capability depth, institutional embedment, and enterprise impact.

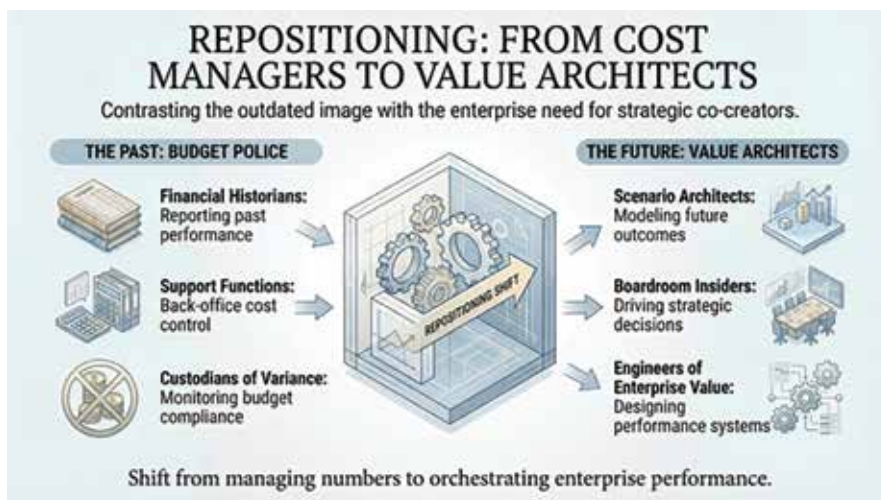


The framework operates as a progressive value ladder. Repositioning addresses professional identity. Intensification deepens strategic capability. Strengthening embeds institutional relevance. Enhancement expands enterprise-wide impact. Together, these shifts redefine the CMA’s contribution within modern governance and performance ecosystems.

**Reposition: From Cost Manager to Value Architect**

Repositioning begins with identity transformation. For decades, the CMA has been perceived primarily as a reporter of financial history, a custodian of budgets, and a controller of variances. While these roles remain critical, they no longer define the strategic frontier of the profession.

The contemporary enterprise requires professionals who can interpret where value is created, where it is diluted, and how it can be optimized. Repositioning requires three structural shifts: from cost accountant to enterprise value engineer; from support function to strategic insider; and from financial historian to scenario architect.



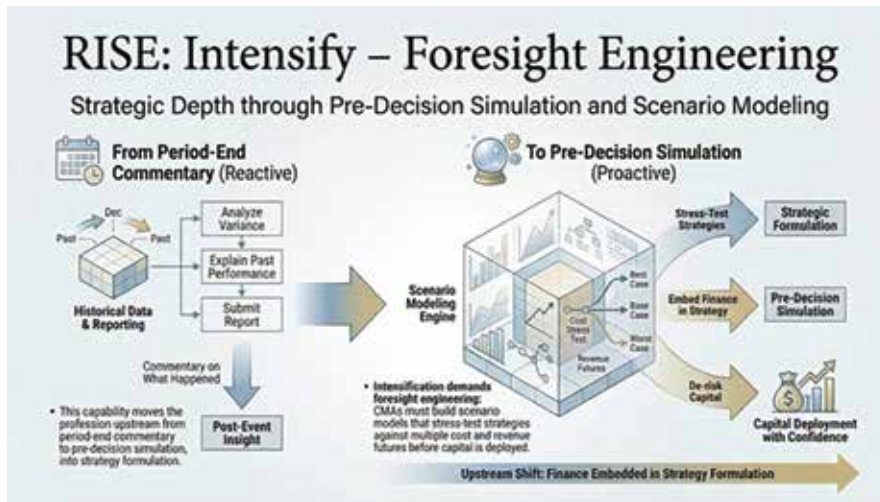
In practical terms, this means engaging in capital allocation modeling, strategic pricing design, risk-return

optimization, and business model analytics. When executive leadership asks where enterprise value is being created or eroded, the CMA must provide integrated, forward-looking insight supported by analytics.

**Intensify: Strategic Depth Over Operational Width**

The second dimension of RISE emphasizes intensification—not an expansion of workload, but a deepening of strategic competence. Operational efficiency alone is insufficient; the profession must cultivate strategic depth.

Four intensification domains define this evolution: foresight and scenario engineering; enterprise performance design; technology-augmented intelligence; and value translation into executive action.



Foresight capabilities require predictive modeling, probabilistic forecasting, and risk-adjusted decision frameworks. Enterprise performance design translates strategic ambition into measurable architecture. Technology-augmented intelligence leverages ERP systems, AI-enabled analytics, and digital dashboards. Finally, value translation demands influence—ensuring financial insight drives leadership action.

**Strengthen: Institutional Relevance and Strategic Trust**

Relevance is not assumed; it is earned through consistent strategic contribution. Strengthening the CMA’s institutional role requires embedding financial intelligence within executive leadership domains.

The CMA must integrate with CEO strategic agenda setting, COO operational orchestration, CFO capital optimization, and CHRO capability economics. This cross-functional embedment fosters institutional trust.

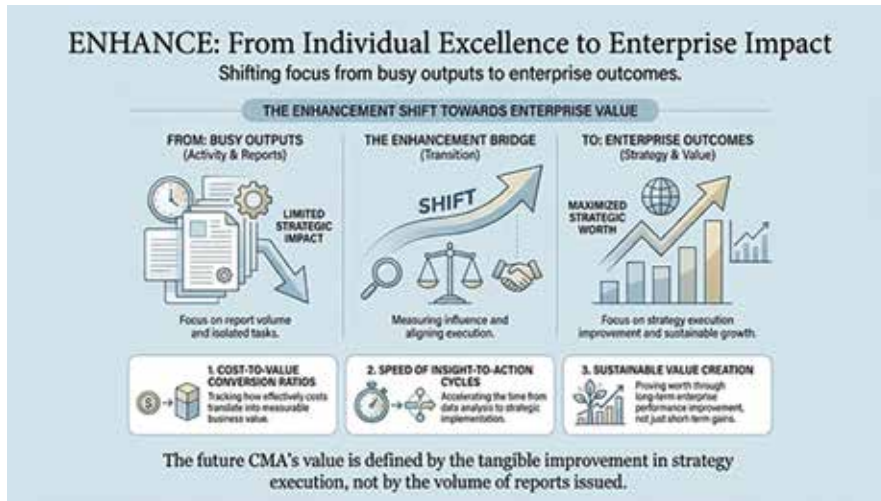


Institutional strength is achieved when critical decisions are inconceivable without CMA involvement. This reflects not positional authority, but trusted expertise within governance systems.

### Enhance: From Individual Excellence to Enterprise Impact

The final dimension of RISE extends beyond professional advancement to enterprise enhancement. Enhancement shifts the focus from individual performance metrics to systemic value outcomes.

This requires measuring influence rather than activity, evaluating cost-to-value conversion, and designing real-time intelligence ecosystems. Static KPIs must evolve into dynamic value drivers aligned with strategic intent.



The enhanced CMA functions as a performance catalyst—aligning governance, technology, strategy, and execution within a unified value architecture.

### The RISE Operating Truth

Enterprises that fail to adapt face rationalization and obsolescence. Similarly, professional roles that resist strategic evolution risk displacement through automation or redundancy. CMAs who internalize the RISE framework will shape strategy, influence leadership, and design sustainable enterprise value systems.

### Conclusion: Leading the Transformation

The transformation of the CMA profession is not optional; it is structural. The future CMA will not be defined solely by cost control but by enterprise value architecture. The defining question is not whether change will occur, but whether the profession will lead it. To RISE is to embrace strategic responsibility, institutional relevance, and enterprise-wide performance design. **MA**

### References

1. Kaplan, R. S., & Norton, D. P. (1996). *The Balanced Scorecard*. Harvard Business School Press.
2. Kaplan, R. S., & Norton, D. P. (2001). *Strategy-Focused Organization*. Harvard Business School Press.
3. International Integrated Reporting Council (2013). *The International <IR> Framework*.
4. Teece, D. J. (2014). *Dynamic Capabilities and Strategic Management*.
5. Schoemaker, P. J. H. (1995). *Scenario Planning: A Tool for Strategic Thinking*.

# ENTERPRISE RISK MANAGEMENT (ERM) - A FRAMEWORK FOR IMPLEMENTATION

## Abstract

Enterprise Risk Management (ERM) in India is not governed by a single standalone statute; however, it is deeply embedded within the corporate governance architecture prescribed under the Companies Act, 2013 and the regulatory framework of the Securities and Exchange Board of India (SEBI), particularly through the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 for listed entities. These provisions collectively mandate boards and senior management to establish robust systems for identifying, assessing, and mitigating risks.

Risk management as a formal discipline originated in financial institutions during the 1970s, primarily as a defensive mechanism against core business failures. Over time, as organizational structures expanded and business environments became increasingly complex, the scope of risk management evolved beyond core operations to encompass enterprise-wide exposures. Today, risk extends across people, processes, physical assets, information systems, data, and third-party dependencies.

While most organizations have some form of risk management practices, these are often fragmented, informal, and uncoordinated. They tend to focus disproportionately on operational or compliance risks and fail to address strategic and emerging risks that are critical to long-term success. Consequently, they fall short of constituting a comprehensive ERM framework as articulated by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

COSO defines ERM as a process effected by an entity's board, management, and personnel, applied in strategy-setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk within its risk appetite, thereby providing reasonable assurance regarding the achievement of objectives. ERM thus represents an integrated, organization-wide approach that aligns risk management with strategy, governance, and performance.



**Uma Shankar**

Former Executive Director  
Reserve Bank of India  
Bengaluru  
[usmeena@gmail.com](mailto:usmeena@gmail.com)

### Enterprise Risk Management (ERM) – A Framework for Implementation

**R**isk management as a distinct, identifiable function emerged in financial institutions in the early 1970s as a defense against failures. Failures were initially envisaged only in the core activities of the company. As a consequence, risk was recognized, but efforts to address it were limited to central activities. Over time, expansion of institutional activities, as well as failures in other areas, forced organizations to pay attention to risks that were hitherto outside their scope.

Over time, risk management has become enterprise-wide, and the risk universe now includes people, physical assets, information, data, and outsourcing arrangements. Any entity that is currently operational has some form of risk management practices in place. However, these are often ad hoc, informal, and uncoordinated. They are typically focused on operational or compliance-related risks and fail to systematically address strategic and emerging risks, which are most likely to affect an organization's long-term success.

ERM, therefore, covers a wide spectrum of risks ranging from financial and operational to governance and strategic risks, each encompassing a broad canvas of risk drivers. The identification, measurement, and mitigation of these risks require a deep understanding of the organization, its regulatory environment, and both internal and external factors affecting its functioning. While these risks may appear distinct, risk governance cannot afford a siloed approach, as risks are often interrelated and cascading in nature.

### What ERM Means

- ⊙ ERM is not a function or a department. It is the culture, capabilities, and practices that organizations integrate with strategy-setting and apply in executing that strategy, with the purpose of managing risk in creating, preserving, and realizing value.
- ⊙ ERM is more than a risk listing. It goes beyond maintaining an inventory of risks and includes practices that management implements to actively manage those risks.
- ⊙ ERM addresses more than internal control. It encompasses strategy-setting, governance, stakeholder communication, and performance measurement. Its principles apply across all levels and functions of an organization.
- ⊙ ERM is not a checklist. It is a set of guiding principles upon which processes are built and continuously improved through monitoring and learning.
- ⊙ ERM can be applied to organizations of any size. Wherever there are objectives, decisions, and uncertainties, ERM has relevance.

### Beginning ERM Implementation – Where to Start

The identification of critical and key risks is the first step in ERM implementation. This is typically achieved through the development of a risk register across business units, which is then consolidated into a risk heat map. All events and incidents that have the potential to disrupt operations or cause losses must be captured.

Risks are categorized as critical, high, medium, or low, based on their probability and impact, and plotted on a color-coded heat map. Based on this, priorities are established, and mitigation strategies are developed.

While each organization faces unique risks depending on its environment, certain universal principles are essential for successful ERM implementation:

- ⊙ **Support from the top:** Board and senior management commitment is critical to ensure appropriate focus, resources, and organizational alignment.
- ⊙ **Incremental implementation:** A phased approach allows for early wins, continuous learning, and course correction.
- ⊙ **Avoiding overcrowding:** The number of key risks identified should remain manageable to ensure effective monitoring and action.
- ⊙ **Leveraging existing resources:** Excessive reliance on external specialists can be costly and unsustainable.
- ⊙ **Integration with business strategy:** ERM must be embedded into strategic planning and decision-making processes.

### Next Steps

- ⊙ A clearly articulated vision and mission provide the foundation for risk assessment, as they reflect organizational culture, ethical values, and risk appetite.
- ⊙ Strategy formulation must align with business objectives, distinguishing mission-critical goals from non-critical ones.
- ⊙ Periodic reviews and updates should be presented to the Board, covering emerging risks, regulatory developments, and best practices.
- ⊙ Leadership must be assigned to drive ERM

initiatives, supported by a cross-functional working group.

### Strategic Risk

Traditional risk management frameworks often emphasize operational and compliance risks, with limited focus on strategic risks. Strategic risk refers to uncertainties that affect an organization's ability to achieve its objectives and typically arises from external factors.

Key sources of strategic risk include:

- ⊙ **Regulatory changes:** Policy shifts can significantly alter business viability.
- ⊙ **Disruptions:** Events such as pandemics or geopolitical conflicts can reshape industries.
- ⊙ **Technological innovation:** Failure to adapt to technological change can render business models obsolete.
- ⊙ **Changing customer preferences:** Evolving consumer behavior requires continuous adaptation.
- ⊙ **Reputational risk:** Often a consequence of failures in other risk areas, requiring proactive management.

### Framework for Strategic Risk Management

- ⊙ Understanding the current position of the organization
- ⊙ Aligning strategy with long-term objectives
- ⊙ Defining Key Performance Indicators (KPIs)
- ⊙ Identifying and prioritizing risks
- ⊙ Using heat maps and Key Risk Indicators (KRIs)
- ⊙ Continuous monitoring, review, and improvement

### Role of the Board

The Board is responsible for overseeing risks that may materially impact the organization's strategy and objectives. It must challenge management assumptions and evaluate alternative scenarios.

Key responsibilities include:

- ⊙ Reviewing risk dashboards and identifying gaps
- ⊙ Evaluating adequacy and scalability of controls
- ⊙ Ensuring timely identification of emerging risks

- ⊙ Encouraging continuous learning and upskilling

In many organizations, risk oversight is handled by the Audit Committee. However, given the forward-looking nature of risk management compared to the retrospective nature of audits, it is often advisable to either dedicate separate meetings for risk or constitute a Risk Management Committee.

### Conclusion

Enterprise Risk Management is no longer a peripheral or compliance-driven exercise; it is a strategic necessity in an increasingly volatile, uncertain, complex, and ambiguous business environment. Organizations today face rapid technological disruption, evolving regulatory expectations, geopolitical uncertainties, and shifting stakeholder demands, making structured risk management indispensable.

An effective ERM framework enables organizations to transition from reactive risk mitigation to proactive risk intelligence. It enhances decision-making, strengthens resilience, and aligns risk appetite with strategic objectives. However, successful implementation requires strong leadership, integration with strategy, clear accountability, and continuous monitoring.

Boards play a critical role in this transformation by ensuring robust risk governance, challenging assumptions, and fostering a culture of risk awareness. Regulatory frameworks in India have further reinforced this responsibility.

Ultimately, ERM is a dynamic and evolving discipline. Organizations that embed ERM into their core management processes are better positioned to navigate uncertainties, capitalize on opportunities, and achieve sustainable growth. **MA**

### References

1. *Companies Act, 2013 – Sections 134(3)(n) and 177.*
2. *SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 – Regulations 17 and 21.*
3. *Committee of Sponsoring Organizations of the Treadway Commission (COSO) – Enterprise Risk Management – Integrating with Strategy and Performance (2017).*
4. *Institute of Company Secretaries of India (ICSI) – Guidance Note on Risk Management.*
5. *Institute of Chartered Accountants of India (ICAI) – Internal Financial Controls Guidance.*
6. *OECD – Corporate Governance Principles.*

# IMPACT OF A NOVEL RAPID TRANSFORMATION PROCESS CALLED SYNTEGRATION® ON BUSINESSES AND COMPLEX PROJECTS IN CHANGING THE ECOSYSTEM IN INDIA – A CONCEPT PAPER & PRACTITIONER’S GUIDE

## Abstract

In this article we bring forth the way to build future-ready organizations. With possible roots in ancient Indian sciences, which will be the subject of our future articles in this domain we shall focus on a process called Syntegration® which is based on Cybernetic Theory & Complex Adaptive Systems. Research by McKinsey & Partners has shown that only 30%-40% of the business transformations succeed while Syntegration® has a success rate of 99%. We provide evidence through literature survey of establishing this failure rate of 70%. We also provide literature sources of remedies of such failure as cited by practitioners of strategy (McKinsey, Bain and BCG). Thereafter we bring forth the drawbacks of existing frameworks and method followed by the consultants. We then establish how Syntegration tackles the drawbacks. Finally we extend the discussion to how this process can transform the business houses and public sector units in the country to throttle India’s Viksit Bharat vision.



**CMA Srinivash Singh**  
Chairman  
Rembarrier Advisors Pvt. Ltd.  
Kolkata  
[srinivash.singh@gmail.com](mailto:srinivash.singh@gmail.com)



**CMA (Dr.) Raja Ghosh**  
General Manager (F&A)  
Corporate Planning  
WBSEDCL  
Kolkata  
[rajaghosh70@rediffmail.com](mailto:rajaghosh70@rediffmail.com)



**Dr. Sarojkant Singh**  
Assistant Professor  
Adamas University  
Kolkata  
[sarojkant.singh@gmail.com](mailto:sarojkant.singh@gmail.com)

## Introduction

Man has always tried to mimic nature. Most of the designs are learnt from nature, but despite that, designers have made structures which look distinctly different from natural designs. It’s time we deep dive into this to build sustainable systems.

If we look at a city, it is very different from a forest or natural habitat. The concept of apparent visual symmetry has led designers to build designs which are rigid and based on failure modes. One may say the problem is not that of objective but that of approach. Therefore, some revolutionary thinkers and scientists started thinking retrospectively and this led to a subject called cybernetics.

In this context it is important to reflect on ancient texts in India which designed systems akin to nature and self-sustaining. However, as time passed this science was lost and up came the ideological basis of capitalism and communism which are also facing their nemesis. However, as this science was lost a new set of thinkers emerged in the west who started looking at how natural systems work. (Beer, 1993) presented a diagnostic approach to management cybernetics which unveils this fallacy.

### Literature Review

(Robinson, 2019) quotes that academic research proves that 70% of business transformations fail and suggests the remedies. (Maor, 2021) shows results from McKinsey & Co. surveys that only 30% success from business transformations is achieved. (Steil, 2026) quote Gartner surveys and McKinsey Surveys to inform why execution and not vision is a cause of 70% failure in transformations. The author mainly focuses on digital transformations but links them to legacy issues etc. (Argon&Co, 2019) in this whitepaper conclude that 40% to 81% of transformations fail and provide certain remedies. (N.Ramesh, 2019) through an empirical study suggest how to beat 70% failure of transformations. (Burke, 2025) reports 88% of business transformations fail. (Kristy Ellmer, 2024) of BCG consulting declare that 70% of transformations fail to achieve their goals and the go forward to suggest remedies.

These reports and suggestions come from some of the top consulting firms of the strategy consulting world like McKinsey, Bain and BCG. These are the very companies who have undertaken the transformations themselves. We shall revisit their remedies in our framework section, but now we shall provide an overview of a novel rapid transformation process which has its roots in the United Kingdom and implemented at a country

level in South America. The transformation process was designed from a systems perspective and hence its applications move beyond the firm to governance and policy.

### 1. Background

Dr. Stafford Beer (1927– ) served in India's Gurkha Rifles until 1947, then joined United Steel in England as a research scientist in 1956. In 1972, his book *Brain of the Firm* introduced the Viable System Model (VSM). That year, Fernando Flores (age 26), head of Chile's CORFO, approached Beer (Bartlett, 2023). They designed a cybernetic socialist economy: Project Cybersyn (Medina, 2014).

(Medina, 2014) On September 11, 1973, CIA-backed forces overthrew and killed democratically elected President Salvador Allende, ending Cybersyn—the bold experiment in management cybernetics. Elected in 1970, Allende sought socialism distinct from U.S. capitalism or Soviet communism: nationalize industries, redistribute wealth from oligarchs/MNCs, enable worker participation, while upholding democracy, rights, and rule of law. Unlike militarized neighbors (Argentina, Brazil), Chile had sustained democracy since the 1930s. U.S. aid flowed, yet opposed socialism. Cybersyn addressed this by applying cybernetics to manage nationalization amid factions.

### 2. Cybernetics

The word was coined by Norbert Wiener, a MIT professor and in 1948 described it as “control and communication in animal and machine”. This covers complex systems like the computer and human brain. The field spans across, engineering, information science, biology, sociology and industrial management. (Beer, 2002) in his article “what is cybernetics?”, essentially a speech in the University of Valladolid, informs that cybernetics is multi-disciplinary. He goes on to say that world revolves around money and markets, and econometrics should have a clue how to regulate them. One analogy for this is ecology. Beer further expands the origins of cybernetics in Mexico where many learned men gathered and found that they couldn't communicate easily due to their specialities but found a subject common to all i.e

*nature of control.* The next concept Beer introduces is Ashbey’s Law of requisite Variety. This First Law of Cybernetics, states that a system must be as complex or more complex than its environment to deal with it well. Beer the goes to explain *ultrastability*. To explain this Beer gives an example of a computer which has a chance to overheat, so we can secure this with putting a thermostat and detect the overheat. If the risk is for theft of the computer we install security guards. So this he calls ultrastability which is key to viable performance. This system is just like a human being which is survival worthy out of the womb. The system is self-sustaining and survival worthy. Such a system is ultra stable and completely autonomous within its own physiology. Speed of response is the clue as Beer states and he envisions the applicability to the economy in real time.. The second clue as per him is recursivity i.e. a self-regulatory process of revisiting or reassessing ideas. With these two Dr. Beer envisages a system which continuously samples and recognizes incipient change.

**3. The Chilean Government Experiment – Project Cybersyn**

Project Cybersyn was Beer’s life’s serendipity. He designed an 11-level recursive Viable System Model (VSM) redesigning Chile’s economy from state to villages and enterprises—all structurally identical. Real-time measures (data less than 24 hours old) flowed from president to locals. Knowledge disseminated and regulated per level; measurements became uniform indices, filtered via Bayesian statistics.

Bayesian theorem updates priors with data for predictions: priors (background) & likelihood resulting in the posterior. This processed vast data into management-ready info.

Bayes theorem is given below:

$$P(A | B) = \frac{P(B | A) \cdot P(A)}{P(B)}$$

- A, B = events
- P(A|B) = probability of A given B is true
- P(B|A) = probability of B given A is true
- P(A), P(B) = the independent probabilities of A and B

It has many advantages like it is logical, it provides inferences that are conditional on the data and are exact, without reliance on asymptotic approximation. Small sample inference proceeds in the same manner as if one had a large sample & it provides a convenient setting for a wide range of models, such as hierarchical models and missing data.

However, despite the downsides the biggest advantage was that massive amount of data could be processed and presented at appropriate level of management as *information*. Dr. Beer qualified the definition of information as that *which changes us*. Dr. Beer wanted to segregate the incipient danger on which management should act from what he calls *trivia* or unactionable details. He advised an operations room at each level of management which would be collaborative and interactions of key managers in these rooms enables availability and recognition of *actionable information*. This is known as *Redundancy of potential command*. This ensures necessary skill and actionable information is available when needed i.e as Beer says information on incipient danger, on which management can act instantly. Dr. Beer gives an example of how actionable information was transmitted through Telex when CIA attempted to overthrow the government with local unions called *gremios*. A scheme was orchestrated to take away amenities from local people and blame the government to create chaos. The ministers and bureaucrats who were primarily intellectual, self-organized and reacted to take action to prevent chaos from happening, as information flowed through Telex messages. This was a test-tube experiment of the enormous capability of cybernetic principles, which thereafter was implemented in bits and pieces but never took a scalable form.

**4. Syntegration®**

Syntegration® (Gunter Nittbaur, 2006) disseminates knowledge organization-wide, boosting communicative competence and efficiency amid complexity. It breaks expert silos, rooted in Greek *agora*. Beer (*Beyond Dispute*) taps tacit knowledge via icosahedron structure—optimal for group energy, with 12 vertices.



Figure 1: Icosahedron Source: (Gunter Nittbaur, 2006)

Icosahedrons structure proteins and viruses like polio, enabling genetic efficiency via modular synthesis—maximizing info savings despite limited nucleic acid (Hsia et al., 2016; Polyhedra, n.d.). Buckminster Fuller identified it as nature’s principle; Beer adapted it for Syntegration communication.

In Syntegration, 12 topics occupy icosahedron vertices; 30 people (6 groups of 5: owners, critics, observers) form struts, ensuring Ashby’s requisite variety (Gunter Nittbaur, 2006). Process starts with an opening question (e.g., “How to design future management education?”—Leonard & Schwaninger, 2004). Guided “importance filter” brainstorms, negotiates, and algorithm-optimizes 12 topics.

The 12 topics are then discussed in groups of 5 and Dr. Beer shows that this produces the perfect solution. The process uses *reverberation effect* to provide the critical effect of Syntegration. The diagram from Beyond Dispute and (SCHWANINGER, 2003) shows that 90% of relevant information i.e *actionable information* gets distributed amongst participants.

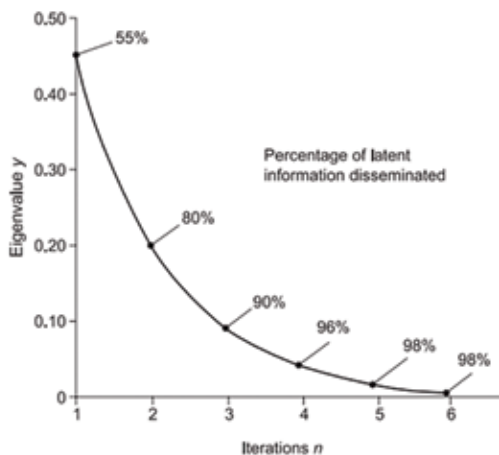


Figure 2 Syntegrity Iterations Source: (SCHWANINGER, 2003)

The documented statements thus have knowledge of the group for the Opening statement or Initial question. An important impact of the process is creating a *learning organization*. The participants learn and understand each other. The most important outcome beyond these two results is the *commitment, alignment and ownership* of the participants.

**Methodological Approach – Comparison with existing approaches**

Before we elaborate the frameworks used by the leading strategy firms, we must reflect on the suggestions suggested by the very firms that implemented the transformations that failed.

Table 1: Existing transformation causes of failures and remedies

Source	Failure source	Remedy
(Kristy Ellmer, 2024)		Define transformation objective, anchoring, transparency, accountability and leadership
(Robinson, 2019)	Building conviction in people, no buy-in, lack of required capabilities to bring change, no-change management in place, no transformation office	
(Steil, 2026)	People resistance 2/3 <sup>rd</sup> resist change. Friction	Leadership
(Maor, 2021)		Embedding transformation disciplines to business-as-usual

(Argon&Co, 2019)	Lack of leadership commitment, organization inertia, talent gap	Clear approach & framework, organisational culture, processes, getting the rhythm of change
(N.Ramesh, 2019)	Timing-transform during declining phase	Leadership involvement, psychological ownership, transparency

Remedies stress leadership, employee buy-in, and frameworks as keys to success. Kristy Ellmer (2024) details forming transformation offices to sustain momentum, yet these lack objective formulas and carry a theoretical tone. Focusing on consultants over academics, McKinsey uses the 7S framework, BCG the matrix, and Bain its operating model. Task forces collect client data over 3-12 months, delivering roadmaps and advising offices—which they often run. This hub-and-spoke model falters as rapid business changes invalidate reports by delivery.

**1. Syntegration as a Framework**

Change in organisations is complex. Each transformation is essentially a project or a stack of projects making them complex in nature. Through the recipe is given by the traditional strategy consultants, the method to success is merely subjectively defined by them.

To address a complex problem a systems thinking approach is required. The Syntegration process doesn't use an expert like an outside consultant to prepare a recipe. Rather the process of syntegration utilizes the knowledge of the employees and leadership. What the consultant brings is mere process of conducting syntegration. The problem and solution is provided by the participants themselves. This ensure 100% buy-in by the participants and high ownership as the topics are chosen by them and the action plan developed by them instead of an external consultant.

The process effectively utilizes *reverberation* which ensures reinforcement of the belief of change during the process. Since it is completed in 3.5 days

the solutions get implemented immediately after that, thus ensuring relevance.

(Gunter Nittbaur, 2006) The process is a democratic process which is non-hierarchical in nature and therefore dissemination of information takes place. The key to success is the transparent information dissemination in-built in the process.

**Case Studies in Syntegration® Success**

**1. Post-Merger Banks**

Malik Management applied Syntegration in 1998 for UBS-Credit Suisse integration, bridging cultures and models.

Outcomes (Schwaninger, 2003; Malik & Malik, 1998): 17 measures clustered into 6 implementable sets; averted client exodus; achieved deep cultural alignment in 2.5 days, uniting employees sustainably.

**2. Fürth Financial Recovery**

In 2010, debt-laden Fürth, Bavaria, used Syntegration to cut budget deficits 48% long-term; 60% of relief items implemented within two years (Bilder, 2010).

**3. Brainport Smart District**

April 2017 Syntegration yielded 34 health/well-being recommendations for this urban project, integrating diverse expertise into actionable community strategies (Gebhardt, 2020).

**4. Volkswagen vs. Tesla**

In a 3.5-day Super Syntegration, 31 VW/Audi/Porsche executives strategized Mission T EV catch-up: pooled software/hardware, delayed launch.

Result: 20.1% Europe EV share (May 2024) vs. Tesla's 10.5% (Diess, 2020; Boston, 2021; Torque, 2022).

Numerous successes span insurance, retail, hospitality, consumer goods, and construction.

**Implications and possible application in India**

Amid global turmoil from West Asia and Ukraine-Russia wars, India sustains growth and needs a new economic model. Dr. Beer's Viable System Model already tested in Chile, suits India's democratic

welfare state, despite diverse needs. For Viksit Bharat, a two-pronged approach trickles policies to firms and citizens: Syntegration® at firm level (via Rembarrier Advisors/Malik Institute) disseminates knowledge; at policy level, it transforms cities like Furth, Gossau, Zurich, and Lower Austria (Malik, 2024) through multi-stakeholder workshops ensuring holistic viability. China (IMAU) and Helmholtz (300k employees) apply it similarly. India's Smart Cities Mission (MoHUA, 2024; Rs. 200k crore) lags (66/100 cities; Mohanta, 2023), facing socio-economic hurdles (Mutambik, 2024), but Syntegration® enables silo removal and crisis response, as in Beer's Chile coup aversion and Katrina coordination (Reissberg et al., n.d.).

## Limitations and Future research

Syntegration®—a rapid, consensus-building process tested 1,000+ times—succeeds in India (2025: steel, construction, manufacturing firms; pre-merger). It is robust yet limited by consulting mindsets, with scarce cybernetics research.

The process has drawbacks like St. Gallen-centric experts are necessary and has low market reach (e.g., Canada/Australia closures); needs PhD-level facilitators versed in systems thinking. It has strict logistics (3.5 days, venue/timing, parallel sessions) vs. simple hub-spoke models.

Future: Failure modes from novice facilitators (devolves to basic discussions) and needs to be amplified with Malik tools/system dynamics.

## Conclusion

Syntegration® can spearhead the progress of India on multiple levels. The first is the firm level, where as Dr. Beer informs, *actionable information* can be disseminated by this process by adoption by firms in India to solve their complex problems which range from sluggish growth, restructuring, cost effectiveness etc. Business transformations can be successfully improved with this rapid transformation process and Malik Syntegration in association with Rembarrier advisors are promoting the know-how in India.

As the viable system model suggests, the other end of the chain lies policymakers and the business environments in which firms operate. This includes, public sector units, universities, research institutes,

state governments and central governments. The process of Syntegration® can resolve much of the problems for these institutions and bodies.

For the Viksit Bharat, Smart cities have been a core area where Malik Syntegration has successfully applied their transformations in City of Furth, Gossau, Zurich and Lower Austria. This can be adapted in India with the requisite variety.

As in China Universities can benefit by using the technique to disseminate knowledge in the country through cooperation. MA

## Bibliography

1. Argon&Co. (2019). "70% of business transformations fail" Urban myth or worth another look? Retrieved from [https://www.argonandco.com/wp-content/uploads/2019/10/urban\\_myth\\_or\\_worth\\_another\\_look.pdf](https://www.argonandco.com/wp-content/uploads/2019/10/urban_myth_or_worth_another_look.pdf)
2. Bartlett, J. (2023). How an eccentric English tech guru helped guide Allende's socialist Chile. July: *The Guardian*.
3. Beer, D. S. (2002). "What is cybernetics?". *Kybernetes*, 209 - 219.
4. Bilder. (2010). Syntegration mit Malik Management zeigt Fürth den Weg zu ausgeglichenem Haushalt. Retrieved from <https://www.123bildung.de/syntegration-mit-malik-management-zeigt-fuerth-den-weg-zu-ausgeglichenem-haushalt-231552.html>
5. Boston, W. (2021). How Volkswagen's \$50 billion plan to beat Tesla short-circuited. Retrieved from <https://www.livemint.com/companies/news/how-volkswagen-s-50-billion-plan-to-beat-tesla-shortcircuited-11611140563437.html>
6. Burke, M. (2025). 88% of business transformations fail to achieve their original ambitions; those that succeed avoid overloading top talent. *Bain and Company*.
7. Diess, H. (2020). How we transform Volkswagen. Retrieved from <https://www.linkedin.com/pulse/how-we-transform-volkswagen-herbert-diess/?trackingId=4JATMzZUSH2nDMibU7v6ng%3D%3D>
8. Gebhardt, C. (2020). *The Impact of Participatory Governance on Regional Development Pathways: Citizen-driven Smart, Green and Inclusive Urbanism in the Brainport Metropolitan Region. Triple Helix*, 69-110.
9. Kristy Ellmer, J. D. (2024). *How to Create a Transformation That Lasts*.
10. Malik. (1998). Malik. Retrieved from <https://www.malik-management.com/malik-solutions/management-for-companies/post-merger-bank>
11. Malik. (2024). Retrieved from <https://www.malik-management.com/malik-solutions/solutions-in-the-public-sector/>

*cities-communities-regions/*

12. Malik, P. D. (2001). *Team Syntegrity – Using Cybernetics for opinion forming in organizations*. Malik on Management, 73-98.
13. Maor, D. (2021). *Losing from day one: Why even successful transformations fall short*. Paris: Mckinsey.
14. Medina, E. (2014, August). *Project Cybersyn: Chile's Radical Experiment in Cybernetic Socialism*. Retrieved from MIT Press: <https://thereader.mitpress.mit.edu/project-cybersyn-chiles-radical-experiment-in-cybernetic-socialism/>
15. Ministry of Housing and Urban Affairs, G. o. (2024). *Smart Cities*. Retrieved from <https://smartcities.gov.in/>
16. Mohanta, N. (2023, Sep). *GW Prime*. Retrieved from <https://geospatialworld.net/prime/unsmarting-smart-cities/>
17. N.Ramesh, D. D. (2019). *Why do enterprise transformations fail? HINT: IT'S not what you think*.
18. Natrajan, S. (n.d.). *Rapid transformation*. Retrieved from <https://rembarrier.com/rapid-transformation>
19. Polyhedra. (n.d.). Retrieved from *Polyhedra in nature. Part 2*: <https://polyhedr.com/polyhedra-in-nature-part-2.html>
20. Procedures, S. E. (2024, Sep 14). *SAS*. Retrieved from *SAS Help Center*: [https://documentation.sas.com/doc/en/pgmsascdc/v\\_056/casecon/casecon\\_introbayes\\_sect014.htm](https://documentation.sas.com/doc/en/pgmsascdc/v_056/casecon/casecon_introbayes_sect014.htm)
21. Robinson, H. (2019). *Why do most transformations fail? Retrieved from https://www.mckinsey.com/capabilities/transformation/our-insights/why-do-most-transformations-fail-a-conversation-with-harry-robinson*
22. SCHWANINGER, M. (2003). *A CYBERNETIC MODEL TO ENHANCE ORGANIZATIONAL INTELLIGENCE*. *Systems Analysis Model Simul*, 53-65.
23. Steil, O. (2026). *70 per cent of transformation projects fail – and everyone's ignoring the same fix*. Retrieved from *Financial Times*: <https://www.ft.com/partnercontent/teamviewer/70-per-cent-of-transformation-projects-fail-and-everyones-ignoring-the-same-fix.html#:~:text=McKinsey%20reports%20that%2070%20per,meet%20or%20exceed%20their%20targets.&text=Globally%2C%20failed%20transformation>
24. Torque. (2022). Retrieved from <https://www.torquenews.com/video/herbert-diess-explains-ev-transformation-vw-and-passing-tesla>

# HOLIDAY HOME AT PURI & NEW DIGHA

**NEW DIGHA (WEST BENGAL)  
(TWO A.C. ROOMS)**

**HOTEL SURFRIDE &  
RESTAURANT PVT. LTD.**  
NEW TOWNSHIP  
NEW DIGHA  
PURBA MIDNAPORE  
**THE BEACH IS JUST ONE  
MINUTE WALK**

**PER ROOM PER DAY**  
₹1,200/- , ₹1,400/-  
**CHECK OUT 09:30 A.M.**

**PURI (ORISSA)  
(FOUR ROOMS)**

**HARIN GUEST HOUSE**  
NEW MARINE DRIVE ROAD  
BESIDE BIRLA GUEST HOUSE  
PURI  
**SEA IS VISIBLE FROM THE  
BALCONY  
THE BEACH IS JUST ONE  
MINUTE WALK**

**PER ROOM PER DAY**  
₹700/- , ₹800/-  
**CHECK OUT 5:00 MORNING**

**For details Contact:**

The Institute of Cost Accountants of India Employees' Co-operative Credit Society Ltd.  
12, Sudder Street, Kolkata - 700 016  
**Phone: 033 4036-4753, 4036-4731, 4036-4763**

The Institute of Cost Accountants of India Employees' Co-operative Credit Society Ltd. has its Two AC Rooms at New Digha (other facilities like Swimming Pool) and Four Non AC Rooms in Puri for Employees, Students and Members of The Institute of Cost Accountants of India and others. Rooms are well furnished with attached bath, Generator and Cable line facilities. Kitchen facilities are available only at Puri.

# HOW AI IS CHANGING THE WAY WE INVEST IN THE STOCK MARKET

## Abstract

This paper examines how Artificial Intelligence (AI) is transforming stock market investing through algorithmic trading, predictive analytics, robo-advisory services, risk management, and sentiment analysis. It highlights AI's ability to process vast datasets, identify complex patterns, and enhance decision-making efficiency while reducing human bias. The study also explores the evolving role of cost accountants, emphasizing their potential to integrate firm-level financial data with market signals using AI. Despite its advantages, challenges such as data bias, model transparency, and overreliance on automation persist, underscoring the need for human oversight in AI-driven financial systems.

## Introduction

Artificial Intelligence (AI) is no longer just a buzzword; it's actively transforming how people invest in the stock market. From helping hedge funds make split-second trades to guiding everyday investors through robo-advisors, AI is bringing a new level of speed, insight, and efficiency to the world of investing.

## How AI is shaking up the investment game

Artificial Intelligence (AI) is rapidly transforming the investment landscape by making financial decision-making faster, smarter, and more data-driven. AI-powered algorithmic trading executes transactions in milliseconds, identifying patterns and opportunities beyond human capability. Predictive analytics uses vast datasets, including market prices, economic indicators, and news sentiment, to forecast trends and guide investment strategies. Robo-advisors



**CMA (Dr.) Arindam Banerjee**

Associate Professor

School of Commerce and Management

Shiv Nadar University, Chennai

[arindambanerjee@snuchennai.edu.in](mailto:arindambanerjee@snuchennai.edu.in)

provide personalised portfolio management at lower costs, making investing more accessible. Additionally, AI enhances risk management and fraud detection through real-time monitoring and anomaly detection. By reducing human bias and improving efficiency, AI is fundamentally reshaping how investors analyse markets, allocate assets, and respond to dynamic financial conditions.

Here are a few areas where Artificial Intelligence is playing an enhanced role in investment decision making:

### Smarter Trading with Algorithms

One of the biggest ways AI is influencing the stock market is through algorithmic trading. These are smart computer programs that follow set rules to buy or sell stocks, often in milliseconds. Using historical data and real-time market feeds, AI can spot trends and execute trades far faster than any human could.

Artificial Intelligence (AI) has significantly enhanced algorithmic trading by enabling systems to learn from data, adapt to changing market conditions, and make predictive decisions. Unlike traditional rule-based algorithms, AI-driven models use techniques such as neural networks, natural language processing, and reinforcement learning to analyze vast and complex datasets—including price movements, news sentiment, and macroeconomic

indicators.

A major advantage of AI in trading is its ability to detect non-linear patterns and hidden relationships in financial data, improving forecast accuracy. This is particularly relevant in Behavioral Finance, where AI can identify investor sentiment and market psychology through social media and news analytics. Additionally, AI systems can continuously refine their strategies using Machine Learning, allowing for dynamic portfolio adjustments.

AI-powered trading also enhances risk management by predicting potential losses and optimizing asset allocation in real time. However, challenges such as data quality, model transparency, and ethical concerns remain critical. Over-reliance on automated systems can also amplify market volatility during unexpected events.

Integrating AI with algorithmic trading creates smarter, faster, and more adaptive trading systems. As technology advances, AI-driven trading is expected to redefine financial markets by improving efficiency, reducing human bias, and enabling more informed investment decisions.

High-frequency trading (HFT), which involves executing thousands of trades in a second, is powered largely by AI. This tech-driven approach helps traders take advantage of tiny price movements to generate profit.

### Predicting the Market with AI

AI isn't just reacting to the market, it's trying to predict it.

By analyzing tons of data (think stock prices, economic reports, company earnings, social media trends, and even the tone of news headlines), AI can forecast potential price movements. It's like having a tireless analyst working 24/7 to spot patterns and flag opportunities.

Some AI models even use Natural Language Processing (NLP) to understand what CEOs say during earnings calls or how news sentiment might affect a company's stock.

Artificial Intelligence (AI) is transforming the way financial markets are analyzed and predicted. By leveraging advanced techniques from Machine Learning, AI systems can process vast amounts of structured and unstructured data—such as historical prices, economic indicators, news reports, and

even social media sentiment. This enables more comprehensive and data-driven market forecasts compared to traditional methods.

AI models, including neural networks and deep learning algorithms, excel at identifying complex and non-linear relationships in financial data. These capabilities are particularly useful in understanding patterns influenced by investor psychology, a key focus of Behavioral Finance. For instance, AI can analyze sentiment trends to anticipate market movements driven by fear or optimism.

Another advantage is real-time adaptability. AI systems continuously learn from incoming data, refining their predictions and adjusting strategies dynamically. This enhances both short-term trading decisions and long-term investment planning. Additionally, AI can support risk management by forecasting potential downturns and suggesting portfolio adjustments.

However, predicting markets with AI is not without limitations. Financial markets are inherently uncertain and influenced by unpredictable events. Issues such as data bias, overfitting, and lack of transparency in AI models can affect reliability.

Overall, AI offers powerful tools for market prediction, but its effectiveness depends on careful design, quality data, and prudent human oversight.

### Robo-Advisors: Investing Made Simple with AI

Robo-advisors powered by Artificial Intelligence (AI) are transforming the investment landscape by making wealth management more accessible, efficient, and personalized. These digital platforms use techniques from Machine Learning to analyze an investor's financial goals, income, risk tolerance, and time horizon, and then construct a suitable investment portfolio.

Unlike traditional advisors, AI-driven robo-advisors continuously learn from market data and user behavior, enabling dynamic portfolio adjustments. They automate key processes such as asset allocation, rebalancing, and tax optimization, ensuring disciplined and goal-oriented investing. This reduces the influence of emotional decision-making, a central concern in Behavioral Finance, where biases like fear and overconfidence often lead to suboptimal choices.

Another major advantage is cost-effectiveness.

Since operations are largely automated, robo-advisors typically charge lower fees, making them ideal for small and first-time investors. They also offer user-friendly interfaces, allowing individuals to monitor and manage investments easily.

However, AI-based robo-advisors may lack the human judgment required for complex financial planning or unusual market conditions. Issues such as data privacy and algorithm transparency also need attention.

Overall, AI-powered robo-advisors simplify investing by combining technology, affordability, and intelligent decision-making, thereby democratizing access to financial advisory services.

### AI Helps Manage Risk and Spot Fraud

Artificial Intelligence (AI) is playing a vital role in improving risk management and fraud detection across financial systems. By applying techniques from Machine Learning, AI can analyze vast volumes of transactional and behavioral data in real time, identifying unusual patterns that may signal potential risks or fraudulent activities.

In risk management, AI models assess creditworthiness, market exposure, and operational vulnerabilities more accurately than traditional methods. They can simulate different scenarios and predict potential losses, enabling firms to take preventive action. For instance, AI-driven systems help banks monitor loan defaults and market volatility, strengthening financial stability.

Fraud detection is another critical application. AI algorithms can detect anomalies such as suspicious transactions, identity theft, or cyberattacks by continuously learning from historical data. Unlike static rule-based systems, AI adapts to new fraud techniques, making it more effective in combating evolving threats. This is particularly important in digital banking and online payments, where fraud risks are higher.

Additionally, AI reduces human bias and errors, aligning with insights from Behavioral Finance. However, challenges such as data privacy, model transparency, and false positives remain concerns.

Overall, AI enhances both risk management and fraud detection by offering faster, smarter, and more adaptive solutions, making financial systems more secure and resilient.

### Reading the Market's Mood with Sentiment Analysis with AI

Sentiment analysis powered by Artificial Intelligence (AI) has become a powerful tool for understanding the “mood” of financial markets. By using techniques from Natural Language Processing and Machine Learning, AI systems can analyze large volumes of unstructured data such as news articles, earnings reports, and social media posts to determine whether market sentiment is positive, negative, or neutral.

This approach is particularly valuable in Behavioral Finance, where investor emotions and perceptions significantly influence price movements. For example, a surge in positive news about a company may boost investor confidence, leading to higher stock prices, while negative sentiment can trigger sell-offs. AI models can quantify these emotional signals and integrate them into trading or investment strategies.

One key advantage of AI-driven sentiment analysis is speed and scale. It can process thousands of data points in real time, allowing investors to respond quickly to changing market conditions. Additionally, it helps uncover subtle trends that may not be visible through traditional financial analysis.

However, challenges such as sarcasm in text, data reliability, and algorithmic bias can affect accuracy. Despite these limitations, AI-based sentiment analysis is increasingly shaping modern investment decisions by providing deeper insights into market psychology and improving predictive capabilities.

### What Are the Downsides?

AI isn't perfect. Some models are so complex they become “black boxes” even the people who built them don't fully understand how they make decisions. And if AI systems are trained on outdated or limited data, they can make bad predictions when markets change unexpectedly.

Also, over-reliance on automation can introduce new types of risks, especially if multiple systems behave similarly during market stress.

### The Future of Investing is AI-Powered

AI is making stock market investing faster, smarter, and more personalized. Whether you're a professional trader or someone just getting started,

AI is helping people make better-informed decisions and manage their investments more effectively.

As the technology evolves, AI won't just support investing; it will reshape it. The future of finance is already here, and it's powered by algorithms, data, and smart machines.

### How are Cost Accountants placed in an AI era?

The use of Artificial Intelligence (AI) significantly enhances the role of cost accountants in financial markets and investor behaviour, transforming them from internal cost analysts into data-driven contributors to market-relevant insights. AI enables cost accountants to integrate firm-level cost structures with broader financial market signals, thereby linking micro-level efficiency with macro-level valuation. For instance, machine learning models can analyse cost trends, margin stability, and operational efficiency to generate forward-looking indicators crucial to equity valuation and derivatives pricing. This becomes particularly relevant in investor sentiment research, where AI-powered natural language processing (NLP) tools can assess earnings call transcripts, management commentary, and news sentiment, enabling cost accountants to interpret how internal cost dynamics influence market perceptions and expectations. By combining structured accounting data with unstructured sentiment data, AI facilitates a more nuanced understanding of how information asymmetry and behavioural biases affect asset pricing.

Furthermore, AI strengthens the predictive capabilities of cost accountants by enabling advanced forecasting of costs, demand, and profitability, which are critical inputs in financial modelling and valuation frameworks used in capital markets. These predictive insights can improve the accuracy of discounted cash flow models and support better estimation of risk premia in derivative instruments, aligning closely with emerging research on sentiment-driven mispricing. In addition, AI enhances real-time analytics, allowing cost accountants to provide continuous updates on cost efficiency and financial performance, which can influence high-frequency trading signals and short-term market movements. This positions cost accountants as valuable contributors to investment research teams, particularly in analysing whether cost shocks or efficiency improvements are already priced into

the market.

However, the integration of AI into cost accounting within financial markets also raises concerns regarding model risk, data bias, and interpretability, as AI-generated insights may not always capture structural breaks or irrational market behaviour. Moreover, regulatory frameworks, such as those governed by the Securities and Exchange Board of India, restrict the extent to which non-registered professionals can directly provide investment advice, thereby confining the role of cost accountants to analytical and support functions rather than primary advisory roles. Professional standards advocated by the Institute of Cost Accountants of India further emphasise ethical responsibility, transparency, and professional competence in the use of advanced technologies.

In conclusion, AI enables cost accountants to bridge the gap between internal financial analysis and external market dynamics by integrating cost data, predictive analytics, and sentiment analysis into a unified framework relevant for financial markets. This evolution aligns closely with contemporary research on investor sentiment and market efficiency, where firm-specific cost information, when processed through AI tools, can serve as a valuable signal in understanding pricing anomalies and behavioural biases. While cost accountants are not yet primary investment advisors, their AI-enhanced analytical capabilities position them as important intermediaries in the increasingly data-intensive ecosystem of modern financial markets. MA

### References

1. Maheshwari, H., Samantaray, A. K., Sandhu, K., & Panigrahi, R. R. (2025). *Insight over instinct: AI's role in rationalizing investment decisions*. *International Journal of Accounting and Information Management*, 33(4), 672–692. doi:10.1108/ijaim-12-2024-0455
2. Mertzanis, C. (2025). *Artificial intelligence and investment management: Structure, strategy, and governance*. *International Review of Financial Analysis*, 107(104599), 104599. doi:10.1016/j.irfa.2025.104599
3. Niszczoła, P., & Abbas, S. (2023). *GPT has become financially literate: Insights from financial literacy tests of GPT and a preliminary test of how people use it as a source of advice*. *Finance Research Letters*, 58(104333), 104333. doi:10.1016/j.frl.2023.104333
4. Pak, T.-Y. (2026). *How individuals use generative AI for personal financial management*. *Journal of Behavioral and Experimental Finance*, 49(101145), 101145. doi:10.1016/j.jbef.2026.101145

# CUSTOMER-CENTRIC BANKING: TRENDS, PRACTICES AND CHALLENGES IN INDIA

## Abstract

Innovation has triggered rapid digital transformation in almost every sphere of industry, including financial services. Of late digital transformation and changing expectations of new breed customers have induced a shift in core processing, prodding financial institutions to shift focus from core features and products towards creating delightful customer experiences. Customer-centric banking seeks to understand customers' actual needs, preferences and priorities instead of restricting customers to choose from a fixed menu of services offered by the bank. Under this approach through innovative banking leveraging the evolving digital technologies banks would attempt personalisation and customisation of banking services, to cater to the specific needs and preferences of new breed customers. This article attempts to highlight the emerging trends, practices, challenges and issues involved in this process and the way forward.

## Introduction

Customer-centric banking strategy or approach seeks to understand what customers actually need, their preferences and priorities rather than compelling customers to choose from a fixed menu of services offered by the bank. The objective here is to innovate banking products, services, and experiences to cater to the specific needs and preferences of new breed customers. In this framework the banks need to actively listen to their customers with ears close to the ground. Bank may use various available feedback channels to capture the data/information on revealed consumer



### Biplab Chakraborty

General Manager (Retd.)

Reserve Bank of India

Kolkata

[biplabchakraborty@yahoo.com](mailto:biplabchakraborty@yahoo.com)

behaviour and their changing preferences and choices by extraction of meaningful information on nuanced predictive insights to build up deep multi-dimensional insight into customers motivation, behaviour and emotional landscape, using advanced data and business analytics. Intent of this exercise is to roll out a bespoke, transparent, and trustworthy banking experience across the entire service delivery topology, be it in-branch, online, via mobile and anywhere and everywhere. Customer centric banks make earnest efforts to enhance loyalty and promote holistic wellbeing of the clients and in the process accrue a comparative advantage in the competitive market environment.

In a customer-centric business model customers are at the pivot of every point of interface viz., design, marketing, sales, product development, and support. While the legacy models are focused on short-term revenue and/or product features, in a customer-centric model the emphasis shifts to building of trust based long-term associations through enhancement of assured and dependable incremental value dispensation. It calls for a shift in paradigm. The following cardinal points need be kept in mind in this regard. Capturing and using of data and feedback to precisely appreciate the customer journey and related experiences of discomforts latent or apparent, inherent therein

1. To enhance cross-functional collaboration, teams may be aligned appropriately across departments to serve the customer better.
2. With a view to giving a touch of personalisation each customer in each service may be treated as special by reengineering the outcome experiences and communications to effectively cater to the individual customer needs.
3. The customer service team must be empowered with requisite tools and authorities for quick and proactive resolution of emerging issue.

### Relevance of customer centric approach in Indian banking scenario

India is a country of large population representing one of the largest consumer markets in the world. However, it has wide regional diversities. There persists glaring diversity in income, education, culture, and lifestyle. Therefore, Indian consumers' choices, preferences and expectations vary widely across regions and demographics. Rapid increase in use of smartphones, increasingly better internet access, and spectacularly expanding digital payment systems both in terms of transactions volumes and values have made Indian consumers more conversant, demanding, and decisive in switching brands in quest of better value and service. Due to structural changes in banking in the midst of rapid digital transformation the bank customers' needs and expectation have under gone a sea change. In this milieu today's Indian customers look for faster, seamless, and personalized banking services comparable to those offered by fintech firms and digital platforms. Delays, complex procedures, and insipid services may quickly result in disappointment and consequent triggering of switching behaviour.

Indian banking terrain witnesses intensified business competition with the entry of private banks, small finance banks, payment banks, NBFCs, and fintech companies. Adoption of customer-centricity approach would enable banks to differentiate themselves in terms of delivery of superior service quality rather than only pricing or product range.

For catering to the varied needs and preferences of

highly diverse Indian population in terms of income, literacy, geography, demography and digital access, it is only a customer-centric approach that would enable banks to design appropriate products and services and delivery channels to effectively cater to the specific needs of respective population segments viz., rural customers, MSMEs, senior citizens, and first-time digital users.

With UPI, mobile banking, AI-driven services, and data analytics, banks are in a position to better understand customer preferences, needs and behaviours. Customer-centric banking paradigm envisages leveraging of technology to enhance convenience, security, and services rather than merely automating the internal processes.

Indian regulators have been exhorting increasing emphasis on customer protection, fair practices, grievance redressal, and transparency. A customer-centric culture helps banks comply with regulatory expectations while building trust and credibility. Banking business is fundamentally trust-based. Customer-centric approach would lead to improvements in transparency, communication, and service consistency, and concomitantly enable inculcation of stronger long-term relationships with clients and higher customer lifetime value.

Satisfied customers, who are more likely to remain loyal, use multiple products, and recommend the bank to others, indeed constitute block of intangible assets for the bank which tends to reduce customer acquisition costs and enhance sustainable profitability.

Thus, in the Indian context, customer-centric banking is not merely a service philosophy but a strategic imperative. Banks that can align products, processes, technology, and culture around customer needs, are better positioned to achieve greater financial inclusion, better regulatory compliance, significant competitive advantage, and sustained long-term growth.

### Elements of Customer Experience in Banking

*Customer Experience is the resultant impact of all direct and indirect interfaces between a customer and a bank, which tend to configure the customer's emotions, satisfaction, trust, and loyalty. The key elements of customer's experience may be enumerated as below;*

- ⊙ Ease and convenience of service
- ⊙ Quality and consistency of interactions
- ⊙ Emotional connection and trust
- ⊙ Responsiveness and problem resolution
- ⊙ Personalization and value delivery

It may be pointed out that in banking and financial services customer experiences are critical as products are often similar across banks. Trust and reliability matter the most. Therefore, service quality turns out to be the main differentiator.

### **Traditional vs modern customer experience**

While traditional customer *experiences are* about “serving customers” *Modern customer experiences* are about “delighting customers” Traditional banking involves visiting a branch, filling forms, waiting in queue within limited-service hours. In modern banking accounts may be opened online. KYC formalities could be completed instantly. There would be personalised offers and services with 24/7 support and quicker grievance redressal.

### **Trends in Customer-Centric Banking in India**

#### **i) Digital banking and mobile-first approach**

Digital banking envisages delivery of banking services using electronic channels viz., mobile apps, internet banking, UPI platforms, and APIs, providing customers access to financial services anytime and anywhere reducing dependency on physical branches, speeding up transactions, and resultantly enhancing operational efficiency. In mobile-first approach smartphones are in focus of banking strategy in designing products and services primarily for mobile users. Mobile penetration is high in India and therefore this approach has transformed banking through instant payments, account opening via e-KYC, personalized alerts, and seamless integration with daily life apps. Digital banking and mobile-first approach have greatly improved customer convenience, promoted financial inclusion, lowered transaction costs. It has been supporting banks to stay competitive in a fast-evolving financial ecosystem.

#### **ii) UPI and instant payment systems**

UPI and other instant payment systems facilitate mobile device based real-time transfer of funds

between bank accounts 24×7 dispensing with the needs for traditional details like account numbers and IFSC codes, relying instead on simple identifiers such as mobile numbers, QR codes, or UPI IDs. These systems have transformed digital payments by making transactions fast, secure, and low-cost. In India, UPI has popularised less cash approach among individuals, small merchants, and large businesses. Instant payments with reduced dependency on cash, tend to increase speed, volumes and ease of doing business besides improving liquidity.

#### **iii) AI and chatbots for customer support**

Artificial Intelligence (AI) and chatbots are transforming customer support in banking by providing instant, round-the-clock assistance. They can handle routine queries such as balance checks, transaction status, card blocking, account information, and FAQs without human intervention. By using machine learning and natural language processing, chatbots understand customer intent and provide personalized, accurate responses. This improves response time, reduces operational costs, and enhances customer satisfaction. AI-driven support also allows human staff to focus on complex and high-value customer issues, making banking services more efficient and customer-centric.

#### **iv) Omnichannel banking (branch, mobile, internet, call centres)**

Omnichannel banking integrates all customer touchpoints—branches, mobile apps, internet banking, and call centres—into a single, seamless experience. Customers can start a transaction on one channel and complete it on another without any disruption or repetition of information. This approach ensures consistency in service quality, real-time data synchronization, and personalized customer interactions across all platforms. Omnichannel banking enhances convenience, builds trust, and improves customer satisfaction by giving customers the flexibility to choose their preferred channel while enjoying a unified and efficient banking experience.

#### **v) Personalization of services using data analytics**

Personalization using data analytics involves

analysing customer data such as transaction history, spending patterns, preferences, and behaviour to offer tailored banking products and services. Banks can provide customized offers, appropriate product recommendations, timely financial advice, and personalized alerts. This approach improves customer engagement and satisfaction by making interactions more relevant and meaningful. It also helps banks to enlarge cross-selling opportunities, manage risks better, and build stronger long-term relationships with customers through a more customer-centric banking experience.

#### vi) Paperless and contactless banking services

Paperless and contactless banking services involve use of digital processes to complete transactions and customer onboarding dispensing with submission of physical documents or face-to-face interaction. Services viz., e-KYC, digital signatures, online account opening, and electronic statements are paperless and involve shorter processing time. Contactless technologies such as NFC cards, QR code payments, and UPI enable quick and safe transactions without physical contact. These services enhance convenience, improve operational efficiency, reduce environmental impact, and support safer banking, especially in situations requiring minimal physical interaction.

### Role of Technology in Enhancing Customer Experience

#### ⊙ Artificial Intelligence and Machine Learning

Artificial Intelligence (AI) and Machine Learning (ML) have been changing customer experience by making service bouquets much smarter, speedier and more personalized. Their value added impacts are discernible across the entire gamut of customer journey in regard to several service attributes. For example services are more personalized than before with 24×7 Intelligent Support. The customer needs are predicted and acted upon. Customer problems as and when arising are being resolved quicker than before. Fraud Detection has become quicker and Security measure are heightened. Dispensation of cost

effective services of consistent quality have become seamless. Automation of Routine Tasks empowers the customers to their delight. Thus, AI and ML have reconfigured the customer experience from being reactive to proactive, from generic to personalized, and from slow to instant, making them powerful tools for building customer loyalty.

#### ⊙ Big data and analytics

Big Data and Analytics convert large volumes of customer data into meaningful insights and actionable strategies. Big Data and Analytics support organizations to tread from hitherto intuition-based decisions to insight-driven strategies, enabling personalized, proactive, and high-quality customer experiences.

#### ⊙ Cloud computing

Cloud computing improves customer experience by making services more scalable, faster, reliable, and innovative. It provides the technological spine for many modern, customer-centric digital services. Cloud computing tend to enhance organizational agility, responsiveness, and innovativeness on which is built the foundation for delivering seamless, personalized, and reliable customer experiences.

#### ⊙ Cybersecurity tools

Trust and safety are central to customer experience. Therefore cybersecurity tools forms a core pillar of a customer-centric approach. A sense secured feeling prompts the customers to engage more confidently with digital. Cybersecurity is not just about protection; it is about enabling a safe, reliable, and worry-free experience that strengthens long-term customer relationships.

#### ⊙ Automation and process digitization

Automation and process digitization make services faster, more accurate, and more convenient for customers. In customer service, automation and digitization transform operations from slow and manual to fast, transparent, and customer-friendly, significantly improving overall satisfaction and loyalty.

### Benefits of Customer-Centric Banking

- ⊙ Improved customer satisfaction and loyalty
- ⊙ Higher customer retention
- ⊙ Competitive advantage for banks
- ⊙ Increased operational efficiency
- ⊙ Better brand image

### Challenges in Implementing Customer-Centric Banking in India

#### ⊙ Digital divide: Spatial & demographic

Persisting digital divide across regions and demographics pose major challenges in implementing customer-centric banking in India. Urban and younger customers are quick in adopting mobile banking, UPI, and app-based services. But, a large segment of rural populations faces constraints like poor internet connectivity, low smartphone penetration. Inadequate digital literacy among ageing customers also tends to slow down the process of adoption of digital channels of banking. Language barriers, accessibility issues, and fear of digital fraud further dampen adoption. In this backdrop while the banks have been increasingly shifting services to digital channels, there is possibility of these segments being stragglers. Bridging this divide would need inclusive design, assisted digital banking, vernacular interfaces, and continued support through physical branches and human touchpoints.

#### ⊙ Cybersecurity and data privacy issues

With the intensification of focus on digital and data-driven customer engagement, cybersecurity and data privacy have been posing critical challenges to customer-centric banking. The increasing incidence of phishing, identity theft, and digital fraud would tend to undermine customer trust, particularly the first-time and vulnerable users. Besides, extensive use of customer data that would be involved in the process of intense personalization, would give rise to issues and concerns around consent, data misuse, and compliance with evolving data-protection regulations. Any breach or service disruption has the potential to significantly damage a bank's reputation and

erode customer confidence. Therefore, banks need put in place robust cybersecurity systems, effective continuous monitoring frameworks, effective authentication mechanisms, and transparent data-governance practices and balance innovation with trust and customer protection.

#### ⊙ Low digital literacy

Low levels of digital literacy is a persistent and significant barrier to effective customer-centric banking in India. Many customers particularly the senior citizens, and first-time digital users, find it difficult to understand and attain proficiency in using mobile and banking applications and online transactions. These weaknesses often trigger errors, transaction failures which entail dependency on intermediaries, and heighten vulnerability to fraud, thereby tend to weaken the confidence in digital banking channels. These impeded effective adoption of customer-centric digital solutions resulting in increased service and grievance-handling costs. Addressing these issues and challenges calls for sustained financial and digital literacy initiatives, user-friendly and intuitive interfaces, multilingual support, and assisted banking models that empower customers to engage safely and independently with digital financial services.

#### ⊙ Resistance to change posed by customers and staff

Resistance to change is a key challenge in implementing customer-centric banking in India, affecting both customers and bank employees. Many customers, especially older and long-standing account holders, prefer traditional branch-based interactions and are hesitant to trust digital channels or automated services. Similarly, bank staff may resist new technologies, process reengineering, or performance metrics focused on customer experience, due to the fear of redundancy, increased workload, or lack of adequate training. This dual resistance can slow down digital adoption and dilute the effectiveness of customer-centric initiatives. Overcoming this challenge requires structured

change-management strategies, continuous training and upskilling, clear communication of benefits, and incentives that align employee performance with improved customer outcomes.

### ⦿ Infrastructure and connectivity issues

The internet connection is unreliable or uneven in remote rural areas and in the last line. It works well sometimes and poorly (or not at all) at other times. Low bandwidth and frequent power outage and limited availability of reliable digital infrastructure often disrupt online and mobile banking services, leading to transaction failures and poor customer experience. These issues impair the effectiveness of digital-first strategies and reduce customer confidence in technology-enabled banking. All these entail higher service costs and operational inefficiencies.

### ⦿ Regulatory and compliance constraints

Adherence to stringent regulatory norms related to KYC, AML, data protection, consumer protection, and risk management may tend to limit flexibility in designing personalized and frictionless customer journeys. Frequent regulatory changes and reporting obligations also add to operational complexity and costs, and may slow down innovation and digital rollouts. Therefore, a fine balance need be maintained between regulatory compliance and customer-centric innovation by putting in place a robust compliance framework and through proactive engagement with regulators.

### Future scenario of Customer-Centric Banking in India

By 2030, a larger part of day-to-day banking would be put through digital channels instead of physical branches which would then cease to be transaction points. However, the branches will be functioning more as advisory and complex-service hubs. In the coming decades AI will mechanize routine tasks and also enrich the qualities of human-assisted services enabling banks to customise their services catering to individual customers' needs and preferences. Financial services will get greatly democratized and would be more competitive and customized. Inclusive

digital banking will reconfigure and upgrade the scenario of rural participation in economic activities promoting small business growth, financial planning, and infuse greater confidence in formal finance. Security and transparent customer governance will be vital pillars especially as personalised, digital services expand. In the emerging digital era of customer centric approach banking will be having more human face, empathetic, and relationship-driven instead of being cold, mechanical, or purely transactional.

### Conclusion

Customer-centric banking in India has been undergoing the process of transformation through rapid digitalization, data-driven personalization, and a strong push toward financial inclusion. AI-enabled service delivery, omnichannel engagement, and embedded finance are redrawing the contours of banks' interface with customers with best practices focus on convenience, transparency, and trust. However, there are challenges posed by the legacy systems, increasing customer grievances/complaints and accentuating cybersecurity risks. In this milieu balancing of innovation with regulatory compliance would continue to test the sector. Meeting effectively the emerging challenges would require both technological investment and cultural transformation within banks. Indian banks that would be able to successfully integrate customer perceptions with resilient systems and deliver responsive governance will be better positioned to boost customer satisfaction, reinforce trust, and attain sustainable growth in the emerging increasingly competitive financial eco system. **MA**

### References

1. *CUSTOMER-CENTRIC BANKING: A STUDY OF SATISFACTION AND SERVICE DELIVERY AT CAPITAL SMALL FINANCE BANK* by : Sujitha.S , Thaarani.S , Sandhya.S , Dr.Kahkasha Safi,
2. *Role Of Digital Transformation In Enhancing Customer Experience In Banking Sector: Drivers, Critical Success Factors And Challenges* By : Dr. Rashmi K R , Mr. Arun Raj K
3. *A Study on Customer Relationship Management in Banking Sector* By: Dr. Ajay Verma , Dr. Atul Gupta , Mr. Tarun Sharma
4. *Banking on customer centricity: McKinsey &Company.*

# INTEGRATED CLOUD ERP SYSTEMS AND COST TRANSPARENCY: AN EMPIRICAL INVESTIGATION INTO ADOPTION, BENEFITS, AND INTEGRATION ISSUES AMONG INDIAN ENTERPRISES

## Abstract

This empirical study investigates how integrated cloud ERP systems enhance cost transparency in Indian enterprises, focusing on adoption levels, perceived benefits, and ease of integration. Drawing on primary data from a structured questionnaire administered to cost accountants, finance and ERP professionals, the research employs PLS-SEM to test relationships mediated by perceived information quality and timeliness. Results reveal strong support for all hypotheses: perceived benefits exert the strongest influence on information quality ( $\beta = 0.588, p < 0.001$ ), followed by ease of integration ( $\beta = 0.278, p < 0.001$ ) and adoption level ( $\beta = 0.077, p = 0.026$ ). Information quality significantly mediates the path to cost transparency (explaining 28.5% variance in the outcome). The study highlights cloud ERP's strategic role in improving real-time cost visibility and decision-making. These findings offer practical insights for Indian organizations and cost management professionals adopting digital tools for sustainable cost efficiency in FY 2026–27.

## Introduction

The evolution of Enterprise Resource Planning systems has significantly transformed organizational operations, enabling integrated management of core business processes across various departments



**Dr. Amit Kumar Nag**

Professor (Finance)

BSSS Institute of Advanced Studies (BSSS IAS)

Bhopal

[amitnag148@gmail.com](mailto:amitnag148@gmail.com)

(Ghosh & Biswas, 2016). Initially adopted by large corporations, these systems consolidated information and streamlined workflows, although with substantial on-premise infrastructure investments and associated maintenance complexities (Lee et al., 2024). The arrival of cloud computing, however, introduced a paradigm shift, offering Cloud ERP solutions that mitigate these traditional challenges through enhanced scalability, flexibility, and reduced total cost of ownership (Lee et al., 2024). This evolution allows organizations to access robust ERP functionalities as a service, thereby eliminating the need for extensive in-house IT infrastructure and personnel (Gupta et al., 2018). This accessibility has democratized access to sophisticated ERP capabilities, particularly benefiting small and medium-sized enterprises that previously found traditional ERP systems prohibitively expensive (Zadeh et al., 2018). The inherent agility of cloud-based platforms facilitates rapid deployment and continuous updates, ensuring businesses remain competitive in dynamic market environments (Basu et al., 2023). Cloud ERP

systems deliver advantages including real-time process integration, improved visibility and control, higher productivity, reduced personnel costs, online data access, better decision-making, and overall cost-efficiency (Chirvase & Zamfir, 2023; Gupta et al., 2018; Thompson, 2025). Despite these advantages, empirical evidence on actual benefits, particularly cost transparency, remains limited in Indian enterprises. While general literature covers Cloud ERP adoption drivers (Jha et al., 2022; Johansson et al., 2015), the mediated impact of information quality and timeliness on cost transparency in India's unique socio-economic context is underexplored (Albarrak et al., 2024; Fasileem & Rajapakse, 2022). This study bridges this gap by empirically examining how Cloud ERP adoption levels, perceived benefits, and ease of integration enhance perceived cost of transparency via improved information quality and timeliness.

### Objectives of the Study

This study aims to:

- i. Examine the adoption level of integrated cloud ERP systems in Indian enterprises.
- ii. Assess the perceived benefits of cloud ERP for cost management.
- iii. Evaluate the ease of integrating cloud ERP with existing systems.
- iv. Investigate how information quality mediates the link between cloud ERP factors and cost transparency.
- v. Determine the overall effect of cloud ERP on cost transparency.

### Conceptual Framework

The conceptual framework shows how Cloud ERP Adoption Level, Perceived Benefits of Cloud ERP, and Perceived Ease of Integration positively influence Perceived Information Quality and Timeliness (the mediator), which then leads to higher Perceived Cost of Transparency in the Organization (the outcome). In other words, better adoption, stronger benefits, and smoother integration improve the quality and speed of cost-related information, ultimately making costs clearer and easier to understand across the organization. This model is inspired by the DeLone and McLean

Information Systems Success Model (2003), which stresses information quality as a key link between system use and organizational benefits, along with elements of the Technology Acceptance Model focusing on usefulness and ease of use.



Figure 1: Conceptual Framework

### Hypotheses of the Study

H1<sub>0</sub>: Cloud ERP adoption level has no positive effect on information quality and timeliness.

H1<sub>1</sub>: Cloud ERP adoption level positively affects information quality and timeliness.

H2<sub>0</sub>: Perceived benefits of cloud ERP have no positive effect on information quality and timeliness.

H2<sub>1</sub>: Perceived benefits of cloud ERP positively affect information quality and timeliness.

H3<sub>0</sub>: Perceived ease of integration has no positive effect on information quality and timeliness.

H3<sub>1</sub>: Perceived ease of integration positively affects information quality and timeliness.

H4<sub>0</sub>: Information quality and timeliness does not mediate the relationship between cloud ERP factors and cost transparency.

H4<sub>1</sub>: Information quality and timeliness mediates the relationship between cloud ERP factors and cost transparency.

### Methodology

This study used a quantitative cross-sectional survey design. Primary data were collected through an online structured questionnaire from 431 valid respondents (cost accountants, finance managers, and ERP professionals in Indian enterprises), using convenience and snowball sampling via CMAs networks, LinkedIn, and professional groups. The

sample size was determined using the Taro Yamane formula to ensure adequate representation and statistical reliability. The questionnaire included demographic questions and 25 five-point Likert-scale items measuring five reflective constructs, adapted from ERP and information systems success literature. Data were analyzed using PLS-SEM in SmartPLS 4 software. The measurement

model was evaluated for reliability (Cronbach's alpha and composite reliability) and convergent validity (AVE). Structural paths, significance (bootstrapping with 5000 subsamples),  $R^2$ , and mediation effects were assessed following Hair et al. (2022) guidelines. Participation was voluntary and anonymous.

### Confirmatory Composite Analysis

**Table 1: Reliability and Convergent Validity of Constructs (Confirmatory Composite Analysis)**

Variables and their indicators	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
<b>Cloud ERP Adoption Level (CERPAL):</b> <ol style="list-style-type: none"> <li>Our organization has widely adopted integrated cloud ERP modules.</li> <li>Cloud ERP covers most of our key business processes.</li> <li>Our organization has implemented cloud ERP across multiple departments.</li> <li>Cloud ERP adoption in our firm is at an advanced stage.</li> <li>Integrated cloud ERP is fully operational in our costing functions.</li> </ol>	0.844	0.851	0.896	0.682
<b>Perceived Benefits of Cloud ERP (PBCERP):</b> <ol style="list-style-type: none"> <li>Cloud ERP provides real-time cost data access.</li> <li>Cloud ERP improves cost reporting accuracy.</li> <li>Cloud ERP reduces overall cost management expenses.</li> <li>Cloud ERP enhances scalability for cost analysis.</li> <li>Cloud ERP boosts decision-making speed on costs.</li> </ol>	0.883	0.892	0.915	0.685
<b>Perceived Ease of Integration (PEOI):</b> <ol style="list-style-type: none"> <li>Integration of cloud ERP with our existing systems was straightforward.</li> <li>Our legacy systems integrated smoothly with the cloud ERP.</li> <li>Data migration to cloud ERP was easy and efficient.</li> <li>Customization and setup of cloud ERP faced minimal technical barriers.</li> <li>Overall, integration challenges with cloud ERP were low in our organization.</li> </ol>	0.912	0.941	0.933	0.736

<p><b>Perceived Information Quality and Timeliness (PIQT):</b></p> <ul style="list-style-type: none"> <li>i. Cloud ERP delivers accurate cost information.</li> <li>ii. Cost data in ERP is always timely.</li> <li>iii. ERP integrates cost data without errors.</li> <li>iv. Real-time cost updates are reliable.</li> <li>v. ERP provides complete and unified cost info.</li> </ul>	0.921	0.927	0.941	0.760
<p><b>Perceived Cost of Transparency in the Organization (PCTO):</b></p> <ul style="list-style-type: none"> <li>i. Cost data is fully visible across departments.</li> <li>ii. Management has clear insight into cost drivers.</li> <li>iii. Cost allocation is highly transparent now.</li> <li>iv. ERP has improved overall cost traceability.</li> <li>v. Stakeholders easily understand cost details.</li> </ul>	0.924	0.935	0.943	0.767

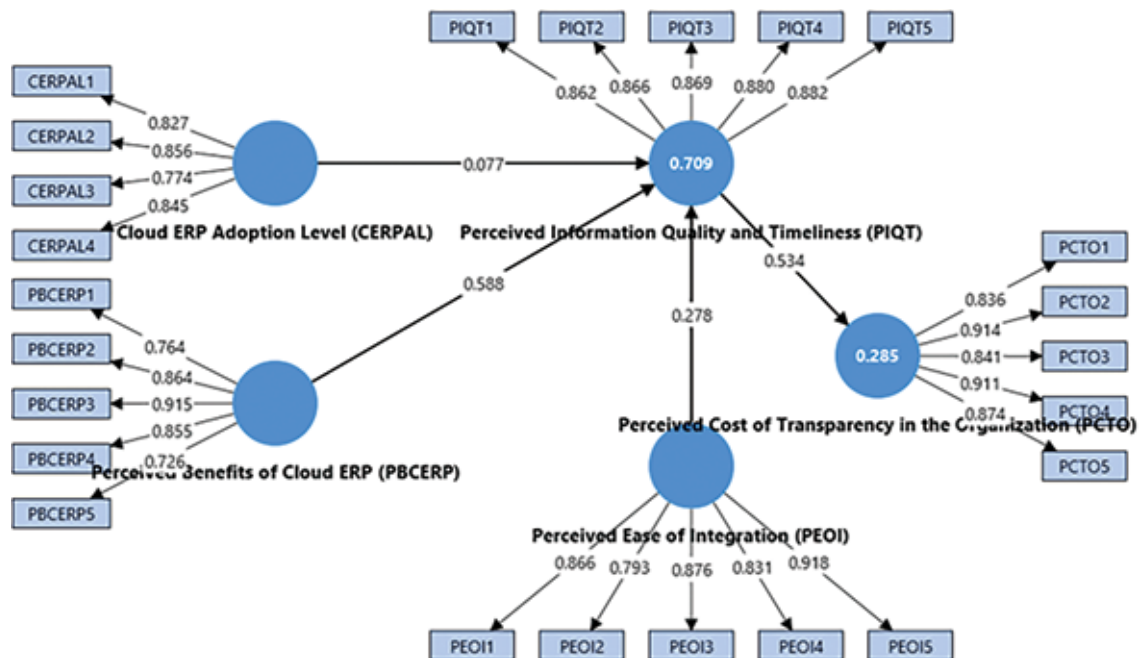


Figure 2: PLS Path Model

The Confirmatory Composite Analysis (CCA) results presented in the table indicate strong reliability and convergent validity for all five reflective constructs in the measurement model. Cronbach’s alpha values range from 0.844 to 0.924, well above the recommended threshold of 0.70. Composite reliability (rho\_a) ranges from 0.851 to 0.941, and composite reliability (rho\_c) from 0.896 to 0.943, both exceeding 0.70 (and staying below 0.95, avoiding potential redundancy concerns). Convergent validity is also established, as the Average Variance Extracted (AVE) values range from 0.682 to 0.767, all comfortably above the accepted threshold of 0.50. This means that, on average, each construct explains more than half

of the variance in its indicators, indicating that the items converge well on their intended constructs. This confirms that the questionnaire items effectively measure their respective latent variables (Cloud ERP Adoption Level, Perceived Benefits of Cloud ERP, Perceived Ease of Integration, Perceived Information Quality and Timeliness, and Perceived Cost of Transparency in the Organization), supporting the use of these scales for further structural model analysis.

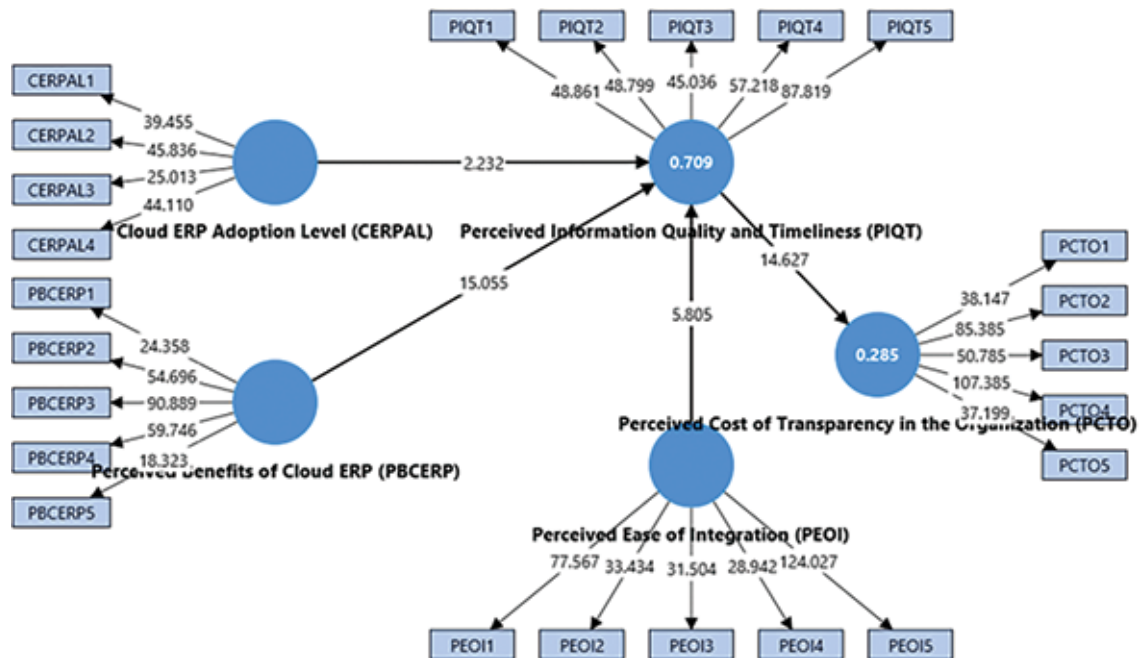


Figure 3: Hypothesis Testing Results: Path Coefficients, t-Statistics, and P-Values

Table 2: Hypothesis Testing Results

Hypotheses	Original sample (O)	T statistics ( O/STDEV )	P values	Supported
H1 <sub>0</sub> : Cloud ERP adoption level has no positive effect on information quality and timeliness.	0.077	2.232	0.026	Alternate Hypothesis Supported
H2 <sub>0</sub> : Perceived benefits of cloud ERP have no positive effect on information quality and timeliness.	0.588	15.055	0.000	Alternate Hypothesis Supported
H3 <sub>0</sub> : Perceived ease of integration has no positive effect on information quality and timeliness.	0.278	5.805	0.000	Alternate Hypothesis Supported
H4 <sub>0</sub> : Information quality and timeliness does not mediate the relationship between cloud ERP factors and cost transparency.	0.534	14.627	0.000	Alternate Hypothesis Supported

The structural model is robust, with the independent variables (Cloud ERP Adoption Level, Perceived Benefits of Cloud ERP, and Perceived Ease of Integration) explaining 70.9% of the variance in Perceived Information Quality and Timeliness ( $R^2 = 0.709$ ), indicating strong predictive power for the mediator, while explaining a moderate 28.5% of the variance in Perceived Cost of Transparency ( $R^2 = 0.285$ ) primarily through mediation. Path analysis strongly supports all alternate hypotheses: Cloud ERP Adoption Level positively affects information quality ( $\beta = 0.077$ ,  $p = 0.026$ ), Perceived Benefits shows the strongest

effect ( $\beta = 0.588$ ,  $p < 0.001$ ), Perceived Ease of Integration contributes significantly ( $\beta = 0.278$ ,  $p < 0.001$ ), and information quality substantially influences cost transparency ( $\beta = 0.534$ ,  $p < 0.001$ ), confirming H1–H4 with all paths significant at  $p < 0.05$ .

### Discussion

The results confirm that perceived benefits of cloud ERP exert the strongest influence on information quality and timeliness ( $\beta = 0.588$ ), aligning closely with Gupta et al. (2018), who highlighted how cloud ERP improves organizational performance through better visibility and efficiency. Ease of integration ( $\beta = 0.278$ ) and adoption level ( $\beta = 0.077$ ) also play meaningful roles, reinforcing the importance of smooth implementation for real-time cost data. For cost and management accountants in India, these findings emphasize the need to prioritize user-perceived benefits during ERP rollout to achieve higher cost transparency and support better strategic decision-making in the digital-driven FY 2026–27 environment. This ultimately supports India's push for digital economy and Viksit Bharat by 2047.

### Limitations and Future Research

This study has limitations as it relies on perceptual/self-reported data from a cross-sectional survey, which may include response bias and cannot establish causality over time. The convenience sampling through professional networks may limit generalizability. Future research could adopt longitudinal designs, objective cost metrics, or larger samples from diverse sectors to validate these findings and explore additional factors such as organizational culture or regulatory compliance in cloud ERP adoption.

### Conclusion

The findings demonstrate that integrated cloud ERP systems significantly enhance cost transparency in Indian enterprises, primarily through improved information quality and timeliness. Perceived benefits emerge as the dominant driver, followed by ease of integration and adoption level. These results highlight the strategic value of cloud ERP adoption for better cost visibility and informed decision-making, offering practical guidance

for cost accountants, finance professionals, and Indian organizations aiming to strengthen cost management in a digital era. **MA**

### References

1. Albarrak, H., Alotaibi, E., & Alnesafi, A. (2024). Measuring cloud information systems' effect on financial information quality using the information system success model: Evidence from Saudi Arabia. *Uncertain Supply Chain Management*, 12(4), 2825. <https://doi.org/10.5267/j.uscm.2024.4.019>
2. Basu, A., Dutta, S., & Jha, R. (2023). An innovative model on intention to adopt cloud-based ERP among SMEs. *International Journal of Intelligent Enterprise*, 11(1), 33. <https://doi.org/10.1504/ijie.2024.135440>
3. Chirvase, C.-S., & Zamfir, A. (2023). Exploring Enterprise Resource Planning (ERP) Development: Challenges, Opportunities and How Can Help Companies Navigate Turbulent Contemporary Times. *Proceedings of the ... International Conference on Business Excellence*, 17(1), 1919. <https://doi.org/10.2478/picbe-2023-0169>
4. Fasileem, M., & Rajapakse, B. (2022). Exploring Causes for Underutilization of the XYZ Cloud ERP System for Effective Strategic Decision-Making: A Case from ABC (Pvt.) Ltd.—Sri Lanka. *Open Journal of Business and Management*, 10(4), 1811. <https://doi.org/10.4236/ojbm.2022.104093>
5. Ghosh, I., & Biswas, S. (2016). A novel framework of ERP implementation in Indian SMEs: Kernel principal component analysis and intuitionistic Fuzzy TOPSIS driven approach. *Accounting*, 3(2), 107. <https://doi.org/10.5267/j.ac.2016.7.004>
6. Gupta, S., Kumar, S., Singh, S. K., Foropon, C., & Chandra, C. (2018). Role of cloud ERP on the performance of an organization. *The International Journal of Logistics Management*, 29(2), 659. <https://doi.org/10.1108/ijlm-07-2017-0192>
7. Jha, R., Dutta, S., & Basu, A. (2022). An innovative model on intention to adopt cloud-based ERP among SMEs. *International Journal of Intelligent Enterprise*, 1(1), 1. <https://doi.org/10.1504/ijie.2022.10047198>
8. Johansson, B., Alajbegovic, A., Alexopoulou, V., & Desalermos, A. (2015). Cloud ERP Adoption Opportunities and Concerns: The Role of Organizational Size. 4211. <https://doi.org/10.1109/hicss.2015.504>
9. Lee, C., Kim, H. F., & Lee, B. G. (2024). A Systematic Literature Review on the Strategic Shift to Cloud ERP: Leveraging Microservice Architecture and MSPs for Resilience and Agility. *Electronics*, 13(14), 2885. <https://doi.org/10.3390/electronics13142885>
10. Thompson, L. (2025). Cloud-Based Management Information Systems: A Paradigm Shift in Enterprise Resource Planning. *OTS Canadian Journal*, 4(6), 62. <https://doi.org/10.58840/c5hwq462>
11. William H. DeLone, & Ephraim R. McLean. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4), 9–30. <https://doi.org/10.1080/07421222.2003.11045748>
12. Zadeh, A. H., Akinyemi, B., Jeyaraj, A., & Zolbanin, H. M. (2018). Cloud ERP Systems for Small-and-Medium Enterprises. *Journal of Cases on Information Technology*, 20(4), 53. <https://doi.org/10.4018/jcit.2018100104>

# IMPACT OF STRATEGIC COST MANAGEMENT ON THE PROFITABILITY: AN EMPIRICAL ANALYSIS ON SELECT AUTOMOBILE COMPANIES IN INDIA

## Abstract

This article attempts to analyze the influence of Strategic Cost Management (SCM) on the profitability of the select automobile industry in India through a secondary data of ten largest companies in terms of market capitalization, listed on the NSE from the Financial Year 2020-21 to 2024-25. The analysis indicates five dimensions of SCM including the Target costing, Kaizen costing, Activity-Based Costing, Value Engineering, and Lean manufacturing. The findings of the study reveal that there is a positive relationship between SCM practices and profitability. It is important to note that value engineering and lean manufacturing have positive impact on profitability. The companies that are adopting SCM practices accounted for a net profit margin of 47% higher than the ones that have lower SCM. The paper concludes that SCM is essential towards attaining competitive advantage and sustainable profitability in a competitive and changing automobile industry in India, which provides viable strategies in cost optimization as part of enhancing its operational efficiency.



### CMA (Dr.) V R Sridhar

Cost Accountant

Madras Engineering Industries Pvt. Ltd.

Chennai

[sridhar4477@gmail.com](mailto:sridhar4477@gmail.com)

### Introduction

Indian automobile sector is one of the largest and fastest developing in the world, has a major impact on the GDP of the country, which provides over 37 million people with their jobs. The industry has been diverse in the last

ten years due to changes in technologies, consumer tastes, regulatory changes, and competition across the globe. Strategic Cost Management (SCM) has played a crucial role in this environment to differentiate the leaders in the market as cost structure to be aligned in the long-term goals as opposed to reducing costs in the short term. This strategy includes approaches such as Target Costing (TC), Kaizen, Activity-Based Costing, Value Engineering (VE) and Lean Manufacturing (LM), which are intended to maximize performance. Due to the nature of the industry, such as high capital intensity and complicated supply chains, managing costs is essential, particularly when the companies struggle with such changes as electric vehicle shifts and changing the prices of raw materials.

### Review of Literature

SCM and its effects on organization performance

is an area of major concern in the automobile industry where cost-related issues have significant influences on competitiveness and profitability. A study conducted by Hussain and Ali (2021) in the Pakistani automobile market reported a positive relationship of SCM and profitability of ROE ( $r = 0.78$ ) wherein the companies with high quality cost management practices realized a profitability that is 25% higher. Target costing and Kaizen costing were highlighted as important in product development and continuous improvement respectively.

Chen et al. (2022) discovered that cost management via value chain in the Chinese auto industry led to the growth of the overall costs by 18-22 percent and maintained the quality of the products and satisfied customers, which confirmed the importance of coordinating suppliers.

As Sharma and Gupta (2020) have shown, activity-based costing (ABC) has led to a 32-percent better allocation of costs and 12-15-percent better profitability, which indicates that resource allocation in the long-term is resourceful.

Nakamura et al. (2023) reported annual cost savings of 3-7 per cent. by Kaizen activities at Japanese automaker companies, indicating that firms with mature Kaizen cultures still had competitive profit margins.

Patel and Singh (2021) showed the effectiveness of a lean manufacturing implementation on the Indian component suppliers, lessening the manufacturing cycle time by 35 percent and enhancing operating profit margins by 18 percent.

Zhang and Wang (2024) also indicated that the application of target costing in the electric vehicle market in Asia has made the production cost 20-28 percent lower, which allows them to offer products with competitive pricing. Kumar et al. (2022) have noted that cost management patterns between Indian and Korean manufacturers are different, as the Korean manufacturers have higher returns on capital employed through the implementation of cost management because of their maturity in cost management practices and organizational commitment.

Desai and Mehta (2023) evaluated the value engineering as cost savings of between 12-18% and increased product functionality in the redesign

phases, and Thompson and Richards (2021) reported the supply chain cost management strategies to improve the gross profit margins by 8-12% through all global manufacturers.

Lastly, Agarwal et al. (2024) observed that digital transformation boosted the management of costs by 10-15 percent in terms of accuracy of forecasting and operational efficiency, which placed digital technologies at the center of next-generation strategic cost management.

## 1. Research Gap

Although there is a tremendous literature on Strategic Cost Manufacturing, yet there are still gaps exist in Indian automobile industry. The current literature concentrates on a single cost management strategy without evaluating an integrated framework or their respective impact on profitability. Most studies are pre-disruption studies such as prior to the most recent disruptions, such as COVID-19 and the emergence of electric vehicles (EV), leaving a gap in current empirical evidence of cost management and profitability relationships. The previous research was based on individual profitability measures without having a holistic approach to financial performance dimensions. Moreover, it has little large-scale empirical validation of multiple companies over a long period of time. The current study is expected to address these gaps by examining integrated SCM practices of select top ten automobile companies in India.

## Problem Statement

The Indian passenger segment industry is the fourth largest in the world, yet it manufactures more than 5.5 million cars in a year, but the profitability and sustainability remain very low. The net profit margins were poor and stood at 2-6 percent as opposed to global average of 7-10 percent, which reveals that the company needs improvement in its operations, the pricing power is pressured by the high costs of raw materials (60-70 percent of manufacturing) and the expensive nature due to electric vehicle transition. The cost management is further complicated with regulatory compliance and supply chain disruptions. Most companies are using costing techniques that are old and non-conformable

with the current market forces, thus resulting in reduced profitability and resilience. There is inadequate knowledge regarding the usefulness of different cost management practices, and this hinders the use of evidence-based decision-making in industry.

### Research Questions:

This paper answer four research questions related to SCM in the Indian auto firms.

**RQ1:** Examines the relationship of level of SCM implementation with level of profitability performance as indicated by Net Profit Margin, Operating Profit Margin and the use of Capital Employed.

**RQ2:** Finds out what practices have close relationships with the increase in profitability.

**RQ3:** Focused on the study of whether the profitability of the companies with greater SCM implementation is markedly superior to the profitability of the companies with less effective implementation.

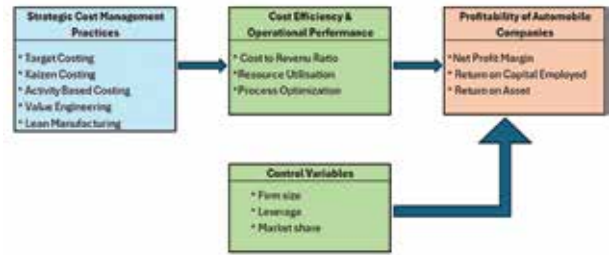
**RQ4:** Investigates how SCM practices mediate the correlation between SCM practices and financial profitability in the industry through operational efficiency measures.

### Research Objectives

- ⊙ To examine the correlation between SCM index and profitability measures of Indian automobile companies.
- ⊙ To compare individual and group effect of the dimensions of strategic cost management.
- ⊙ To draw a comparison between the profitability variance of automobile companies that have high SCM adoption.
- ⊙ To establish the mediating effect of the operational efficiency indicators on the connection between the SCM practices and the profitability.

### Conceptual Framework

The paper suggests a theory to explain the interrelations between SCM practices, operational efficiency indicators, and profitability indicators of Indian car firms.



**Figure 1: Conceptual Framework: SCM and Profitability Relationship**

It recognizes the independent variables, and the mediating variables dwell on the operational efficiency indicators including Asset Turnover Ratio, Inventory Turnover Ratio and Return On Asset. Net Profit Margin, Operating Profit Margin, Gross Profit Margin, and Return On Capital Employed are the profitability indicators. The control variables include the size of the company, market segment and the years of operation. The framework is that proper SCM increases profitability in a direct and in an indirect manner by increasing operational efficiency and enables companies to have better cost structures and operating capabilities than their competitors who may have less developed cost management practices.

### Research Methodology

In this study, the analytical research design is used whereby the analytical design is quantitative research design aimed at studying the relationship between SCM practices and profitability of Indian automotive companies with significant players listed in the NSE. The sample consists of select ten automobile companies in terms of market capitalization, and they represent various segments including passenger and commercial vehicles, and auto parts. The proposed research has been conducted for the period from Financial Year 2020 to 2025 to observe the recent changes in the industry because of the pandemic and changes in the regulation. The annual reports and financial statements are used to source data and SCM measured by proxy indicators with different dimensions such as target costing and lean manufacturing rated with 1-10. It assumes four hypotheses on positive associations between SCM and profitability such as Net Profit Margin

(NPM). “Statistical methods include descriptive statistics, correlation and regression analysis, where the tests have a level of significance of  $\alpha = 0.05$ ”.

**Limitations of the Study**

The Strategic Cost Management practices are measured with the help of proxy indicators as the detailed disclosures of the practices are not generally provided by the companies. The study is based on secondary sources of data on select automobile sector but there are other sectors like Pharmaceuticals, IT, Manufacturing etc. which are open for further research.

**Analysis and Interpretation**

**1. Descriptive Statistics**

Descriptive statistics of key variables consist of top 10 automobile companies with a span of five financial years between 2020 and 2025 are presented in Table 1.

Variable	Mean	Std. Dev.	Minimum	Maximum
Revenue (₹ Crores)	1,03,390.64	46,563.21	27,905.46	1,95,386.50
Total Costs (₹ Crores)	99,324.34	44,349.82	25,532.12	1,89,380.96
Net Profit (₹ Crores)	3,455.22	5,330.76	-8,263.70	20,972.30
Net Profit Margin (%)	2.97	4.62	-7.22	11.54
Operating Profit Margin (%)	3.12	4.65	-7.01	11.82
Gross Profit Margin (%)	17.45	5.83	6.28	29.76
SCM Index (1-10 scale)	6.76	0.50	5.42	7.69
Target Costing Score	6.89	0.95	5.01	8.94
Kaizen Costing Score	6.15	1.12	4.03	8.82
ABC Implementation	6.48	0.92	4.57	8.25
Value Engineering Score	6.87	1.05	5.01	9.00
Lean Manufacturing Score	7.43	0.88	6.01	9.41
Asset Turnover Ratio	1.68	0.45	0.82	2.49
Inventory Turnover Ratio	9.24	2.31	6.06	14.89
Return on Capital Employed (%)	15.87	4.68	8.78	24.76
Return on Assets (%)	7.91	3.24	3.04	14.52

**Table 1: Descriptive of Key Variables**

The analysis shows that there was a high dispersion in the level of profitability and control of costs in the companies with an average net profit margin of 2.97 with a standard deviation of 4.62. This implies variation in the results of profitability, which are between -7.22 to more than 11. The SCM Index with 6.76 mean and 0.50 standard deviation depicts the levels of cost management sophistication. Lean manufacturing obtains higher implementation scores (7.43), value engineering and target costing scores (6.87 and 6.89) are higher, and Kaizen costing ranks lower, indicating the necessity of improvement of the continuous cost reduction policies. The standard deviations are moderate, indicating that companies are not competitive in implementing these cost management practices.

**2. Correlation Analysis**

Pearson correlation analysis examines linear relationships between SCM dimensions and profitability indicators. Results are presented in Table 2.

Variable	Net Profit Margin (NPM)	Operating Profit Margin (OPM)	Gross Profit Margin (GPM)	Return On Capital Employed (ROCE)	Return On Assets (ROA)
SCM Index	0.177*	0.175*	0.150	0.111	-0.002
Target Costing	0.098	0.095	0.082	0.071	-0.045
Kaizen Costing	0.145	0.143	0.112	0.089	0.034
ABC Implementation	0.089	0.087	0.075	0.056	-0.018
Value Engineering	0.186*	0.184*	0.159*	0.128	0.042
Lean Manufacturing	0.164*	0.162*	0.138	0.105	0.028
Asset Turnover	0.223**	0.221**	0.189*	0.167*	0.112
Inventory Turnover	0.134	0.132	0.108	0.092	0.067

**Table 2: Correlation Matrix: SCM Dimensions and Profitability Indicators**

The analysis the above table reveal that SCM does have an impact on profitability measures, as it has significant correlation with net profit margin ( $r = 0.177, p < 0.10$ ) and operating profit margin ( $r = 0.175, p < 0.10$ ). Value engineering demonstrates the greatest relationship with profitability among SCM dimensions, which means it is effective in the reduction of costs and value addition. Profitability measures are also positive to lean manufacturing, which means that lean manufacturing is more efficient. In addition, asset turnover ratio has more correlations with profitability as compared to SCM dimensions, which highlights the significance of operational efficiency in financial performance.

### 3. Regression Analysis

#### 3.1 Simple Linear Regression: SCM Index on Net Profit Margin

Simple linear regression was carried out to determine the change in Net Profit Margin because of SCM Index. Table 3 provides the results.

Model	Co-eff	SE	t	Sig
Constant	-8.112	3.425	-2.369	0.022
SCM Index	1.639	0.504	3.252	0.002**

$R^2 = 0.031, \text{Adjusted } R^2 = 0.021, F = 10.576, p = 0.002$

**Table 3: Simple Linear Regression: SCM Index on Net Profit Margin**

The regression equation shows that an increase in SCM Index by one unit would result in a 1.639 percentage point increase in NPM, which is statistically significant ( $t = 3.252, p = 0.002$ ). The low value of  $R^2$ , however, indicates that SCM Index does explain only 3.1 per cent of variance in NPM, which notes that profitability depends on numerous factors, such as market conditions, pricing policies, product mix, and competitive forces.

#### 3.2 Multiple Regression Analysis: SCM Dimensions on Net Profit Margin

Multiple regression analysis examines the individual and collective impact of five SCM dimensions on profitability. Results are presented in Table 4.

Variable	Coefficient	Std. Error	t-value	p-value
Constant	-7.408	4.125	-1.796	0.079
Target Costing	-0.852	0.562	-1.516	0.137

Kaizen Costing	0.554	0.489	1.133	0.263
ABC Implementation	0.058	0.578	0.100	0.921
Value Engineering	0.959	0.521	1.841	0.072*
Lean Manufacturing	0.804	0.613	1.312	0.196
R <sup>2</sup> = 0.151, Adjusted R <sup>2</sup> = 0.054, F = 1.556, p = 0.192				

**Table 4: Multiple Regression: SCM Dimensions on Net Profit Margin** Note: \* p < 0.10

The multiple regression analysis shows that value engineering is positively related to the net profit margin, the strongest ( $\beta = 0.959$ ,  $p = 0.072$ ), which confirms its usefulness in making profits through cost management. Kaizen costing ( $\beta = 0.554$ ,  $p = 0.263$ ) and lean manufacturing ( $\beta = 0.804$ ,  $p = 0.196$ ) are positively related and are not statistically significant which indicates that it may take long before the impact of these two can be realized in the financial outcomes. Target cost is negatively correlated ( $\beta = -0.852$ ,  $p = 0.137$ ), which means that the implementation may not be easy. Activity-based costing has the least effect ( $\beta = 0.058$  with a  $p = 0.921$ ), and it is assumed to be most important in terms of the cost information, not the direct increase in profit. The total model captures 15.1 percent of the variation in net profit margin, and this proves that SCM practices are as significant as they are effective, but they do not act in isolation since there are other influences that can affect profitability.

**4. Comparative Analysis: High vs Low SCM Companies**

Independent samples t-test analyzes profitability differences between companies with high and low SCM adoption, as shown in Table 5.

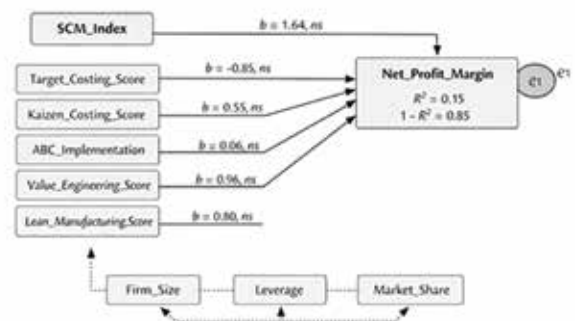
Profitability Metric	High SCM	Low SCM	t-value	p-value
NPM (%)	3.51	2.39	0.854	0.398
OPM (%)	3.68	2.51	0.867	0.390
GPM (%)	18.12	16.74	0.823	0.415
RCE (%)	16.48	15.21	0.934	0.355
ROA (%)	8.12	7.69	0.456	0.651

**Table 5: Comparative Analysis: High vs Low SCM Companies**

The mean profitability of companies with intensive use of SCM Index  $\geq 6.80$  is higher in different measures in relation to low SCM companies (SCM Index < 6.80). More precisely, high SCM companies have a mean net profit margin of 3.51 that is 47 higher than low SCM companies with the net profit margin standing at 2.39. The differences, however, do not have statistical significance ( $p > 0.05$ ) which implies that other factors may affect the results including small sample size ( $n=50$ ), individual differences inside the groups, and time delays in profitability realization as well as other confounding variables. Although it was not statistically significant, the large profitability difference between high SCM companies implies practical significance, which implies that SCM can provide competitive advantage and overall financial

performance in complicated industry contexts.

**5. Mediation Analysis: Operational Efficiency**



**Table 6: Results of conceptual framework of the study**

The analysis reveals that, partially, asset turnover

mediates the connection between strategic level cost management and profitability. Using cost efficiently brings about efficiency in the use of assets hence resulting in more profitability. According to this mediation, the implications of cost management on profitability emerge directly because of cost reduction, and indirectly because of operational efficiency. The mediating role of inventory turnover is less significant because automobile manufacturing is a capital-intensive industry, and the asset turnover is an efficiency measure that is more applicable than the inventory management.

### Findings

The results of the study, based on the select leading Indian auto companies, reveal that the SCM Index and profitability are significantly positively tied, and an increase in the unit increase the net profit margin by 1.639 percentage points. It has been identified that value engineering has been a major source of profitability, and lean manufacturing has been found to improve operational efficiency. Kaizen costing has an implementation gap, and this implies that there is continuous cost improvement. The SCM dimensions reflect 15.1% of the variance in profitability, which is why it is also significant in addition to other variables. The differences in implementation of SCM indicate competitiveness and activity-based costing has no direct effect on profitability, although it enhances decision making. In general, the average net profit margin in the sector is still low, which means that it is necessary to manage costs better and position the sector more strategically.

### Suggestions

It is advisable that automobile companies and stakeholders should focus on several strategic initiatives to manage costs effectively and enhance profitability of the companies. Some of the main recommendations are: 1) Use Value Engineering to make the business profitable with the help of Cross-Functional Teams (CFT). 2) Intensify the adoption of the Kaizen costing to promote the idea of continuous improvement; 3) Build integrated cost management systems based on a combination of multiple methodologies to support the idea for long-term sustainability; 4) Optimally use

the organizational assets by providing capacity optimization and maintenance programs; 5) Improve lean manufacturing practices beyond the production line; 6) ABC as a decision support.

### Conclusion

This is empirical research that determines the role of SCM in the profitability of top ten automobile companies in India. It concludes that the integrated cost management practices have strong positive impacts on financial performance, especially in high correlations existing among the cost management intensity and the profitability measures like net profit margin. The study observes that companies that have adopted cost management enjoy significantly higher profitability. Also, it identifies the shortcomings in Kaizen costing and how activity-based costing could be improved. Cost management is supposed to strive to achieve equilibrium between cost cutting and functionality which should focus on resource optimization. The study advises practitioners to consider combining SCM practices and improving employee participation as a means of supporting the continuous improvement process as well.

### Future Scope

The future research direction is based on longitudinal research on strategic cost management, adjustments to electric vehicle production, inter-organizational practices of cost management and digital technologies integration in the cost management system. The paper underscores the importance of SCM as a means of profitability in the Indian automotive industry and how value engineering and lean manufacturing can be used to place companies with superior integrated cost management systems in sustainable competitive environment under regulatory conditions. **MA**

### References

1. Singh, R., Kumar, A., & Sharma, P. (2024). *Economic contribution of Indian automobile industry: A sectoral analysis*. *Journal of Industrial Economics and Development*, 14(2), 145-162. <https://doi.org/10.1016/j.jied.2024.02.006>
2. Patel, M., & Desai, N. (2023). *Technological disruption and competitive dynamics in emerging automobile markets*. *International Journal of Automotive Technology and Management*, 23(4), 312-329. <https://doi.org/10.1504/IJATM.2023.132456>

3. Anderson, S. W., & Dekker, H. C. (2020). Strategic cost management in manufacturing: Evolution and effectiveness. *Accounting, Organizations and Society*, 84, 101127. <https://doi.org/10.1016/j.aos.2020.101127>
4. Shank, J. K., & Govindarajan, V. (2021). *Strategic Cost Management: The Value Chain Perspective (3rd ed.)*. McGraw-Hill Education.
5. Cooper, R., & Slagmulder, R. (2023). Target costing and value engineering in strategic cost management. *Journal of Cost Management*, 37(1), 18-32. <https://doi.org/10.1002/jcm.22089>
6. Hilton, R. W., & Platt, D. E. (2023). *Managerial Accounting: Creating Value in a Dynamic Business Environment (13th ed.)*. McGraw-Hill Education.
7. Zhang, L., & Wang, H. (2024). Capital intensity and cost structure optimization in automobile manufacturing. *Journal of Manufacturing Technology Management*, 35(1), 67-84. <https://doi.org/10.1108/JMTM-03-2023-0089>
8. Banker, R. D., Byzalov, D., & Chen, L. T. (2023). Cost structure and profitability in the automobile industry: An empirical analysis. *The Accounting Review*, 98(2), 85-108. <https://doi.org/10.2308/TAR-2021-0523>
9. Kansara, A., & Trivedi, M. (2024). Electric vehicle transition challenges for traditional automobile manufacturers in India. *International Journal of Electric and Hybrid Vehicles*, 16(2), 134-151. <https://doi.org/10.1504/IJEHV.2024.127843>
10. Kumar, R., Agarwal, S., & Sharma, V. (2023). Supply chain disruptions and resilience in Indian automobile sector: Post-pandemic analysis. *Supply Chain Management: An International Journal*, 28(5), 789-805. <https://doi.org/10.1108/SCM-11-2022-0421>
11. Verma, A., & Chauhan, S. (2024). Digitalization and electric vehicles: Reshaping cost structures in Indian automobile industry. *Technological Forecasting and Social Change*, 198, 122956. <https://doi.org/10.1016/j.techfore.2023.122956>
12. Hussain, M., & Ali, R. (2021). Strategic cost management and profitability: Evidence from Pakistani automobile sector. *Pakistan Journal of Commerce and Social Sciences*, 15(2), 312-335.
13. Chen, X., Liu, Y., & Wu, J. (2022). Value chain-based strategic cost management in Chinese automotive industry. *Chinese Management Studies*, 16(4), 891-912. <https://doi.org/10.1108/CMS-07-2021-0278>
14. Sharma, R., & Gupta, A. (2020). Activity-based costing implementation and financial performance in Indian manufacturing firms. *Journal of Accounting in Emerging Economies*, 10(3), 421-442. <https://doi.org/10.1108/JAEE-08-2019-0158>
15. Nakamura, H., Matsumoto, K., & Tanaka, S. (2023). Kaizen costing effectiveness in Japanese automobile manufacturing: A longitudinal study. *International Journal of Production Research*, 61(8), 2567-2584. <https://doi.org/10.1080/00207543.2022.2156789>
16. Patel, S., & Singh, N. (2021). Lean manufacturing implementation and operational performance in Indian automobile component suppliers. *Production Planning & Control*, 32(11), 945-963. <https://doi.org/10.1080/09537287.2020.1788964>
17. Zhang, W., & Wang, L. (2024). Target costing in electric vehicle development: An Asian perspective. *International Journal of Automotive Technology*, 25(1), 89-106. <https://doi.org/10.1007/s12239-024-00012-8>
18. Kumar, P., Lee, S., & Park, J. (2022). Comparative analysis of cost management practices: India and Korea automobile manufacturers. *Asian Journal of Business and Management*, 10(2), 145-167. <https://doi.org/10.24203/ajbm.v10i2.6789>
19. Desai, K., & Mehta, P. (2023). Value engineering impact on cost reduction and value creation in automobile industry. *Engineering Management Journal*, 35(2), 178-194. <https://doi.org/10.1080/10429247.2023.2187654>
20. Thompson, J. D., & Richards, M. G. (2021). Supply chain cost management and profitability in global automobile manufacturers. *International Journal of Operations & Production Management*, 41(6), 789-812. <https://doi.org/10.1108/IJOPM-12-2020-0865>
21. Agarwal, R., Sharma, V., & Kumar, A. (2024). Digital transformation and cost management effectiveness in Indian automobile manufacturing. *International Journal of Production Economics*, 268, 109089. <https://doi.org/10.1016/j.ijpe.2023.109089>
22. Bhattacharya, S., & Das, N. (2023). Competitive intensity and profitability in emerging automobile markets. *Strategic Management Journal*, 44(5), 1234-1258. <https://doi.org/10.1002/smj.3467>
23. Chopra, A., & Mehra, S. (2024). Market leadership and competitive strategies in Indian passenger vehicle segment. *International Journal of Emerging Markets*, 19(2), 345-367. <https://doi.org/10.1108/IJOEM-05-2022-0789>
24. Singh, V., & Kumar, R. (2024). Electric vehicle transition and cost implications for traditional automobile manufacturers. *Energy Policy*, 185, 113945. <https://doi.org/10.1016/j.enpol.2023.113945>
25. Rao, P., & Deshmukh, S. G. (2023). Technology transition management in automobile manufacturing: Cost and strategic implications. *Technological Forecasting and Social Change*, 189, 122345. <https://doi.org/10.1016/j.techfore.2023.122345>
26. Mehta, K., & Shah, P. (2023). Regulatory compliance costs in Indian automobile industry: BS-VI implementation analysis. *Transport Policy*, 132, 45-59. <https://doi.org/10.1016/j.tranpol.2022.12.018>
27. Sharma, M., & Joshi, S. (2022). Supply chain resilience and inventory management: Lessons from pandemic disruptions in automobile sector. *International Journal of Physical Distribution & Logistics Management*, 52(8), 634-656. <https://doi.org/10.1108/IJPDLM-03-2021-0089>
28. Kaplan, R. S., & Anderson, S. R. (2023). *Time-Driven Activity-Based Costing: A Simpler and More Powerful Path to Higher Profits (2nd ed.)*. Harvard Business Review Press.  
[41] Porter, M. E. (2023). *Competitive Advantage: Creating and Sustaining Superior Performance (Anniversary ed.)*. Free Press.
29. Banker, R. D., & Johnston, H. H. (2022). Cost management research in manufacturing: Review and future directions. *Manufacturing & Service Operations Management*, 24(1), 234-251. <https://doi.org/10.1287/msom.2021.0987>

# *Down The Memory Lane*

May, 2016



CMA P V Bhattad, President lighting the lamp at the inauguration of the new building of the Cochin Chapter, 'CMA Bhawan – Center for Excellence' on May 1, 2016. Also seen are CMA Dr A S Durga Prasad, immediate past president of the Institute, CMA H Padmanabhan, CMA I Ashok, Council Members, CMA Sanyasi Rao, SIRC Chairman, and other members.



Honorable Shri D V Sadananda Gowda, Minister of Law and Justice, Government of India, releasing the knowledge pack on 'Environmental and Sustainability Accounting' on May 30, 2016 at his office in presence of CMA Dr P V S Jagan Mohan Rao, Chairman, Corporate Laws, Governance and Sustainability Committee and CMA J K Budhiraja, Sr. Director (Technical) on the occasion of World Environment Week.

May, 2006



EIRC of ICWAI organized a Workshop on Central Excise on 8<sup>th</sup> May 2006 at EIRC Premises. Seen in the picture: Niranjan Swain, Chairman, EIRC, addressing the members. K.K. Sarkar, Secretary, EIRC, S.N.S. Mohapatra, Speaker of the day, S.C. Mohanty, Vice-Chairman, EIRC and participants of the day are also seen in the picture.



D.C. Bajaj, Past President, ICWAI, delivering the Inaugural Address at Conference-2006 on 20<sup>th</sup> May, 2006 organized by Ludhiana Chapter of Cost Accountants.

# Down The Memory Lane

May, 2006



S.N. Balakrishnan, Commissioner-cum-Additional Director General of Customs, Central Excise & Service Tax Audit, Chennai, inaugurating 'Seminar on Central Excise for Practicing Members' organized by Center for Excellence, ICWAI on 26<sup>th</sup> May, 2006 at Hotel Savera, Chennai. M Gopalakrishnan, Central Council Member, ICWAI and A. Om Prakash, Treasurer, SIRC seen on the dais.

May, 1996

Stock Exchange game-cum-investors' awareness seminar at Bhubaneswar



May, 1986



Shri S Ramanathan addressing in the Oral Coaching Meet at the 46th Session of the SIRC Oral Coaching inaugurated by Shri R. V. Nagarajan, President of the Institute of Company Secretaries (ICSI) on 10<sup>th</sup> May, 1986.

May, 1976



Shri P.P. Pareswaran, Controller of Accounts, Western Coal Fields Limited, addressed the meeting of the Koraba Chapter of Cost Accountants in May 1976. From Left to Right: -S/Shri K.S.U. Menon (Secretary), P.P. Pareswaran, B.L. Lunia (Chairman) and P.B. Bhardwaj.

Source: Extracted from the various issues of *The Management Accountant Journal*

## EASTERN INDIA REGIONAL COUNCIL

### Advanced Skill Training Programme Valedictory Session

The EIRC successfully concluded its 12-day Advanced Skill Training Programme (ASTP) on April 3, 2026, at Mahanayak Uttam Mancha, Kolkata. The event, graced by Chief Guest CMA Mukesh Agrawal (Director Finance, Coal India Ltd.) and Guest of Honour CMA Abhay Kumar Behuria (Director Finance, NALCO Ltd.), celebrated the achievements of over 600 attendees, including 294 newly qualified CMAs. Highlights included the felicitation of 10 All India Rank holders from the Eastern Region, including AIR-1, with medals and certificates. Dignitaries and regional council members inspired the young professionals with words of encouragement, marking the disciplined and collective effort as a grand success for the profession.

### EIRC CPE Programme: Transforming Cost Audit

On April 17, 2026, the EIRC hosted a Continuing Professional Education (CPE) programme titled "Transforming Cost Audit: From Compliance to Competitive Advantage" at its Kolkata auditorium. The session was inaugurated by Chairperson CMA Arati Ganguly, alongside esteemed council members and former leadership. Resource persons CMA Nataraj Radhakrishnan and CMA Dinesh Shah led the discussion, exploring how cost auditing is evolving from a mere regulatory requirement into a strategic asset for business growth. Over 130 CMA members participated in the event, which highlighted new professional opportunities and the vital role of cost management in securing a competitive edge in today's market.

## BHUBANESWAR CHAPTER

### PRARAMBHA 2026: Outreach Programme on the New Income Tax Act

On March 26, 2026, the Chapter, in collaboration with the Tax Research Department, hosted "PRARAMBHA 2026," an outreach programme dedicated to the Income Tax Act, 2025. Held at CMA Bhawan, the event was part of a nationwide initiative supported by the CBDT to simplify tax

compliance and transparency. Inaugurated by Chapter Chairman CMA Sarat Kumar Behera and Chief Guest CMA Abhay Kumar Behuria (Director Finance, NALCO), the session featured a prestigious lineup of guests, including Shri Saroj Mahapatra, IRS, and CMA Bibhuti Bhusan Nayak. Technical experts provided deep dives into the new legislative provisions, offering over 130 professionals and stakeholders a vital platform for navigating the evolving tax landscape and its impact on the Ease of Doing Business.

### ASTP Valedictory Session

The Chapter celebrated the successful conclusion of the Advanced Skill Training Programme (ASTP) for the December 2025 term with a grand valedictory session. The event featured CMA Arati Ganguly (Chairperson, EIRC) and CMA Damodar Mishra (Vice-Chairman, EIRC) as Special Guests, who addressed the newly qualified professionals. Following a welcome by Chapter Chairman CMA Sarat Kumar Behera, the ceremony included a formal medal and certificate conferral coordinated by CMA Soumya Ranjan Jena and CMA Avinash Kotni. The programme concluded on a high note, recognizing the hard work and achievements of the young CMAs as they embark on their professional journeys.

## GUWAHATI CHAPTER

### AI Workshop

The Chapter successfully hosted a dynamic two-day workshop on Artificial Intelligence on March 21 and 22, 2026, at Hotel Ratnamouli, Guwahati. Attended by approximately 100 delegates—including CMA professionals, corporate executives, and academicians—the event featured expert sessions led by CMA Satya S. Mahasuar and CA Ankit Jallan. The speakers provided a comprehensive deep dive into the fundamentals of AI, its operational mechanisms, and the development process, complemented by live demonstrations of AI tools tailored for finance and professional applications. The highly interactive sessions equipped participants with practical knowledge to leverage emerging technologies in their respective domains.

*Glimpses of Eastern India Regional Council*



*Eastern India Regional Council*



*Eastern India Regional Council*



*Bhubaneswar Chapter*



*Bhubaneswar Chapter*



*Guwahati Chapter*



*Guwahati Chapter*

**NORTHERN INDIA REGIONAL COUNCIL**

**JAIPUR CHAPTER**

**International Women’s Day Celebration**

The Chapter celebrated International Women’s Day on March 8, 2026, at CMA Bhawan, Jhalana Doongri, with vibrant participation from members and students. The event was inaugurated by Chairperson CMA Purnima Goyal, followed by an inspiring address from Chief Guest Smt.

Rachna Kaushik, who urged women to embrace leadership and self-reliance. Highlights included a keynote by CMA Deepak Kumar Khandelwal on the importance of core values and a series of cultural performances, including music by CMA Vinita Baraya and poetry recitations. Anchored by Anushka Rawat and concluded with a vote of thanks by CMA Vartika Tadi, the programme served as a powerful platform for discussing empowerment and recognizing the growing contributions of women to the profession.

**ASTP Inauguration**

The Chapter inaugurated its 11-day Advanced Skill Training Programme (ASTP) on March 11, 2026, at CMA Bhawan, tailored for candidates who qualified in the December 2025 term. The session was graced by Chief Guest Shri Hemant Sharma (IGP), who emphasized the importance of discipline, ethics, and work-life balance in professional success. Chapter Chairperson CMA Purnima Goyal, along with Vice Chairman CMA Deeptanshu Pareek and other senior committee members, encouraged the budding CMAs to bridge the gap between theory and practice. Coordinated by CMA S. L. Swami, the intensive training focuses on corporate expectations, leadership, and professional competency to ensure the new cohort is industry-ready and ethically grounded.

**ASTP Valedictory & Convocation Ceremony**

On March 22, 2026, the Chapter hosted a distinguished Valedictory and Convocation Ceremony for its largest-ever batch of over 175 budding CMAs. The event marked the conclusion of a 12-day Advanced Skill Training Programme (ASTP) focused on corporate readiness, ethics, and leadership. Chief Guest CMA Rajendra Kumar Joshi (Senior VP, Jio Platforms Ltd.) and CMA Rakesh Yadav (Chairman, NIRC) inspired attendees to embrace innovation and strategic thinking. A major highlight was the felicitation of meritorious Intermediate and Final students—including top performers Pari Agrawal and Mohit Sukhani—with the K.G. Goyal and K.C. Gupta Memorial Awards. Coordinated by CMA S. L. Swami, the ceremony combined professional certification with academic recognition, empowering the new cohort for the competitive global business landscape.

*Glimpses of Northern India Regional Council*



*Jaipur Chapter*



*Jaipur Chapter*

**SOUTHERN INDIA REGIONAL COUNCIL**

**BENGALURU CHAPTER**

**KCMA Sports Carnival**

The KCMA Sports Carnival was vibrantly hosted by the Chapter, in collaboration with the Mysuru and Mangalore Chapters, on March 14, 2026, at Central College, Ambedkar Veedhi. This inter-chapter meet drew over 300 participants from various regions, including the Hyderabad, Thrissur, and Nellore Chapters. The event fostered camaraderie and competitive spirit through a diverse range of activities such as cricket, badminton, table

tennis, chess, carrom, and tennikoit. The carnival successfully served as a platform for physical wellness and professional networking among the CMA fraternity.

**Karnataka CMA Convention 2026**

The Karnataka CMA Convention, held on March 15, 2026, brought together esteemed professionals for a day of high-level knowledge sharing and networking. Inaugurated by Guest of Honour CMA CS Lakshmi Prasad Kolla, the event featured technical sessions focused on the New Income Tax Act 2025, AI-driven Intelligent Value Chains, and the Costing Revolution through

new-age technology. The convention concluded with a prestigious valedictory function graced by Hon'ble Mr. Justice V. Srishananda of the High Court of Karnataka, alongside central and regional council members. A vibrant cultural performance by Kum. Vaishnavi Acharya rounded off the event, celebrating both the professional excellence and the community spirit of the CMA fraternity.

### **Career Counselling Series**

In an effort to guide the next generation of finance professionals, the Chapter organized a series of impactful Career Counselling sessions across major educational institutions in March 2026. The drive commenced at Maharani College and Government College (Bengaluru and Malleswaram), with CMA Arshad Ulla Khan and CMA Anil B Shenoy providing students with deep insights into the CMA profession. The initiative continued at Vijaya College, Jayanagar, featuring sessions led by CMA Venkanna S and CMA Satish R. These sessions reached hundreds of students, highlighting the strategic importance of Cost and Management Accountancy, career growth opportunities, and the institute's role in shaping future industry leaders.

### **ASTP Training Programme and Valedictory: December 2025 Batch**

The Chapter successfully conducted an intensive 11-day Advanced Skill Training Programme (ASTP) for the December 2025 batch, concluding with a grand valedictory function on March 29, 2026. Inaugurated on March 17, the programme provided 188 candidates with comprehensive training in high-demand areas such as Data Science, Financial Modeling, AI, and BI tools, alongside critical updates on the New Income Tax Act and GST. The curriculum also prioritized corporate readiness through mock interviews, CV writing, and soft skills sessions. The valedictory ceremony at Mangala Mantapa featured Chief Guest Smt. Sujatha K. Chinnaswamy (Joint Commissioner of Commercial Taxes) and esteemed leadership, including CMA Raghavendra B K and Former President CMA G N Venkataraman, who celebrated the students' transition from academic learning to professional excellence.

### **CPE Programme: Beyond Formulas – Leveraging AI-Enhanced Excel**

The Chapter organized a specialized professional development session titled "Beyond Formulas: Leveraging AI-Enhanced Excel" on April 11, 2026. Resource person CMA Bhargav Prasad K led the technical session, demonstrating how artificial intelligence is revolutionizing spreadsheet management and data analytics for cost professionals. The event was supported by the chapter leadership, including Chairman CMA Raghavendra B K, Secretary CMA Santosh G Kalburgi, and Treasurer CMA Poornima M, alongside CMA Vishwanatha Bhat (PF Chairman, SIRC). The programme provided participants with practical insights into modernizing traditional accounting workflows through AI integration, ensuring CMA members remain at the cutting edge of digital transformation.

### **Professional Development Programme: SAP Product Costing**

The Chapter hosted an insightful Professional Development Programme (PDP) titled "SAP Product Costing" on April 18, 2026. The session featured CMA Ramesh Mariyappa as the resource person, who shared expert knowledge on integrating cost management within SAP environments to streamline industrial processes. The event was held in the presence of esteemed leadership, including CMA Raghavendra B K (Chairman, BCCA), CMA Gunamala S R (Vice Chairperson), CMA Vishwanatha Bhat (PF Chairman, SIRC), and CMA Girish Kambadaraya (RCM, SIRC). The programme offered members a deep dive into the technicalities of automated costing, emphasizing the critical role of technology in enhancing the accuracy and efficiency of modern cost and management accounting.

### **Crash Course: Direct & Indirect Tax Made Easy**

On April 19, 2026, the Chapter organized a specialized crash course titled "Direct & Indirect Tax Made Easy" to support students in their academic and professional preparation. The session was led by CMA Dr. Abhijeet S Jain, Former Chairman of BCCA, who served as the resource person. The course focused on simplifying

complex tax provisions, offering practical shortcuts for calculation, and clarifying recent legislative changes. This initiative provided students with a focused environment to strengthen their conceptual understanding and exam readiness, reflecting the Chapter's commitment to high-quality student mentorship.

### Career Counselling: St. Paul's College

Continuing its outreach mission, the Chapter organized a career counselling session at St. Paul's College on April 1, 2026. The session featured CMA Dr. Abhijeet S Jain, Former Chairman of BCCA, as the guest speaker. Dr. Jain shared his extensive professional experience with the students, detailing the strategic importance of the CMA qualification and its vast potential in the global corporate landscape. The interaction focused on guiding aspiring accountants toward professional excellence, clarifying the certification process, and highlighting the growing demand for cost management experts in modern industry.

## COIMBATORE CHAPTER

### Coimbatore Cost Convention 2026: Strategic Positioning of CMAs

The Chapter hosted its Cost Convention 2026 on April 11–12 at the Sakthi River Resort, Pollachi, focusing on the theme “Strategic Positioning of CMAs.” Inaugurated by Dr. R. Maheswaran and Chief Guest Dr. Anushka, the convention addressed both professional excellence and the importance of emotional intelligence in managing modern challenges. Technical sessions explored the synergy between costing and financial governance, AI-driven continuous auditing in banking, and the practical application of tools like Claude AI for generating financial dashboards. With participants from across Tamil Nadu and Kerala, the two-day event successfully highlighted the evolving role of CMAs in the digital economy through expert demonstrations and collaborative networking.

### Computer Training for CAT Students: Building Digital Proficiency

CAT students are actively attending computer classes to bolster their exam preparation and professional readiness. These sessions are designed

to familiarize aspirants with online test formats while improving essential skills such as typing speed and the use of data analysis software. By practicing mock tests in a digital environment, students enhance their accuracy and time management—critical factors for the computer-based examination. Additionally, these classes provide seamless access to online study materials and performance tracking systems. This integration of technology not only builds the confidence needed for modern exams but also equips students with the digital competencies required in today's evolving workplace.

### Industrial Visit: Sri Balaji Textiles, Perundurai

On April 18, 2026, CMA students undertook an insightful industrial visit to Sri Balaji Textiles in Perundurai to gain hands-on exposure to the textile manufacturing lifecycle. The visit allowed students to observe the entire production chain, from raw material processing to the final output, while studying modern machinery and real-time workflow management. Crucially, the plant's management shared practical insights into production planning, inventory management, and cost control—directly linking classroom theories of cost and management accounting to industrial operations. The session also emphasized the importance of safety protocols and sustainability, successfully bridging the gap between academic learning and the complexities of the manufacturing sector.

### Professional Development: Bank Audit Opportunities for CMAs

On April 24, 2026, the Chapter hosted a Professional Development Programme focused on "Opportunities for CMA Professionals in Bank Audits," led by CMA Kumutha. The session provided a comprehensive technical deep dive into various audit frameworks—including statutory, concurrent, and risk-based internal audits—while offering practical insights into credit appraisals, NPA management under RBI guidelines, and fraud detection. Highlighting the chapter's commitment to inclusivity, the event began with a commendable gesture of sponsoring ₹25,000 toward the course fees of a physically challenged CMA Final student. This spirit of empowerment continued the following day, April 25, with a Knowledge Camp at Jude School, Kotagiri. Designed to bridge the gap between

theory and practice, the camp featured expert-led interactive sessions on core commerce concepts to stimulate analytical thinking among aspirants. The program concluded with a team-building excursion to Kodanadu View Point, successfully blending rigorous academic development with mental rejuvenation and professional networking.

**THRISSUR CHAPTER**

**Advanced Skill Training Programme (ASTP)**

The Chapter successfully conducted an 11-day Advanced Skill Training Programme (ASTP) for

223 newly qualified CMAs from the December 2025 batch, featuring expert sessions by 20 industry veterans. The initiative, which included a personal address by President CMA T C A Srinivasaprasad, culminated in a Grand Convocation Ceremony on March 27, 2026, at the Regional Theatre. Attended by over 1,000 guests and inaugurated by Chief Guest Dr. K Paul Thomas (MD & CEO, ESAF Small Finance Bank), the event honored approximately 225 graduates with mementos and certificates, marking a significant milestone in their professional careers.

*Glimpses of Southern India Regional Council*



*Bengaluru Chapter*



*Bengaluru Chapter*



*Coimbatore Chapter*



*Coimbatore Chapter*



*Thrissur Chapter*



*Thrissur Chapter*

## WESTERN INDIA REGIONAL COUNCIL

## BARODA CHAPTER

**Export Smarter with MSME Incentives**

On March 26, 2026, the Chapter, in association with WIRC, hosted a successful online CPE session titled "Export Smarter with MSME Incentives." Led by experts CMA Vandit Trivedi and CA Keval Mota, the program provided 110 participants with practical strategies and a deep dive into government incentives designed to boost global competitiveness. The highly engaging session offered attendees 2 CPE hours and served as a valuable contribution to the professional development of the MSME export community.

**Why Investment: Equity & Commodity Market Insights**

The Chapter hosted an impactful online CPE webinar on March 27, 2026, focused on the fundamentals of financial planning and market dynamics. Expert speaker Mr. Bhavin Shah guided 104 participants through the complexities of equity and commodity markets, offering practical strategies to build investment confidence. The session was highly successful, providing members with 2 CPE hours and a strengthened understanding of modern investment avenues.

**Unlocking Productivity: AI & Data Tools in Practice**

On March 28, 2026, the Chapter conducted a forward-thinking online CPE session focused on integrating technology into professional workflows. Expert speaker CMA Hirav Shah shared practical, real-world strategies for leveraging AI and data tools to enhance practitioner productivity. The event, led by Chairperson CMA Amruta Vyas and Secretary CMA Vandit Trivedi, drew 94 participants who earned 2 CPE hours while exploring the cutting edge of the accounting profession.

**Professional Dialogue at Surya Palace**

On April 23rd, the Chapter participated in a prestigious gathering at Surya Palace, featuring Shri Jagdish Vishwakarma, President of BJP

Gujarat, as the Chief Guest. The evening fostered an atmosphere of professional collaboration, centered on interactive discussions regarding governance and developmental strategies. By engaging with esteemed dignitaries and fellow professionals, the Chapter strengthened its institutional ties and reaffirmed its commitment to constructive dialogue and future collaborative initiatives.

**Ethical Excellence: Code of Ethics & Companies Act Amendments**

On April 23, 2026, the Chapter hosted a physical CPE session at Vanijya Bhavan focused on the "Code of Ethics & Amendments in Companies Act-2026." Attended by 55 professionals, the event featured esteemed speaker CMA Ashwin G. Dalwadi, Past President of ICAI, who provided expert clarity on complex legislative updates and the critical role of ethics in modern corporate practice. Following a warm welcome by Chairperson CMA Amruta Vyas and concluding with a vote of thanks by CMA Sharad Puranik, the session successfully reinforced the essential pillars of professional integrity and regulatory compliance.

**Strengthening Careers: Placement & Training Initiatives**

The Chapter successfully conducted a series of dedicated Placement and Training activities designed to bridge the gap between talent and industry. These initiatives saw significant participation, providing both students and members with essential career resources and professional opportunities. By facilitating these sessions, the Chapter continues to play a pivotal role in enhancing the employability and professional growth of its community.

## SURAT-SOUTH GUJARAT CHAPTER

**Promoting the Profession: CMA Branding via Cycling Advertisement**

From February 26 to March 24, 2026, the Chapter executed a dynamic month-long Cycling Advertisement Activity to boost the visibility of the CMA course. This mobile branding initiative utilized cyclists to carry promotional displays throughout the city, effectively reaching a wide audience and raising public awareness about the

CMA profession. By blending community presence with creative outreach, the activity successfully showcased the value of the CMA designation to prospective students and the general public.

### SRCC Press Coverage Highlights

The Baroda Chapter successfully garnered significant media attention during the SRCC event held on March 17–18, 2026. This dedicated press coverage showcased the Chapter's initiatives and professional milestones to a broader audience, enhancing the public profile of the CMA profession. By securing prominent mentions in local news outlets, the Chapter effectively communicated its commitment to excellence and professional development within the accounting community.

### Preparing for Success: Advanced Skill Training Programme

From March 9 to March 25, 2026, the Chapter hosted the Advanced Skill Training Programme (ASTP) for students qualified in the December 2025 term. Held at CMA Bhawan, Ritz Square, the intensive training provided 41 participants with essential tools to excel in upcoming campus placements. The program concluded with a distinguished valedictory session featuring Shri Nikhil Madrasi, President of SGCCI, who shared expert guidance on career readiness alongside Chapter leaders CMA Kishor Vaghela and CMA Bharat Savani.

### Mastering Tax Compliance: Income-tax Act, 2025 Workshop

On April 11, 2026, the Chapter organized a specialized CPE and workshop focused on the "Income-tax Act, 2025 – Interpretation and Application." Keynote speaker CA Jayraj Dhakan provided 45 attendees with an in-depth analysis of the legislative framework and its practical implementation. The event, supported by Chapter leaders CMA Kishor Vaghela, CMA Vipinkumar Patel, and CMA Kailash C. Gupta, proved to be a vital session for professionals seeking to navigate the latest tax regulations with precision and clarity.

## AHMEDABAD CHAPTER

### Wellness and Professional Excellence: Ahmedabad Chapter Webinars

The Chapter successfully hosted a series of webinars in late March 2026, blending health awareness with technical expertise. On March 26, speaker Mr. Dharmendra Prajapati led an engaging session on reversing diabetes through food and lifestyle changes, welcomed by CMA Jainil Patadia. This was followed on March 30 by a specialized technical webinar on Cost Audit in Coal Industries featuring CMA Niranjan Mishra, and a session on March 31 regarding the Company Compliance Felicitation Scheme led by CMA Kavita Tiwari. All three events, coordinated under the leadership of Chairman CMA Mitesh Prajapati and PD Coordinator CMA Ashish Bhavsar, saw high member participation and provided practical, interactive insights for both personal well-being and professional growth.

### Industry Orientation Training Programme for Final Students

From April 6 to April 15, 2026, the Chapter conducted a comprehensive Industry Orientation Training Programme (IOTP) to prepare final students for the professional world. A panel of eminent faculties led specialized sessions covering a broad spectrum of skills, including Soft Skills (Public Speaking, Leadership, and Networking), Technical Expertise (Indirect Taxation, Data Analytics, and Working Capital Management), and Career Readiness (CV making and Interview skills). The intensive program concluded on April 15 with group PowerPoint presentations by the participants, who were subsequently awarded certificates to recognize their successful completion of this vital career-bridging initiative.

## NAVI MUMBAI CHAPTER

### New Labour Codes: Insights and Impact

On March 29, 2026, the Chapter hosted a specialized CPE program at the Konkan Railway Executive Club focused on the New Labour Codes effective since November 2024.

Following a warm welcome by Secretary CMA Arup Bagui and opening remarks by Chairman CMA Nilmoni Bhakta, the technical session led by CMA Saswata Banerjee explored critical updates to wage structures, overtime rules, and employer responsibilities. The event was further enriched by Chief Guest CMA Rajendra Gupta (Director Finance, CCI) and Special Guest CMA Prabhakar Mukherjee (Head of Group Internal Audit, Taj), who emphasized the strategic and industrial impact of these reforms for the over 50 professionals in attendance.

**PIMPRI CHINCHWAD CHAPTER**

**Celebrating Empowerment: International Women’s Day**

On March 9, 2026, the Chapter celebrated International Women’s Day at CMA Bhawan, honoring the achievements of women in the profession. Secretary CMA Rupali Kothavale and Chairman CMA Balkrishna Hajare welcomed the guest of honor, CMA Dr. Divya Lakhani (HOD-MBA, Sadhu Vaswani Institute), for an evening of inspiring talks and insightful panel discussions. The event featured networking sessions, cultural performances, and games, creating a vibrant and inclusive atmosphere that concluded with a special recognition of outstanding women from the community and a session of light refreshments.

**Unified Securities Market Code: Transitioning from Legacy Laws**

On March 28, 2026, the Chapter hosted a highly relevant CEP Webinar focused on "The Securities Markets Code, 2025." Chairman CMA Balkrishna Hajare and PD Committee Chairman CMA Sagar Malpure welcomed esteemed speaker CMA CA CS Pankaj Kapoor, who provided a comprehensive analysis of the shift from fragmented legacy laws to a unified regulatory framework. The session offered 110 participants deep insights into the code’s key provisions and practical industry impacts, concluding with a lively Q&A session that equipped professionals with the knowledge to navigate the evolving legal landscape effectively.

**PUNE CHAPTER**

**Give & Gain: International Women’s Day Celebration**

On March 7, 2026, the Chapter celebrated International Women’s Day at CMA Bhawan, Karve Nagar, under the inspiring theme "GIVE & GAIN." The event featured Chief Guest Dr. Nivedita Ekbote (Principal, Modern College) and Guest of Honour CMA Suparna Govande, who joined Chapter leadership for a ceremonial lamp lighting. Highlights included an innovative Neuro Yoga Orientation led by Dr. Sarita Zalkikar and Mrs. Janhavi Prabhudesai, alongside a complimentary health check-up camp organized in association with Apollo Hospitals. Managed by CMA Tanuja Mantrawadi and CMA Anuja Dabhade, the celebration brought together a large number of female Cost Accountants, students, and members for a day of wellness, networking, and a festive cake-cutting ceremony.

**Valedictory Session: CAT Course for Armed Forces Personnel**

The Chapter successfully concluded the second batch of the Certificate in Accounting Technicians (CAT) Course (Part I & II) for retiring and retired Armed Forces personnel under the DGR scheme. Held from November 24, 2025, to March 13, 2026, at CMA Bhawan, the program culminated in a prestigious valedictory session on its final day. Chairman CMA Shrikant Ippalpalli and Secretary CMA Himanshu Dave welcomed the Chief Guest, Lt. Gen. S. S. Hasabnis (Retd.), who awarded course completion certificates to the participants. The session highlighted the Chapter's commitment to resettlement training, with attendees praising the high-quality faculty support and facilities provided during their transition to professional accounting.

**Strategic Year-End Planning: Income Tax and Book Closure**

On March 17, 2026, the Chapter hosted an essential webinar via Google Meet focused on "Year End Activities in Income Tax and Book Closure." Keynote speaker CMA Amit Shahane delivered an insightful presentation, guiding members through

the critical steps required for seamless financial year-end compliance and robust book closure. Vice-Chairman CMA Rahul Chincholkar opened the session with a warm welcome and later concluded the event with a vote of thanks, acknowledging the speaker's expertise and the active engagement of the participants. The session was highly well-received, providing members with practical clarity for the upcoming tax season.

### Industry Oriented Training Programme (IOTP) – Session No. 06

The Chapter commenced its 10-day Industry Oriented Training Programme (IOTP) on February 28, 2026, at CMA Bhawan, Karvenagar. Designed for Final students under the January to June 2026 session, the training supports both Oral and Postal students in bridging the gap between academic study and professional practice. The inaugural lecture featured insights from CMA Himanshu Dave and CMA Amit Shahane, following a warm welcome by Sandeep Joshi. As Secretary of the Pune Chapter, CMA Himanshu Dave also provided strategic guidance to the participants, setting a professional tone for the intensive training ahead.

### Advancing Careers: ASTP for Newly Qualified CMAs

From March 20 to March 30, 2026, the Chapter hosted a comprehensive Advanced Skill Training Program (ASTP) for 101 newly qualified CMAs at CMA Bhawan. The initiative featured over 29 specialized sessions led by seasoned practicing Cost Accountants and industry veterans, focusing

on practical insights and interview readiness. The program was inaugurated by Chief Guest CMA Shraddhanand Desai (Senior GM, KSB Limited) and concluded with a prestigious valedictory session graced by Chief Guest CMA Pravin Gavali (Finance Controller, Divgi Torqtransfer Systems) and Guest of Honour CMA Amit Apte (Former President, ICAI). Throughout the 12-day schedule, participants received strategic career guidance and were ultimately felicitated with mementos and certificates, marking their successful transition into the professional corporate world.

### Sustainability Frontiers: Emerging Opportunities for CMAs

On March 21, 2026, the Chapter, in collaboration with the Sustainability Standards Board - ICAI, hosted an insightful CPE program titled "Emerging Professional Opportunities in Sustainability for CMAs" at CMA Bhawan, Karvenagar. The event commenced with a warm welcome from Secretary CMA Himanshu Dave, followed by the felicitation of distinguished speakers CS A Sekar and CMA Anuradha Dhavalikar by Treasurer CMA Tanuja Mantravadi. Both experts shared profound perspectives on the evolving landscape of sustainability and the pivotal role Cost Accountants play in this expanding field. The workshop, which drew an enthusiastic response from a large audience of students and members, concluded with a formal vote of thanks delivered by Vice-Chairman CMA Rahul Chincholkar, marking a successful step toward equipping professionals for the future of green accounting.

## Glimpses of Western India Regional Council



*Baroda Chapter*



*Baroda Chapter*



*Surat-South Gujarat Chapter*



*Surat-South Gujarat Chapter*



*Ahmedabad Chapter*



*Ahmedabad Chapter*



*Navi Mumbai Chapter*



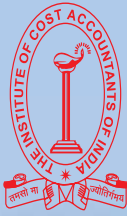
*Pimpri Chinchwad Chapter*



*Pune Chapter*



*Pune Chapter*



# ICMAI

## THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

भारतीय लागत लेखाकार संस्थान  
Statutory Body under an Act of Parliament  
(Under the jurisdiction of Ministry of Corporate Affairs)

[www.icmai.in](http://www.icmai.in)

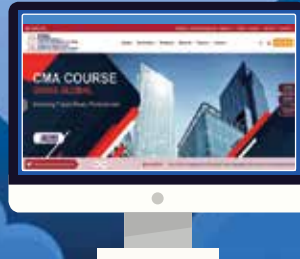


WELCOME TO

*A New*

# ICMAI

Experience Begins



CMA TCA Srinivasa Prasad  
President



CMA Neeraj Dhananjay Joshi  
Vice President



CMA Avijit Goswami  
Chairman  
Information Technology Committee



It is with a sense of pride and significance that members, students and other stakeholders are informed of the formal launch of the Institute's **NEW WEBSITE** on 10<sup>th</sup> April 2026, marking a long-awaited milestone in the Institute's journey towards greater connectivity, transparency and service excellence ...



### GIGW COMPLIED



Explore a streamlined ICMAI platform designed for effortless access to **ADMISSIONS, MEMBER SERVICES** and **KNOWLEDGE RESOURCES...**

Behind every successful business decision, there is always a **CMA**

# National CMA Practitioners' Convention (NCPC) 2026

4<sup>th</sup> and 5<sup>th</sup> April 2026 at Hotel Shivalikview, Chandigarh

The National CMA Practitioners' Convention (NCPC) 2026, organized by the Institute of Cost Accountants of India, was successfully held on 4<sup>th</sup> and 5<sup>th</sup> April 2026 at Hotel Shivalikview, Chandigarh. The two-day convention served as a significant platform for professional deliberation, knowledge sharing, and networking among Cost and Management Accountants from across the country.

The convention was inaugurated by Shri Harpal Singh Cheema, Hon'ble Minister of Finance, Government of Punjab, who graced the occasion as the Chief Guest. Shri Yogender Sharma, State President, Bharatiya Janata Yuva Morcha, Haryana, attended as the Guest of Honour. Their presence added prestige to the event and reflected the increasing recognition of the CMA profession in governance and policy frameworks.

The convention witnessed enthusiastic participation from over 200 CMAs from across India, demonstrating strong engagement from the professional community. The inaugural session commenced with a welcome address by CMA Manoj Kumar Anand, Council Member and Chairman, Professional Development & CPE Committee of the Institute, who welcomed the dignitaries and delegates and outlined the objectives of the convention.

During the inaugural session, the Hon'ble Finance Minister of Punjab addressed the gathering and emphasized the State Government's commitment to public welfare through improved healthcare, quality education, and sustainable economic growth. He highlighted Punjab's progress in GST, excise, and non-tax revenue collections, attributing this growth to the implementation of advanced IT systems, including tools developed in collaboration with IIT Hyderabad, to curb tax evasion and enhance transparency. He also expressed his gratitude to the Institute and its office bearers for the invitation.

CMA TCA Srinivasa Prasad, President of the Institute, and CMA Neeraj Dhananjay Joshi, Vice President, underscored the vital role of the CMA

profession in enabling data-driven governance, promoting cost optimization, and supporting informed decision-making. They assured the Hon'ble Minister of the Institute's continued professional support towards the growth and development of Punjab.

CMA Anil Sharma, Practicing Cost Accountant, highlighted that the CMA profession can play a pivotal role in strengthening the interface between industry and government, thereby facilitating increased investment and economic development in the State.

The inaugural session concluded with a formal vote of thanks delivered by the Secretary of the Institute, Dr. D. P. Nandy.

The second day of the convention featured a series of technical deliberations and knowledge-sharing sessions led by eminent speakers and subject-matter experts, focusing on topics highly relevant to practitioners. The sessions covered key areas such as costing in the banking and insurance sectors, sector-specific costing opportunities, recent regulatory developments in cost audit and compliance, and practical insights into GST dispute resolution. The deliberations provided valuable professional insights and practical perspectives for participants.

The sessions witnessed active participation from practitioners and experts, followed by an open house discussion that encouraged a meaningful exchange of ideas and experiences on contemporary professional issues.

The convention concluded with a valedictory session followed by a networking lunch, reinforcing professional camaraderie and collaboration. Overall, NCPC 2026 underscored the growing role of the CMA profession in supporting industry, strengthening governance, and contributing to nation-building. The event stood as a testament to the Institute's continued commitment to fostering professional excellence and knowledge dissemination within the CMA fraternity.



Glimpses of the National CMA Practitioners' Convention (NCPC) 2026, organized by the PD & CPE Committee of ICAI at Chandigarh on 4<sup>th</sup>-5<sup>th</sup> April 2026, graced by Shri Harpal Singh Cheema, Hon'ble Minister of Finance, Planning, Program Implementation, Excise and Taxation, Government of Punjab, as the Chief Guest and CMA TCA Srinivasa Prasad, President, ICAI, CMA Neeraj D. Joshi, Vice President, ICAI, CMA Manoj Kumar Anand, Chairman, PD & CPE Committee along with other esteemed Council Members.



CMA TCA Srinivasa Prasad, President, ICAI, CMA Neeraj D. Joshi, Vice President, ICAI, CMA Manoj Kumar Anand, Chairman PD & CPE Committee and other council members with Guest of Honor, Shri Yogender Sharma, State president, Bhartiya Janata Yuva Morcha (BJYM), Haryana during National CMA Practitioners' Convention (NCPC) 2026 at Chandigarh on 4<sup>th</sup>-5<sup>th</sup> April 2026.



Glimpses of National CMA Practitioners' Convention (NCPC) 2026 at Chandigarh on 4<sup>th</sup>-5<sup>th</sup> April 2026.

## NOTES FOR AUTHORS

Referencing is a crucial aspect of writing a journal article to avoid plagiarism. 'Plagiarism' refers to the act of using someone else's work or ideas without giving proper credit to the original source. To avoid plagiarism in your writing, you must properly reference all the sources that you use in your research.

- ⊙ **Choose a referencing style:** There are many different referencing styles, such as APA, MLA, Chicago, and Harvard, each with its own specific format and rules. Choose the style that is most appropriate for your field and stick to it consistently throughout your paper.
- ⊙ **Cite your sources:** Cite the sources of information you use in your text by giving the author's name, publication date, and page number(s) for direct quotes or paraphrased material.
- ⊙ **Use a reference list:** At the end of your paper, include a reference list that lists all the sources you have used in alphabetical order. This will give your readers a complete list of the sources you consulted in your research.
- ⊙ **Be accurate:** Ensure that the information you provide in your references is accurate and complete. This includes the author's name, publication date, title, and source of the information.
- ⊙ **Paraphrase carefully:** When paraphrasing, make sure to put the information into your own words, but still give proper credit to the original source.

By following these tips, you can effectively reference your sources in your journal article and avoid plagiarism. Remember that proper referencing is not only important for avoiding plagiarism, but it also helps to support your arguments and show the depth of your research.

# National Seminar on Cost Audit: *Cost Audit for Viksit Bharat – Value, Vishwas and Vision*

10<sup>th</sup> April 2026, Mumbai

The Institute successfully hosted National Seminar on Cost Audit on Friday, 10<sup>th</sup> April 2026, at the Yashwantrao Chavan Centre, Nariman Point, Mumbai. The seminar, themed “*Cost Audit for Viksit Bharat: Value, Vishwas and Vision,*” aimed at bringing together leading policymakers, industry stalwarts and professionals to deliberate on the evolving role of cost audit in strengthening India’s economic framework and supporting its vision of becoming a developed nation.

The seminar was graced by **Shri Jishnu Dev Varma, Hon’ble Governor of Maharashtra**, as the Chief Guest of the inaugural session. The distinguished Guests of Honour included Dr. Ramakanta Panda, Managing Director of Asian Heart Institute & Research Centre; Dr. Rahul Mirchandani, Chairman & Managing Director of Aries Agro Limited; and Dr. Vijay Satbir Singh, IAS (Retd.), Former Chief Secretary, Government of Maharashtra.

The Hon’ble Chief Guest, in his address, emphasized that India’s journey towards Viksit Bharat 2047 necessitates strong financial governance, with Cost Audit serving as a key enabler of efficiency, transparency, and competitiveness across both government and industry. He underscored the need for a strategic shift from the current selective, compliance-driven approach to a comprehensive Cost Audit framework encompassing all companies, including listed entities, FMCG companies, multinational corporations, MSMEs and borrowing entities. He further noted that such universal adoption would facilitate robust cost intelligence, informed pricing and subsidy decisions, improved creditworthiness, enhanced global competitiveness and ensure optimal resource utilization and greater accountability.

The seminar featured eminent thought leaders as speakers, including CMA Praveen Nigam,

Executive Director (F&A) at SAIL – Bhilai Steel Plant; CMA Ashu Mathur, Former Chief Advisor (Cost), Ministry of Finance, Government of India; Dr. Nitin Kareer, IAS (Retd.), Former Chief Secretary, Government of Maharashtra; Shri Dinesh Kumar Khara, Former Chairman of State Bank of India; CMA Asim Kumar Mukhopadhyay, Managing Director & Founder of NAVTOM Consulting Pvt. Ltd.; CMA Parvathy Venkatesh, Practicing Cost Accountant and CMA P. Vasudevan, Executive Director, RBI.

The speakers highlighted the imperative of strengthening financial governance through greater induction of finance professionals in government and a wider adoption of cost audit mechanisms. They noted that with substantial public expenditure across sectors, there is an increasing need to enhance transparency, accountability and efficiency in public spending, supported by stronger institutional frameworks and data-driven decision-making.

Outlining the way forward, they emphasized the need to broaden the scope, awareness, and application of Cost Audit across government and industry including emerging sectors, public-funded entities and large-scale infrastructure projects. Key recommendations included augmenting the cadre strength of the Indian Cost Accounts Service (ICoAS), facilitating lateral entry of qualified professionals, leveraging technology and artificial intelligence and implementing structured reforms through phased roadmaps. Collectively, these measures aim to establish Cost Audit as a cornerstone of efficient resource utilization, sound governance, and sustainable economic growth in India.

The Seminar was attended by around 500 delegates from Corporate Sector, Industry Associations, Government, Regulatory Bodies, Financial Institution and CMA Professional Practice & other Professional Bodies.

**Glimpses of National Seminar on Cost Audit:  
*Cost Audit for Viksit Bharat – Value, Vishwas and Vision***



**Congratulations!!!**



**CMA Anupam  
Lahiri**

**H**earliest Congratulations to CMA Anupam Lahiri, an officer of the Indian Statistical Service with over 28 years of diversified experience spanning official statistics, judicial administration, energy sector regulation, food security management and legal research, has been promoted as Additional Director General, NITI Aayog, Government of India to contribute towards national level policy formulation on 8<sup>th</sup> April 2026.

We wish CMA Anupam Lahiri the very best for all his future endeavours.



# The Institute of Cost Accountants of India

(Statutory Body under an Act of Parliament)

[www.icmai.in](http://www.icmai.in)

## Advisory for Renewal of Certificate of Practice For 2026-27

The members of the Institute holding Certificate of Practice (CoP) having validity up to 31<sup>st</sup> March, 2026 are requested to comply with the following guidelines for renewal of their Certificate of Practice:

1. The following changes consequent to amendment of the Cost and Works Accountants Regulations, 1959 vide Notification dated 4<sup>th</sup> February, 2011 published in the Gazette of India may be noted:
  - a. The validity of a Certificate of Practice (CoP) is for the period 1<sup>st</sup> April to 31<sup>st</sup> March every year unless it is cancelled under the provisions of the Cost Accountants Act and Cost and Works Accountants Regulations, 1959 as amended.
  - b. The Certificate of Practice issued shall automatically be renewed subject to submission of prescribed Form M-3 (duly filled in) and payment of renewal fee\* and annual membership fee\*.
  - c. From the year 2011-12 onwards, letter for renewal Certificate of Practice is not being issued. However, the members concerned may download the renewal status from the Institute's website [www.icmai.in](http://www.icmai.in).

Link: <https://eicmai.in/MMS/Login.aspx?mode=EU>

2. It may please be noted that under Section 6 of the Cost Accountants Act, 1959, **both the Annual Membership Fee\* and Fee for Renewal of Certificate of Practice\*** falls due on 1<sup>st</sup> April each year.
3. Special attention is invited to the fact that the validity of a Certificate of Practice expires on **31<sup>st</sup> March** each year unless it is renewed on or before the date of expiry in terms of the amended Regulation 10 of the Cost and Works Accountants Regulations, 1959. Hence, a member shall be required to renew the certificate of Practice within **31<sup>st</sup> March** every year.
4. **If the Certificate of Practice of a member is not renewed within 31<sup>st</sup> March, 2026, his/her status of CoP from 1<sup>st</sup> April 2026 till the date of renewal would be "Not Active".**
5. Subject to what has been mentioned in Sl. No. 3 & 4 above, a member can get his/her Certificate of Practice for 2026-27 renewed within **30<sup>th</sup> June, 2026**. If application for renewal of Certificate of Practice is made after 30<sup>th</sup> June, 2026, the member's Certificate of Practice for 2026-27 will not be renewed but will be considered as a case of restoration of Certificate of Practice till 31/03/2027. This restoration is applicable only to the CoP holders whose CoP is valid till 31/03/2026. For restoration of Certificate of Practice, he/she has to pay ₹500/-\* as restoration fee in addition to the **prescribed fees \* along with duly filled in form 'M-3'**.
6. It may please be noted that mere payment of fees \* alone will not be sufficient for renewal of Certificate of Practice. Application in prescribed Form M-3 is to be used for Renewal of Certificate of Practice duly filled in and signed is **mandatory**. The soft copy of prescribed Form M-3 for Renewal of Certificate of Practice can be downloaded from Institute's website [www.icmai.in](http://www.icmai.in).

Link: <https://eicmai.in/external/PublicPages/WebsiteDisplay/PractitionersForms.aspx>

7. The Institute has introduced a scheme of Continuous Professional Education (CPE) and the same is mandatory in accordance with provision to sub-regulation (1) of Regulation 10 of the Cost and Works

Accountants Regulations, 1959, as amended, whereby no Certificate of Practice and renewal thereof shall be issued unless a member has undergone minimum number of hours of such training. The detailed guidelines in this connection are available on Institute's website [www.icmai.in](http://www.icmai.in). Link: [https://icmai.in/upload/Institute/Updates/CPE\\_March\\_24\\_Rev.pdf](https://icmai.in/upload/Institute/Updates/CPE_March_24_Rev.pdf)

8. For renewal and application of new CoP issued on and from 1<sup>st</sup> February, 2019, please refer to Notification **F. No. CWA/21/2019 dated 1<sup>st</sup> February, 2019 and subsequent corrigendum dated 8<sup>th</sup> March, 2019.**

Link: <https://icmai.in/icmai/news/5435.php>. Accordingly new CoP holders on and from 1<sup>st</sup> February, 2019 are required to comply with Mandatory Capacity Building Training (MCBT) requirement for renewal of CoP for the FY 2026-27.

**9. Other relevant issues for Renewal of Certificate of Practice are as follows:**

- a. Application for renewal of Certificate of Practice upto 31<sup>st</sup> March, 2027 has to be made in prescribed Form M-3 which may be filled online or through hard Copy of form duly filled in and signed on both sides together with Renewal Certificate of Practice fee of ₹2,000/-\* and all other dues to the Institute on account of annual membership fees \* and entrance fees \*.
- b. The annual membership fee for Associate and Fellow members are ₹1,000/-\* and ₹1,500/-\* respectively. The entrance fee \* for Associate and Fellow members is ₹1,000/-\* each payable at a time at the time of application for admission to Associateship or advancement to Fellowship, as the case may be.
- c. The fees \* may be paid online or by Demand Draft/at par cheque payable at Kolkata if remitted by post to the Institute's office at Kolkata.
- d. Members should note that the **renewal of Certificate of Practice can be effected only after receipt of the prescribed fees \* along with duly filled in form at the Membership Department of the Institute at Kolkata and on meeting the stipulated CEP credit hours.** Mere submission of the same at the Regional Councils or Chapters will not be sufficient. Members are advised to make payment directly to the Membership Department or use the online facility of submission of application and payment to avoid any delay.

**All practising members are advised to send their application for renewal of Certificate of Practice for the year 2026-27 along with other requirements as indicated above immediately so as to reach the Institute's Office at Kolkata well in advance to enable the Institute to issue the renewal of Certificate by 31<sup>st</sup> March, 2026.**

**Renewal of Part-time Certificate of Practice**

1. For renewal of part-time Certificate of Practice, it is also essential to furnish a certificate from the employer in the following form or in a form as near thereto as possible if the practising member has undertaken any employment or there has been a change in employment:

“Shri/Smt ..... is employed as designation) ..... and (name of Organisation) ..... he/she is permitted, notwithstanding anything contained in the terms of his/her employment, to engage himself/herself in the practice of profession of Cost Accountancy in his/her spare time in addition to his/her regular salaried employment with us.

Signature of Employers with seal of Organisation”

2. It may be noted that members holding Part-time Certificate of Practice (CoP) are not eligible to undertake statutory assignments like Cost Audit, Central Excise Audit, etc.

*\*GST is applicable against payment*



**THE INSTITUTE OF COST ACCOUNTANTS OF INDIA**  
(STATUTORY BODY UNDER AN ACT OF PARLIAMENT)

**TIME TABLE & PROGRAMME- JUNE 2026**

**FOUNDATION COURSE EXAMINATION**

(Multiple Choice Questions through offline OMR based from Centre)

Day & Date	Foundation Course Examination Syllabus-2022	
	Time 10.00 A.M. to 12.00 Noon. - IST Paper – 1 & 2 (200 Marks)	Time 02.00 P.M. to 04.00 P.M. - IST Paper – 3 & 4 (200 Marks)
Sunday, 14 <sup>th</sup> June, 2026	<b>Paper – 1 :</b> Fundamentals of Business Laws and Business Communication (100 Marks 50 Multiple Choice Questions)  <b>Paper – 2 :</b> Fundamentals of Financial and Cost Accounting (100 Marks 50 Multiple Choice Questions)	<b>Paper – 3 :</b> Fundamentals of Business Mathematics and Statistics (100 Marks 50 Multiple Choice Questions)  <b>Paper – 4 :</b> Fundamentals of Business Economics and Management (100 Marks 50 Multiple Choice Questions)

**The Institute has decided to conduct June 2026 Foundation Examination through offline OMR centre based.**

Examination Fees

Foundation Course Examination	Inland Candidate	1500/-
	Overseas Candidate	US \$ 100

- Application Forms for Foundation Examination has to be filled up through online and fees will be accepted through online mode (including Payfee Module of IDBI Bank)
  - STUDENTS FROM OVERSEAS HAVE TO APPLY OFFLINE AND SEND DD ALONG WITH THE FORM.
- (a) Students can login to the website [www.icmai.in](http://www.icmai.in) and apply online through payment gateway by using Credit/Debit card or Net banking.  
(b) Students can also pay their requisite fee through pay-fee module of IDBI Bank.
- Last date for receipt of Examination Application Forms is 15<sup>th</sup> April, 2026 without late fee, and from 16<sup>th</sup> April, 2026 to 22<sup>nd</sup> April, 2026 with late fee of 500/- (Rupees Five hundred only) for June 2026 examination.**
- The Foundation Examination will be conducted in M.C.Q Mode through offline OMR based from Centre.
  - Each paper will carry 100 marks 50 Multiple Choice Questions (Each Question will carry 2 Marks). Each session will have a total of 100 Multiple Choice Questions of 200 marks.
  - All Candidates/students are to appear in the Foundation examination through offline OMR centre based.
- A candidate/student who is completing all conditions for appearing in the examination as per Regulations will only be allowed to appear for the examination.
- There is no negative marking.
- Detailed instructions will be provided along with Admit Card.
- Examination Centres: Adipur-Kachhh (Gujarat), Agartala, Agra, Ahmedabad, Ahmednagar (Maharashtra), Akurdi, Angul Talcher, Asansol, Anandpur Sahib (Punjab), Balasore (Odisha), Ballari (Karnataka), Bankura, Bathinda (Punjab), Bengaluru, Bharuch Ankleshwar, Bhilai, Bhillwara, Bhiwandi (Maharashtra), Bhiwani (Haryana), Bhopal, Bewar City(Rajasthan), Bhubaneswar, Bilaspur, Bikaner (Rajasthan), Bokaro, Brahmapur – Ganjam (Odisha), Chandigarh, Chennai, Chhatrapati Sambhajanagar (Aurangabad), Coimbatore, Cuttack, Dindigul, Dehradun, Delhi, Dhanbad, Duliajan (Assam), Durgapur, Ernakulam, Erode, Faridabad, Gaya, Ghaziabad, Gorakhpur (Uttar Pradesh), Guntur, Gurugram, Guwahati, Haridwar, Hazaribagh, Hosur, Howrah, Hubballi (Karnataka), Hyderabad, Indore, Jaipur, Jabalpur, Jalandhar, Jalgaon-Dhule (Maharashtra), Jammu, Jamshedpur, Jeypore (Odisha), Jhunjhunu (Rajasthan), Jodhpur, Kalyan, Kannur, Kanpur, Karnal (Haryana), Karur (Tamil Nadu), Kanchipuram, Kharagpur (West Bengal), Kolhapur, Kolkata, Kollam, Kota, Kottakkal (Malappuram), Kottayam, Kozhikode, Kurnool (Andhra Pradesh), Lucknow, Ludhiana, Madurai, Mangaluru, Meerut, Mumbai, Muzaffarpur (Bihar), Mysuru, Nagpur, Naihati, Nanded (Maharashtra), Nashik, Nellore, Neyveli, Noida, Palakkad, Palghar, Panaji (Goa), Patiala, Patna, Pollachi (Tamil Nadu), Port Blair, Prayagraj (Allahabad), Puducherry, Pune, Raipur, Rajahmundry, Ranchi, Ratnagiri (Maharashtra), Rewari (Haryana), Rourkela, Rudrapur (Uttarakhand), Salem, Sambalpur, Sangrur (Punjab), Satara (Maharashtra), Serampore, Shillong, Shimla, Siliguri, Singrauli (Vindhyanagar), Sivaganga (Tamil Nadu), Solapur, Srinagar, Surat, Thanjavur (Tamil Nadu), Thiruvananthapuram, Thoothukudi (Tamil Nadu), Thrissur, Tiruchirappalli, Tirunelveli, Tirupati, Udaipur, Vadodara, Vapi, Varanasi (Uttar Pradesh), Vashi, Vellore, Vijayawada, Visakhapatnam and Overseas Centres at Bahrain, Dubai and Muscat.
- Date of publication of result: Foundation examination latest by 9<sup>th</sup> July, 2026.

\* The Candidates/students are advised to keep regularly in touch with the website of the Institute for further notifications and announcements relating to Foundation Examination of June 2026 and in case of any query or clarification can e-mail us at - [exam.helpdesk@icmai.in](mailto:exam.helpdesk@icmai.in)

CMA Dr. Debaprosanna Nandy  
Secretary (Officiating)

**THE INSTITUTE OF COST ACCOUNTANTS OF INDIA**  
(STATUTORY BODY UNDER AN ACT OF PARLIAMENT)

**INTERMEDIATE AND FINAL EXAMINATION TIME TABLE & PROGRAMME – JUNE 2026**

Day & Date	ATTENTION: INTERMEDIATE & FINAL EXAMINATION (JUNE – 2026 TERM) WILL BE HELD ON ALTERNATE DATES FOR EACH GROUP.	
	FINAL	INTERMEDIATE
	(Time: 10.00 A.M. to 01.00 P.M. - IST) <b>PROGRAMME FOR SYLLABUS 2022</b>	(Time: 2.00 P.M. to 5.00 P.M. - IST) <b>PROGRAMME FOR SYLLABUS 2022</b>
Thursday, 11th June, 2026	Corporate and Economic Laws (P-13)	Business Laws and Ethics (P-05)
Friday, 12th June, 2026	Cost and Management Audit (P-17)	Operations Management and Strategic Management (P-09)
Saturday, 13th June, 2026	Strategic Financial Management (P-14)	Financial Accounting (P-06)
Sunday, 14th June, 2026	Corporate Financial Reporting (P-18)	Corporate Accounting and Auditing (P-10)
Monday, 15th June, 2026	Direct Tax Laws and International Taxation (P-15)	Direct and Indirect Taxation (P-07)
Tuesday, 16th June, 2026	Indirect Tax Laws and Practice (P-19)	Financial Management and Business Data Analytics (P-11)
Wednesday, 17th June, 2026	Strategic Cost Management (P-16)	Cost Accounting (P-08)
Thursday, 18th June, 2026	<b>Electives (Any one of three Papers) :</b> (i) Strategic Performance Management and Business Valuation (P-20A) (ii) Risk Management in Banking and Insurance (P-20B) (iii) Entrepreneurship and Start up (P-20C)	Management Accounting (P-12)

Group (s)	Final Examination	Intermediate Examination
One Group (Inland Centres) (Overseas Centres)	₹ 1800/- US \$ 100	₹ 1500/- US \$ 100
Two Groups (Inland Centres) (Overseas Centres)	₹ 3200/- US \$ 150	₹ 2800/- US \$ 150

- Application Forms for Intermediate and Final Examination has to be filled up through online only and fees will be accepted through online mode only (including Payfee Module of IDBI Bank). No Offline form and DD payment will be accepted for domestic candidate.
- STUDENTS OPTING FOR OVERSEAS CENTRES HAVE TO APPLY OFFLINE AND SEND DD ALONGWITH THE FORM.
- (a) Students can login to the website [www.icmai.in](http://www.icmai.in) and apply online through payment gateway by using Credit/Debit card or Net banking.  
(b) Students can also pay their requisite fee through pay-fee module of IDBI Bank.
- Last date for receipt of Examination Application Forms is 10<sup>th</sup> April, 2026 without late fee, and from 11<sup>th</sup> April, 2026 with late fee of ₹500/- (Rupees Five hundred only) for June 2026 examination.**
- The mode of examination will be offline-centre based.
- Candidates are required to follow clarifications of DOS related to June 2026 term of examination and the same will be issued by DOS in due course.
- Examination Centres: Adipur-Kachchh (Gujarat), Agartala, Agra, Ahmedabad, Ahmednagar (Maharashtra), Akurdi, Angul Talcher, Asansol, Anandpur Sahib (Punjab), Balasore (Odisha), Ballari (Karnataka), Bankura, Bengaluru, Bharuch, Ankleshwar, Bhubaneswar, Bhubaneswar, Bilaspur, Bikaner (Rajasthan), Bhubaneswar, Bhubaneswar, Bhubaneswar, Bokaro, Brahmapur – Ganjam (Odisha), Chandigarh, Chennai, Chhatrapati Sambhaji Nagar (Aurangabad), Coimbatore, Cuttack, Dindigul, Dehradun, Delhi, Dhanbad, Dullaijan (Assam), Durgapur, Ernakulam, Erode, Faridabad, Gaya, Ghaziabad, Gorakhpur (Uttar Pradesh), Guntur, Gurugram, Guwahati, Haridwar, Hazaribagh, Hosur, Howrah, Hubballi (Karnataka), Hyderabad, Indore, Jaipur, Jabalpur, Jalandhar, Jalgaon-Dhule (Maharashtra), Jammu, Jamshedpur, Jeypore (Odisha), Jhunjhunu (Rajasthan), Jodhpur, Kalyan, Kannur, Karpal (Haryana), Karur(Tamil Nadu), Kanchipuram, Kharagpur (West Bengal), Kolkata, Kollam, Kota, Kottakkal (Malappuram), Kottayam, Kozhikode, Kurnoor (Andhra Pradesh), Lucknow, Ludhiana, Madurai, Mangaluru, Meerut, Mumbai, Muzaffarpur (Bihar), Mysuru, Nagpur, Naitati, Nanded (Maharashtra), Nashik, Nellore, Neyveli, Noida, Palakkad, Palghat, Panaji (Goa), Patiala, Patna, Pollachi (Tamil Nadu), Port Blair, Prayagraj (Allahabad), Puducherry, Pune, Raipur, Rajahmundry, Ranchi, Ratnagiri (Maharashtra), Rewari (Haryana), Kourkela, Rudrapur (Uttarakhand), Salem, Sambalpur, Satara (Maharashtra), Serampore, Shillong, Shimla, Siliguri, Singrauli (Vidhyanagar), Sivaganga (Tamil Nadu), Surat, Thanjavur (Tamil Nadu), Thiruvananthapuram, Thoothukudi (Tamil Nadu), Thrissur, Tiruchirappalli, Tirumelveli, Tirupati, Vadodara, Vapi, Varanasi (Uttar Pradesh), Vashi, Vellore, Vijayawada, Visakhapatnam and Overseas Centres at Bahrain, Dubai and Muscat.
- A candidate who is fulfilling all conditions specified for appearing in examination will only be allowed to appear for examination.
- Date of publication of result: Inter & Final examination latest by 05<sup>th</sup> August, 2026.

\* The candidates/students are advised to keep regularly in touch with the website of the Institute for further notifications and announcements relating to Examination of June 2026 and in case of any query or clarification can e-mail us at [exam.helpdesk@icmai.in](mailto:exam.helpdesk@icmai.in)

CMA Dr. Debaprosanna Nandy  
Secretary (Officiating)

# THE MANAGEMENT ACCOUNTANT

## PAPERS INVITED

Cover Stories on the topics given below are invited for 'The Management Accountant' for the four forthcoming months

June 2026	Theme Our Small Hands to Make You Large: Corporate Mitras and the New Architecture of Professional Support for MSMEs	Subtopics <ul style="list-style-type: none"> <li>○ The Concept of 'Corporate Mitras' in India's Budgetary Vision – Redefining Professional Assistance for MSMEs</li> <li>○ Corporate Mitras Strengthening MSMEs as the Backbone of India's Economic Future</li> <li>○ Empowering Tier-II and Tier-III India Through Local Expertise</li> <li>○ Employment Generation and Career Pathways for Para-Professionals</li> <li>○ From Learning to Livelihood: Creating a Cadre of Corporate Mitras</li> <li>○ Corporate Mitras as Catalysts for Formalization and Ease of Doing Business</li> <li>○ Policy, Regulatory, and Implementation Challenges Ahead</li> <li>○ Unlocking MSME Potential for Inclusive Growth Through Corporate Mitras</li> </ul>
July 2026	Theme Innovation in Action	Subtopics <ul style="list-style-type: none"> <li>○ Digital Transformation in Costing Systems</li> <li>○ Innovation in Cost Audit Practices</li> <li>○ GST Compliance in the Digital Era</li> <li>○ Strategic Cost Management for Competitive Advantage</li> <li>○ Costing for Sustainability &amp; ESG Reporting</li> <li>○ Automation &amp; Robotics in Finance Function</li> <li>○ Future-Ready Finance Professionals</li> <li>○ Innovation in Financial Regulation: The Role of IFSC &amp; IFSCA</li> </ul>
August 2026	Theme From Independence to Viksit Bharat 2047: Strategic Management Accounting for a Self-Reliant India	Subtopics <ul style="list-style-type: none"> <li>○ Strategic Cost Management for Self-Reliant Nation Building</li> <li>○ Role of Management Accounting in Transparent Governance and Economic Freedom</li> <li>○ Digital India: Driving Financial Independence through Analytics</li> <li>○ Sustainable Growth: Integrating ESG for Responsible Nation Building</li> <li>○ Empowering Startups &amp; MSMEs: Engines of Atma Nirbhar Bharat</li> <li>○ Nation First: Optimizing Resource Allocation for Infrastructure Development</li> <li>○ Global Competitiveness: Strengthening India's Economic Independence</li> <li>○ Vision 2047: Future-Ready CMA Professionals for a Self-Reliant India</li> </ul>
September 2026	Theme Industry 5.0: Building Intelligent, Sustainable and Resilient Enterprises	Subtopics <ul style="list-style-type: none"> <li>○ Human-Centric Manufacturing Systems</li> <li>○ Human-Machine Collaboration (Cobots)</li> <li>○ Sustainable and Circular Production Models</li> <li>○ Resilient and Adaptive Supply Chains</li> <li>○ Advanced Digital Technologies for Industry 5.0</li> <li>○ Smart and Connected Industrial Ecosystems</li> </ul>

*The above subtopics are only suggestive and hence the articles may not be limited to them only.*

Articles on the above topics are invited from readers and authors along with scanned copies of their recent passport size photograph and scanned copy of declaration stating that the articles are their own original and have not been considered for anywhere else. Please send your articles by e-mail to [editor@icmai.in](mailto:editor@icmai.in) latest by the 1<sup>st</sup> week of the previous month.



### DIRECTORATE OF JOURNAL & PUBLICATIONS

CMA Bhawan, 4<sup>th</sup> Floor, 84 Harish Mukherjee Road, Kolkata - 700025, India

[www.icmai.in](http://www.icmai.in)

# RESEARCH BULLETIN

Volume 51 • Nos. I & II • April & July 2025

Price of Single Copy: ₹400.00 only  
Annual Subscription (for Four Volumes): ₹1200.00 p.a.  
Courier Charges: ₹200.00 p.a. for four volumes  
Payment Mode: NEFT/ RTGS/ Demand Draft



For further queries please  
feel free to communicate with us at:  
[research.bulletin@icmai.in](mailto:research.bulletin@icmai.in)

Latest Edition



## THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

(Statutory Body under an Act of Parliament)

[www.icmai.in](http://www.icmai.in)



Research Bulletin, Vol. 52 No. I April 2026 (ISSN 2230 9241)

### Call for Research Papers/Articles

We invite you to contribute research paper/article for "Research Bulletin", a peer-reviewed Quarterly Journal of The Institute of Cost Accountants of India. The aim of this bulletin is to share innovative achievements and practical experiences from diverse domains of management, from researchers, practitioners, academicians and professionals. This bulletin is dedicated to publishing high quality research papers providing meaningful insights into the management content both in Indian as well as global context.

### Guidelines to submit full Paper

- Soft Copy of the full paper should be submitted in double space, 12 font size, Times New Roman, keeping a margin of 1 inch in four sides, MS Word (.doc) format.
- Each paper should be preferably within 5000 words including all.
- An abstract of not more than 150 words should be attached.
- The cover page should contain the title of the paper, author's name, designation, official address, contact phone numbers, e-mail address.

### Papers are invited on the following topics, but not limited to:

- ▲ Capital Markets in India
- ▲ The Impact of AI on Financial Reporting Accuracy
- ▲ Customer Relationship Management (CRM)
- ▲ Quality Management and Assurance
- ▲ Risk Management
- ▲ Strategic Management
- ▲ Supply Chain Management
- ▲ Corporate Governance
- ▲ Ethics in Business
- ▲ Agricultural Economics
- ▲ Derivatives and Risk Management
- ▲ Banking & Insurance
- ▲ International Finance
- ▲ International Trade and FDI
- ▲ Influence of AI on Global Workforce
- ▲ Corporate Sustainability and Green Innovation

### Papers must be received within

**30<sup>th</sup> May, 2026**

**in the following email id:**

[research.bulletin@icmai.in](mailto:research.bulletin@icmai.in)



**ICMAI**  
**THE INSTITUTE OF**  
**COST ACCOUNTANTS OF INDIA**  
**भारतीय लागत लेखाकार संस्थान**  
 Statutory Body under an Act of Parliament  
 (Under the jurisdiction of Ministry of Corporate Affairs)



Since 1944

The Institute of Cost Accountants of India is a premier professional Institute and a Statutory Body functions under the jurisdiction of the **Ministry of Corporate Affairs, Government of India** to regulate and develop the profession of **Cost and Management Accountancy (CMA)** in the country.

[www.icmai.in](http://www.icmai.in)

[studies@icmai.in](mailto:studies@icmai.in)

**CMA**  
**COURSE**  
**GOING GLOBAL**  
 CMA Courses - Eligibility Criterion

**CMA LEADS**

6,00,000* Students	1,00,000* Qualified Professionals	4 Regional Councils	113 Chapters across India
401 ROCC & 17 Accredited Institutions	11 Overseas Centers	Largest CMA body in the Globe	

**Admission in Foundation Course**

- Passed Class 10 (Require to pass 10+2 before appearing in CMA Examination)
- 10+2 Pass or its equivalent (Students appearing for 10+2 also apply on provisional basis)

**Registration to Intermediate Course**

- Passed CMA Foundation Examination
- Graduates of any discipline (Students awaiting final result also apply on provisional basis)
- Qualified CAT Level - I of The Institute of Cost Accountants of India
- Qualified CA Intermediate; Qualified Engineers; Qualified CS

**Core Strengths of CMA Profession**

Building Cost Effectiveness	Benchmarking	Cost & Management Accounting
Business Strategy & Sustainability	Effective Regulatory Landscape	Financial Management
Auditing & Assurance	Enterprise Governance	Direct & Indirect Tax Management
Business Valuation & Product Pricing	Cost-Benefit Analysis	Management Control Systems

**Course Fees**

**FOUNDATION - Rs. 6,000/-**  
**INTERMEDIATE - Rs. 23,100/-\***  
**FINAL - Rs. 25,000/-\***

\*Installation facility available

**Important Job Roles For CMAs**

- CMD
- CEO
- COO
- CFO
- Director - Finance
- President - Finance
- Vice President - Finance
- Head of Finance
- Strategic Head
- Cost Advisor
- Finance Controller
- Cost Controller
- Risk Manager
- Business Analyst
- Research Analyst
- Dean/Professor of Finance

and many more ....

**Career Opportunities for CMAs**

Service	Practice	Start-up
Industry	Academia	

University Grants Commission (UGC) recognizes CMA Qualification as equivalent to PG Degree

CMA Qualification is recognised by NARIC (National Recognition Information Centre of UK) as equivalent to Master's Degree in U.K. and UAE



**ADMISSION OPEN**

**PROMINENT RECRUITERS IN CMA CAMPUS PLACEMENT DRIVES**


And Many More ..

Highest CTC offered **INR 36 lakh p.a.**

Avg. CTC offered **INR 12 lakh p.a.**

More than **4,000** Placements during **2022 - 2025**



**The Institute of Cost Accountants of India**

Headquarters: CMA Bhawan, 3, Institutional Area, Lodhi Road, New Delhi - 110003  
 Kolkata Office: CMA Bhawan, 12, Sudder Street, Kolkata - 700016



Help Desk:  
<https://eicmai.in/Grievance-Portal/index.aspx>



+91 94323 82747



placement@icmai.in  
 cpt@icmai.in  
 career-counselling@icmai.in

Behind Every Successful Business Decision, there is always a **CMA**

Follow us: