ICICI Lombard

CORPORATE INDIA RISK INDEX

2024

Intelligence partner FROST & SULLIVAN

Navigating Risks, Powering India's Growth

SECTOR REPORT 2024

Chemicals & Petrochemicals

Table of Contents

Preface

Corporate India Risk Index is primarily an academic exercise to understand the level of risk that companies are facing and also assist in developing a successful risk aversion plan, CIRI is a first-of-its-kind risk measurement tool to gauge the level of a company's risk exposure and preparedness.
This Corporate risk comprises of various aspects of the business–spanning customer, competition, regulatory environment, business operations, technology finances, environmental factors etc. The impact of unprecedented events is significantly higher now.
This Index is a comprehensive framework that draws upon global risk management best practices and comprises of 32 risk elements across 6 broad dimensions. The Risk Index is based on the principles of Lean and Six Sigma that qualify business processes by measuring effectiveness and efficiency.
ICICI Lombard's Corporate India Risk Index provides a crucial tool for assessing and addressing risks, fostering resilience and adaptability in the ever-evolving global landscape. In the current climate of increasing macroeconomic uncertainties, it is essential for corporates to prioritize robust risk management. We believe that a proactive approach to risk management not only fortifies individual businesses but also contributes significantly to India's overall economic growth and stability.

Executive Summary

In 2024, India's chemical and petrochemical sector demonstrated resilience and growth, driven by a strong focus on sustainability and technological innovation. Companies made significant strides in adopting green chemistry and carbon capture technologies to meet stringent environmental regulations. Investments in bio-based feedstocks and sustainable production methods allowed firms to reduce their reliance on fossil fuels while advancing their commitment to a circular economy.

Despite challenges like market volatility, primarily due to fluctuating crude oil prices, and operational hazards related to chemical processing, companies effectively managed these risks through digital supply chain solutions, hedging strategies, and AI-driven safety protocols. Enhanced focus on predictive maintenance and real-time hazard detection using IoT technology minimized the risk of industrial accidents. By embracing these strategies, the sector navigated its risks efficiently while positioning itself for long-term growth and sustainability.

Introduction

ICICI Lombard Corporate India Risk Index is a one of its kind, unified, credible, standardized corporate Risk Index that spans over the country level, the industry level, and the company level. The index has a comprehensive sector coverage.

Aerospace and Defence, Agriculture and Food Processing, Automotive and Ancillary, BFSI, Biotech & Life sciences, Chemicals and Petrochemicals, Education Skill Development, Energy, FMCG, Healthcare Delivery, Infra and Realty, IT/ITES, Manufacturing, Media and Gaming, Metals and Mining, New Age & Startup, Pharmaceuticals, Telecom and Communication Technology, Tourism and Hospitality, Transportation and Logistics.

The impact is identified across key business risk (internal and external) under the following 'Strategic Risk Areas', The ICICI Lombard Corporate India Risk Index Framework comprises of 32 risk elements across 6 broad dimensions

Market and Economic Risk

Corporate Risks arising due to market and economy related factors, such as internal or external political uncertainty, global slowdown, taxation-regulatory changes etc. Market and economy related risks are also identified as 'Systematic Risks', we have further classified the risks into below mentioned categories.

- **Inflation**: Inflation is the general increase in prices within the economy. The rising prices for businesses could result in bigger production spending and a fall in profitability. The companies should be attentive, acute, and responsive to changes in inflation to efficiently manage the prices of final products.
- **Taxation**: In a large democracy like India, complexity of multiple taxes (multiple taxes like GST, custom duties, central excise duty, etc.) is a major concern. The changing legislations, increased scrutiny by tax authorities and increasing public attention are together resulting in tax risks for organizations. There is, thus an increasing urgency for firms to manage their tax affairs efficiently to minimize tax risks.
- **Regulatory Risks**: Regulatory risk is the risk of changes in regulations and laws that might affect an industry or businesses. The regulatory changes can pertain to tariffs and trade policies,

business laws pertaining to employment, minimum wage laws, financial regulation, Foreign Direct Investment etc.

- **Foreign Exchange Risk**: The exchange rate plays an important role for firms who export goods and import raw materials. The fluctuations in foreign exchange will have great impacts on the prices of traded goods. For example, if the currency depreciates (devaluation), the exporting firms will benefit. However, the firms importing raw materials will face higher costs on imports. The firms need to hedge their exposure to foreign exchange risks to insulate themselves from the impact from forex changes.
- **Geo-political Tension**: Geopolitical risk means the political and economic risks that are a potential threat to the financial and operational stability of companies.
- **Competitive risk**: Competitive risk is the risk associated with the fact that there are multiple companies competing in the market, each seeking to obtain the highest position and consumer ratings, to gain maximum benefits for themselves. The companies devise different strategies to garner a higher market share and acquire customers from competitors. Any failure in managing the competitive stand could lead to losses in business, thereby making marketing and competition a major risk in market.

Technology Risk

Technology risks are also identified as information technology related risks which may arise due to failure of any installed hardware or software system, spam, viruses or any malicious attack. Also delay/over/under adoption of trending disruptive technologies can lead to technology related risks. We have classified the risks in below mentioned categories.

- **Innovation Risk / Obsolete Technology**: Innovation is the key to success in all the industries. Risk of redundancy and losing out to competition on account of poor R&D is a major concern.
- **Intellectual Property risk:** Dependence on trade secrets and unpatented proprietary know-how.
- **Disruptive Technologies:** These will fundamentally alter the financial prospects of the industry.
- **Data Compromise:** Hardware failure refers to malfunctions within the electronic circuits or electromechanical components (disks, tapes) of a computer system; Software failure refers to an operating system crash. Such failures lead to stoppage of entire computer or operating systems creating substantial losses to business.

Operational and Physical Risk

Risk of losses caused due to faulty or failed processes, systems or human resource related inefficiencies are classified as operational and physical risks. We have classified Operational & Physical risks in below mentioned categories.

- **Critical Infrastructure Failure / Machine Breakdown:** Industries with a heavy dependence on machinery consider any rise in machinery breakdowns a hindrance to their businesses operations. An untimely equipment breakdown can bring businesses to a standstill or be the root cause for fires and explosions. Mostly, human errors and deferred maintenances are the major reasons for such breakdowns. The companies should actively invest in timely maintenance of all machineries.
- **Business Continuity / Sustainability:** Non adoption of Business Continuity/ Sustainability Plans and Lack of Internal Control tools would result in: Failure of businesses, Brand Equity / Loss of reputation, Financial Loss, Business model Failure, Ineffective engagement/communication with stakeholders, Losses in productivity, Lack of opportunity monitoring.
- **Supply chain risk:** Raw Material unavailability and Heavy Dependence on Global Supply Chains / Supplier concentration risk. Unavailability of raw materials owing to disruption in the supply chain or heavy dependency on one source (company/country) which is unable to supply owing to some geo- political tensions, fires, or any other incidents. Transportation is one of the key activities for companies making it an important risk to mitigate. The loss of goods in transit and spillage is one of the major concerns as it accounts for a sizeable loss of revenue to companies.
- **Commodity Price Risk - Volatility in prices of raw materials:** The fluctuations in raw material prices creating a margin pressure / top-line pressure in the scenario of rising input costs.
- **Portfolio Risk:** Loss of key customers, Customer concentration - Key customers accounting for a larger share of revenue, Over-dependence on suppliers, Business Model Risk: Transformative changes in business model, Tail Risks: Ability to overcome or manage extreme worst-case scenarios.
- **Environmental Hazard Risk:** Any environmental hazard having the potential to affect the surrounding environment.
- **Workplace Accident:** Fire and Explosion Hazards, Containment Incidents, Workplace Injuries
- **Human Resource:** Key person risk: This risk occurs when a business or business unit becomes heavily reliant on a key individual. Talent acquisition and retention - The companies require a highly skilled labor force for R&D as well as continuous production. Accessing skilled resources and expertise on an on-going basis is one of the major challenges; moreover, retention of trained staff is imperative. Labor shortages, Union Strikes & Industrial Actions, Employee

health, safety, and security (SHE/Sustainability risk).

- **Financial Risk:** Financial Reporting Risk: Material misstatement of Financial Statements, whether due to fraud or error. Interest rates and equity prices: Interest rate risk arising out of working capital borrowings at variable rates. Equity price fluctuations affect the Company's income or the value of its holdings of financial instruments. Liquidity Risk (Credit Risk / Receivables).
- **Breaches of law (local/ international):** Voluntary/ involuntary breaches of law can lead to costly lawsuits.

Crime & Security Risk

Cybersecurity risks relate to the loss of confidentiality, integrity, or availability of information, data, or information (or control) systems and reflect the potential adverse impacts to organizational operations. These attacks can cause major financial losses, reputational harm, and a loss of client trust. Regarding cybersecurity, the BFSI industry in India has several difficulties, including difficult-to-secure legacy systems, a shortage of qualified cybersecurity personnel, and the requirement for ongoing system and network monitoring. There is a significant investment in cybersecurity tools like network monitoring, endpoint security, access control, and threat intelligence. Many organizations are also implementing cutting-edge technology like artificial intelligence and machine learning to strengthen their security posture.

We have classified Crime & Security risks in below mentioned categories.

- **Cyber Crimes:** Data Theft, Spam, scams and phishing, Hacking, Malwares and Viruses, Piracy, Fraud, Corruption, Malicious attacks
- **Counterfeiting:** Counterfeiting of goods/services leads to loss of revenues, profits and ultimately affects the brand equity
- Threat to Women Security
- **Terrorism:** Un-lawful use of violence and intimidation, especially against civilians, in the pursuit of political aims.

Natural Hazard Risk

A natural hazard is the threat of an event that will likely have a negative impact. A natural disaster is the negative impact following an actual occurrence of natural hazard if it significantly harms a community. Due to India's geographical structure, it is one of the most disaster-prone countries in the world. Natural hazards like floods, earthquakes, landslides, and cyclones are common risks faced by India. The situation has worsened due to rise in GHG emissions, loss of biodiversity, deforestation, and degradation of environment. Natural disasters hamper the day-to-day operations of corporates, and it is important for them to understand that such risks cannot go unheeded. Over the years, Indian corporates have learnt to mitigate such risks by diversifying their supply chains, having multiple logistics partners, diversified geographical presence and multiple vendors.

- **Pandemic and other global epidemic diseases:** Risk to business owing to disruptions caused by global pandemic scale events like the COVID-19 pandemic

Strategic Risk

Strategic risk is the risk of undesirable outcomes of business decisions which may impact a company. Strategic risk is often a major factor in determining a company's worth, particularly observable if the company experiences a sharp decline in a short period of time. Several factors, such as unethical or unlawful activities, poor customer service, product recalls, data breaches, or unfavorable media coverage, can lead to strategic risk. An organization's reputation can be severely harmed by a single negative incident, such as a high- profile data breach or fraud scandal, resulting in a loss of clients, income, and market share.

- **Resource scarcity / Misutilization / Overall Utilization:** Difficulties in acquisition of land, water, fuel, or other resources for operations of business.
- **Public Sentiment:** Current events playing out in the public scene can change the public sentiment.
- **Delay in execution of projects:** Delays in execution of projects can surge in the capex.
- **Increased number of recalls and quality audits:** Impacts both the brand equity and increased operational expenses.
- **Failed / Hostile Mergers & Acquisitions:** High dependence on inorganic growth.

Bottom-Up Risk Assessment Approach

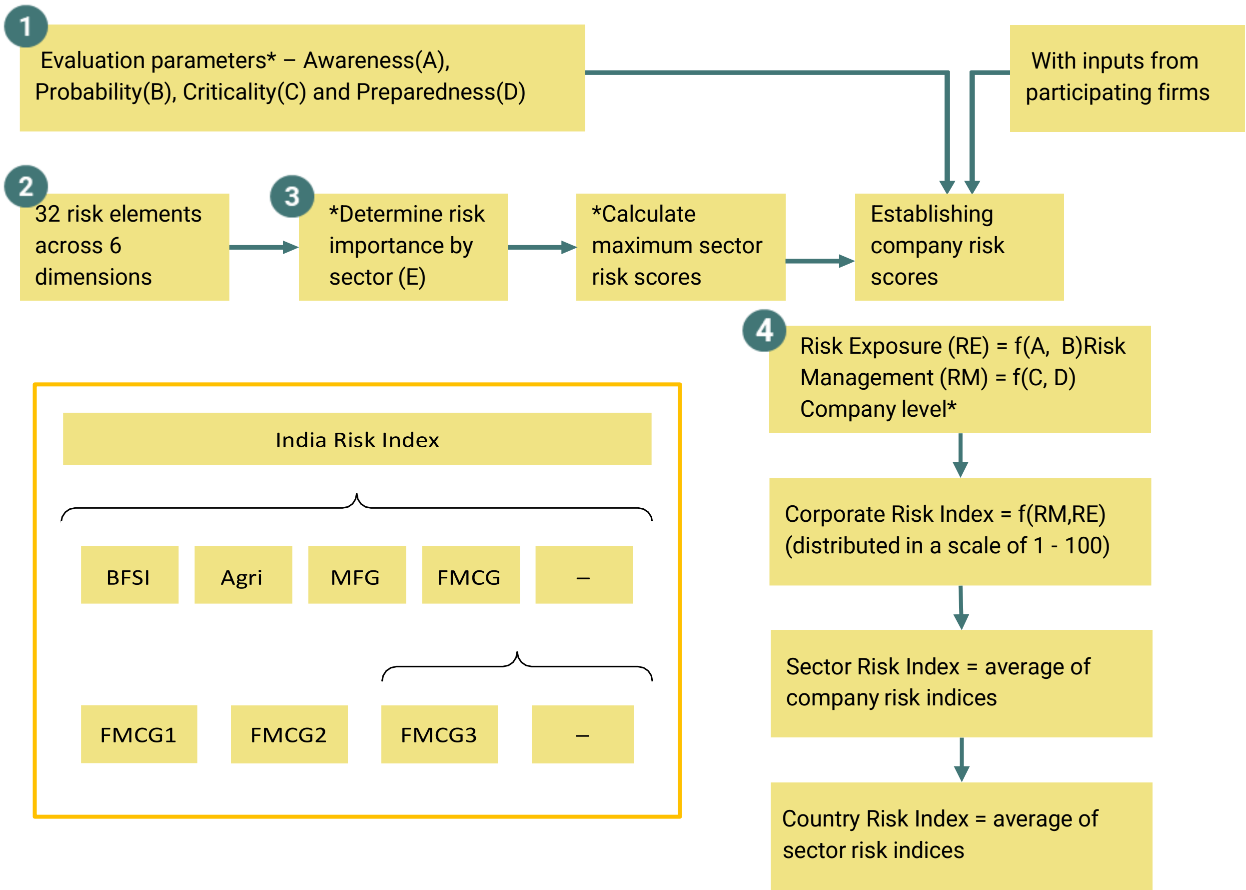


Figure 1: Risk Assessment Approach

1. **Evaluation Parameters*:** The index maps the risks faced by any enterprise basis of Awareness, Probability, Criticality and Preparedness against the defined Risk elements. The evaluation Parameters are defined as:

- Awareness - Level of awareness of potential risk affecting the firm.
- Probability - Likelihood of risk to affect the business goals of the firm adversely.
- Criticality - Level of impact of the identified risk on the success of business goals.
- Preparedness - Risk handling practices/ mechanisms already in place to handle the risk.

2. **Determining Risk Importance*:** Importance/Impact of individual risk element is established against individual sector based on the published corporate risk reports, in depth sector

understanding by F&S team and SMEs.

3. **Calculating Maximum Sector Risk Score**: Weighted Sum of all risk elements based on their importance to the respective sector.

4. **Company Level*:** All the Risk Index scores for companies in a sector are averaged to represent the sector; and sectors average to India. Risk Exposure is defined as the function of corporate's Risk Awareness and Probability of risk occurrence. Risk Management is defined as the function of an enterprise risk preparedness and criticality risk impact assessment.

Defining the Risk Scale

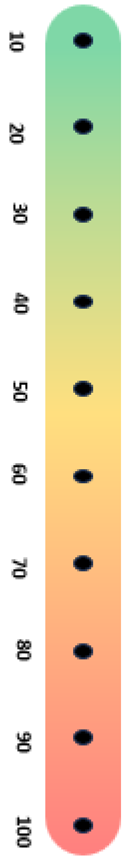
We have selected 20 sectors to understand the current stand of our country today in terms of risk. Risk for various sectors is measured on the risk exposure scale and risk management scale.

A. ICICI Lombard Corporate Risk Exposure – Scale

Risk Exposure: The impact of any internal, external or strategic occurrence on the financial performance of an organization is defined as the corporate risk exposure.

Risk has traditionally been seen as something to be avoided – with the belief that if behavior is risky, it's not something a business should pursue. But the very nature of business is to take risks to attain growth. Risk can be a creator of value and can play a unique role in driving business performance.

Let's look at the risk exposure scale.



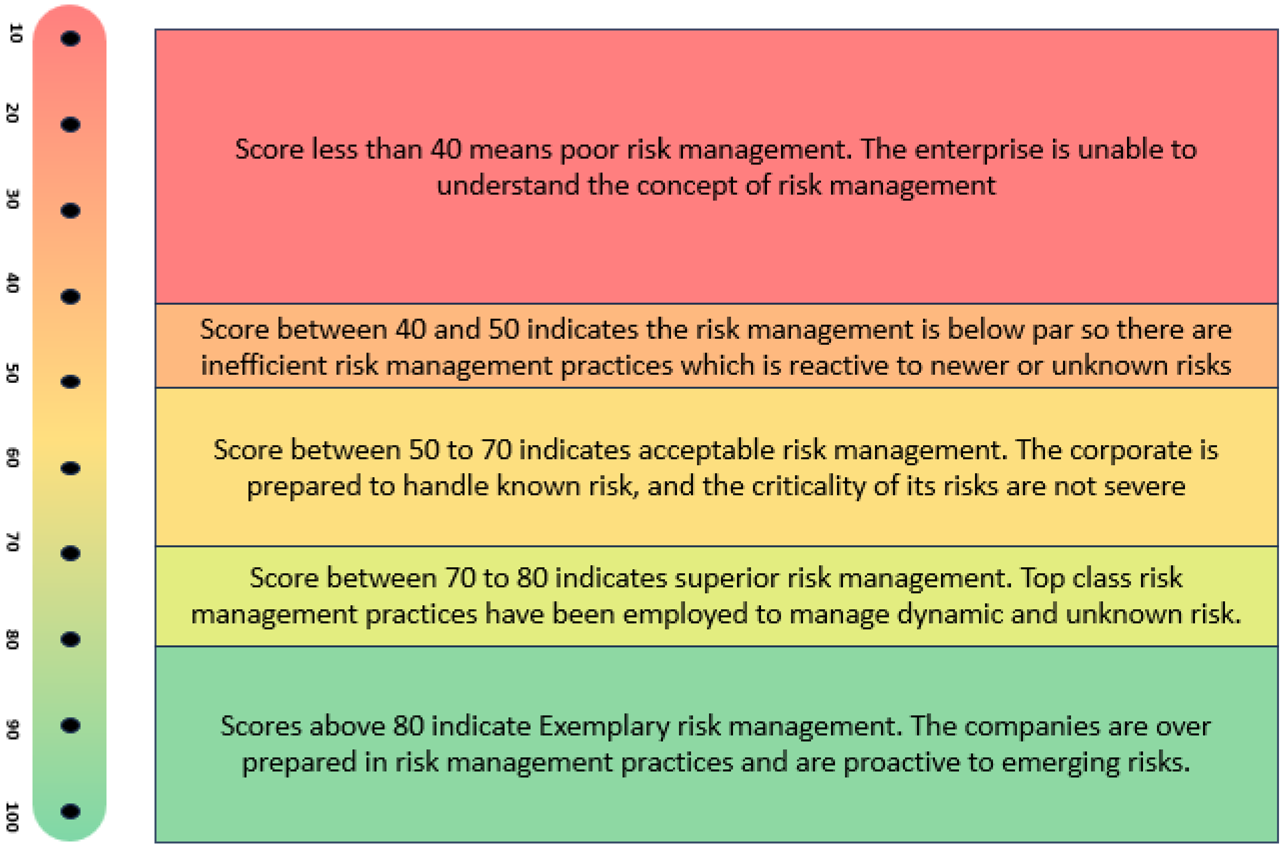
Score: If less than 30 means there is very low risk exposure, and the sector has minimal exposure to overall risk
Score between 30 to 50 indicates low risk exposure and its risk exposure is within acceptable or tolerable limits
Score between 50 to 60 indicates moderate exposure indicating corporate can balance the impact of overall risks up to a certain extent
Score between 60 to 80 indicates high risk exposure and its impact is very high in the industry in which the corporate operates
Score greater than 80 indicates very high-risk exposure. The corporate is unable to foresee risk incidents and probability of occurrence of these incidents may be extremely high

B. ICICI Lombard Corporate Risk Management – Scale

Risk Management: Identification, Evaluation and Prioritization of corporate risks followed by well- coordinated steps to minimize the occurrence of uncertainties in the foreseeable future is defined as the Corporate Risk Management.

The risk management scale works in the opposite to that of the risk exposure scale.

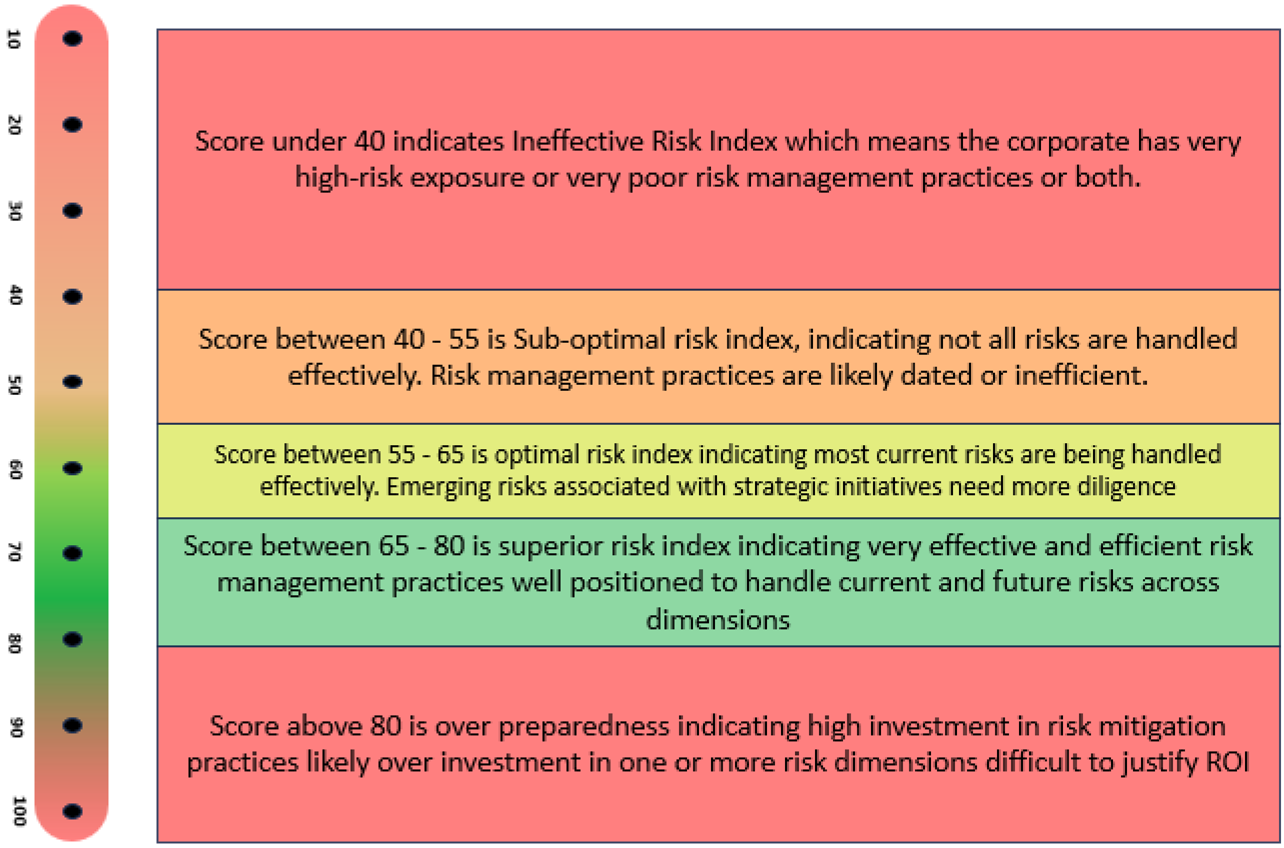
Let’s look at the risk management scale.



C. ICICI Lombard Corporate Risk Index – Scale

Risk Index: Risk Index is a measurement tool to gauge the level of Risk Exposure against Risk Preparedness. The score intends to give companies/Sector/Country access to an extensive and quantifiable metrics of risk management.

Let's look at the risk Index scale.



India - Resilient Growth and Superior Risk Management

In 2024, India's diverse sectors demonstrated significant growth and resilience, leveraging technological advancements, strategic reforms, and proactive risk management to navigate an evolving economic landscape. Despite global challenges, industries embraced innovation, digital transformation, and sustainable practices, positioning themselves for long-term success.

In this year, the integration of Artificial Intelligence (AI) across various sectors presented both significant opportunities and risks. While AI-driven innovations enhanced productivity, decision-making, and customer engagement, the adoption also raised concerns around data privacy, cybersecurity, and workforce displacement. India navigated these risks by implementing robust data protection regulations and promoting AI ethics in the development and deployment of technology. Additionally, the government and private sector invested in reskilling programs, ensuring the workforce was equipped to adapt to the evolving digital landscape. AI's strategic implementation across sectors like BFSI, healthcare, and manufacturing helped India enhance operational efficiency while balancing the challenges posed by rapid technological transformation.

The Aerospace & Defence sector saw substantial advancements as India attracted global aerospace companies seeking to strengthen supply chains. Local firms expanded their capabilities, particularly in the growing private space sector, driving both revenue growth and global competitiveness. The Agri & Food Processing sector turned to precision farming and AI-driven analytics to enhance productivity, while renewable energy solutions like solar-powered cold storage reduced post-harvest losses, improving sustainability and efficiency.

In the Automotive sector, the shift toward electric vehicles (EVs) gained momentum, supported by government schemes aimed at promoting EV adoption. Major manufacturers expanded their EV portfolios, addressing both sustainability goals and evolving consumer demands. The BFSI sector continued its digital transformation, with AI integration enhancing fraud detection and compliance, further improving security and efficiency.

The Biotech & Lifesciences sector experienced accelerated growth, particularly in genomics and vaccine development, with India solidifying its role as a global leader in pharmaceutical manufacturing. The sector's innovation, supported by public and private investments, enhanced healthcare technology and medical devices. In Chemicals & Petrochemicals, India attracted significant investments to meet rising demand, driven by growing consumption from its expanding middle class, while the Education sector embraced AI and digital learning platforms, expanding access to quality education and equipping the workforce for future demands in emerging technologies.

The Energy sector made substantial progress towards sustainability, with a focus on renewable energy, including ultra-mega solar parks and offshore wind projects. These initiatives were supported by favorable government policies and decreasing costs of clean energy technologies. The FMCG sector adapted to inflationary pressures by shifting focus towards premium products and e-commerce platforms, which were increasingly driving sales, particularly in rural markets.

In Healthcare, there was significant growth fueled by digital innovations such as telemedicine and AI-driven diagnostics, which helped improve access and efficiency in healthcare delivery. India also continued to strengthen its position as a global hub for medical tourism, offering competitive treatment options. The Real Estate sector benefitted from increased demand in affordable housing and infrastructure development, with commercial real estate seeing steady growth and an emphasis on sustainable building practices.

The IT sector continued to thrive despite global challenges, driven by demand for cloud services, cybersecurity solutions, and AI technologies. Tier 2 and 3 cities emerged as new tech hubs, with government support enhancing regional tech expansion. The Pharmaceutical sector saw an uptick in exports and domestic manufacturing, with reduced dependence on imports and new product launches in global markets bolstering its growth. In Manufacturing, India focused on boosting production through initiatives like the Production-Linked Incentive schemes, especially in electronics and EV manufacturing, which also contributed to job creation and supply chain resilience. The "China + 1" strategy adopted by global firms has played a pivotal role in shaping India's manufacturing sector. While it has increased risk exposure, it has also driven companies to invest in more sophisticated, globally relevant risk management practices, strengthening the sector's resilience and positioning India as a key player in global supply chains.

Media & Entertainment saw continued growth, with OTT platforms gaining popularity, especially in regional content. The Gaming industry also flourished, becoming a key revenue generator as mobile gaming gained dominance. In Steel and Mining, investments in decarbonization and digitalization allowed the sectors to reduce environmental impact and enhance operational efficiency. Startups saw substantial funding despite global slowdowns, with SaaS, fintech, and D2C brands leading the charge in innovation and market expansion.

The Telecom sector expanded 5G coverage and rural internet penetration, narrowing the digital divide and improving connectivity across the country. The Tourism & Hospitality sector rebounded strongly, attracting both domestic and international visitors, with eco-conscious travelers opting for sustainable tourism options and luxury experiences. Finally, the Logistics sector benefited from advancements in automation and multimodal connectivity, reducing costs and improving efficiency, while the government's National Logistics Policy streamlined operations, cutting transit times and enhancing cross-sector integration.

In summary, 2024 saw India's sectors display resilience and adaptability, addressing emerging risks through innovation, digital adoption, and sustainability initiatives. The country's ongoing focus on risk management, technological advancement, and strategic reforms has positioned its economy for continued growth and transformation, paving the way for India to solidify its place as a global economic leader.

India Showcasing an Optimized Risk Handling

Figure 2: Corporate India Risk Index 2024

A score of 65 on the Corporate Risk Index indicates optimal handling of risk by the Indian companies. In 2024, India faced significant market, economy, and operational risks across various sectors, highlighting areas for improvement in the coming years. The year was further complicated by global events such as the ongoing Israel-Palestine conflict, which led to geopolitical instability and fluctuations in global oil prices. The rise of recession fears in major economies like the United States and Europe disrupted supply chains and created demand uncertainties, impacting Indian exports and manufacturing. Investor sentiment in India remains flat in 2024, reflecting the cautious behavior of Angel and VC investors globally. This persistent challenge, which has carried over from 2023, highlights ongoing risks in the market and underscores the uncertainty that continues to affect investment decisions in the country.

Additionally, India's national elections increased risk exposure, with political uncertainty and policy shifts potentially affecting business operations, investor confidence, and sectoral reforms. These global and domestic challenges underscored the need for stronger risk management frameworks and adaptive strategies across India's industries to navigate future uncertainties effectively.

In response to the heightened risks in 2024, companies across India have increasingly focused on strengthening their risk management frameworks. With the backdrop of global uncertainties, such as geopolitical conflicts and economic slowdowns, alongside domestic challenges like the national elections, businesses have prioritized proactive risk identification, mitigation strategies, and resilience-building measures. This shift reflects a broader trend of embedding risk management into corporate strategy, with an emphasis on agility, digital transformation, and sustainability.

As a result, sectoral risk indices have remained within the superior and optimal risk index range, demonstrating that most industries in India have effectively managed the challenges they faced. Through a combination of technological innovations, regulatory compliance, and strategic planning, sectors have been able to maintain stability and navigate both internal and external risks. This disciplined approach to risk management has ensured that, despite various pressures, India's sectors remained well-positioned for sustainable growth and continued progress in 2024.

Below is a broader categorization of sectors in terms of risk index:

Figure 3: Corporate India Risk Index 2024 Sector Score

Superior Risk Index

Superior risk handling was found in nine industrial sectors:, Pharmaceuticals, Healthcare Delivery, Automotive & Ancillary, Manufacturing, Metals & Mining, Telecom & Communication, BFSI, Tourism & Hospitality, and Transportation & Logistics.

Optimal Risk Index

Optimal risk handling was found in 11 industrial sectors: Media & Gaming, FMCG, Infra & Realty, Agriculture & Food processing, Biotech & Lifesciences, IT ITES, Energy, New Age & Startup, Aerospace & Defence, Chemicals & Petrochemicals and Education & Skill Development.

Chemical & Petrochemical Sector Insights 2024

The chemical and petrochemical industry in India remains a key pillar of the nation's economy, with a market valuation surpassing INR 20 Lakh Crore in 2024. The sector continues to grow steadily, driven by strong domestic demand, increasing global investments, and supportive government policies. Projections indicate that the industry will reach INR 27 Lakh Crores by 2026. This sector is characterized by its extensive diversity, encompassing over 80,000 commercial products and serving as a critical supplier to key industries such as textiles, pharmaceuticals, and agrochemicals. Leveraging its strategic proximity to the Middle East, India benefits from cost advantages through access to petrochemical feedstock. With a workforce exceeding 2 million individuals, this industry is pivotal in driving India's GDP growth.

The Indian chemical and petrochemical industry is experiencing significant growth, with projections indicating substantial expansion in the coming years. There's a strong focus on increasing domestic manufacturing to reduce reliance on foreign imports. The industry is seen as a crucial contributor to India's "Make in India" initiative. There's a growing emphasis on sustainability, with increased focus on green technologies and circular economic principles. The industry is encouraged to adopt more environmentally friendly practices and reduce its carbon footprint. India has become an attractive destination for Foreign Direct Investment (FDI) in the chemical sector. There are significant investment opportunities in various segments, including petrochemical complexes, specialty chemicals, fertilizers, and green chemicals. • Various state governments are actively promoting investments in the sector through incentives and infrastructure development.

Department of Chemicals and Petrochemicals is promoting growth, sustainability, and investment within the Indian chemical industry. Events like India Chem 2024 played a vital role in showcasing India's potential, fostering collaboration, and promoting investments in the sector. These events highlight the importance of sustainable practices, and provide a place for industry leaders to discuss important issues. The department is emphasizing sustainable practices within the industry, promoting green technologies, and encouraging responsible waste management. The Department of Chemicals and Petrochemicals implements the New Scheme of Petrochemicals with sub-schemes on (i) Scheme for Setting up of Plastic Parks; (ii) Scheme for Setting up of Centres of Excellence; and (iii) The Petrochemicals Research & Innovation Commendation Scheme. They have participated in "Swachhata Pakhwada-2024" and the "Special Campaign 4.0," focusing on cleanliness and minimizing pendency. The department oversees the activities of HIL (India) Limited, which has been involved in projects related to bio-pesticides, farmer training, and the production of LLINs (Long-Lasting Insecticidal Nets).

Chemical & Petrochemical Sector Risk Index 2024 Vs 2023

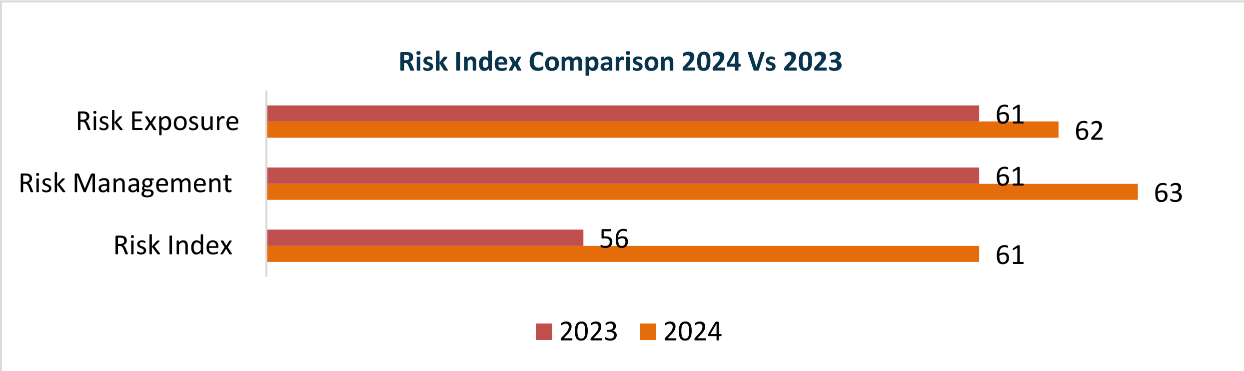


Figure 4: Detailed Comparative Analysis 2024 Vs. 2023

Chemical & Petrochemical Sector Risk Index 2024 Vs 2023

The overall Risk Index for the sector increased from 56 to 61 in 2024, owing to increase in both risk exposure which was met by an increase in risk management from the companies.

Chemical & Petrochemical Sector Risk Exposure 2024 Vs 2023

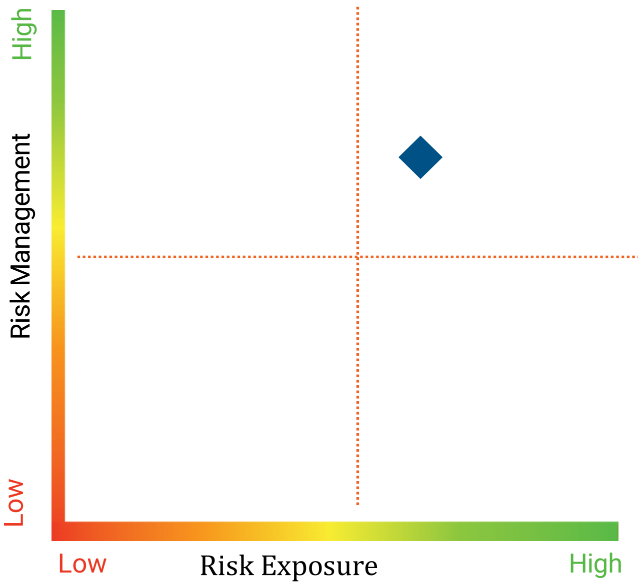
In 2024, the risk exposure for India's chemical and petrochemical sector slightly increased from 61 to 62. This increase was primarily due to external challenges such as market volatility driven by fluctuating crude oil prices and regulatory pressures related to stricter environmental standards. As the sector faces growing demands for sustainable practices and alternative feedstocks, these shifts brought some uncertainty and risk in terms of implementation and compliance.

Chemical & Petrochemical Sector Risk Management 2024 Vs 2023

Risk management improved from 61 to 63, reflecting a proactive approach by companies to mitigate these risks. Enhanced digital solutions, such as AI-driven safety protocols and predictive maintenance, played a key role in reducing operational risks. Additionally, the sector's growing focus on sustainable technologies and green chemistry helped companies navigate regulatory challenges effectively. The increased investment in advanced monitoring systems and supply chain resilience further strengthened risk management capabilities, allowing companies to better anticipate and manage emerging risks. The improvement in risk management indicates that while the sector faced new challenges, it was becoming increasingly adept at handling them.

Risk Dimension Analysis: Market and Economy

Risk Exposure Score: 70
Risk Management Score: 67



Inflation

- In 2024, the chemical and petrochemical sectors continue to grapple with lingering supply chain disruptions from previous years, compounded by new geopolitical tensions. This has led to sustained upward pressure on raw material costs, particularly for key inputs like crude oil, natural gas, and specific specialty chemicals. These rising input costs are directly translating to increased production expenses for manufacturers
- The ongoing conflicts and political instability in various regions, especially the Middle East and Eastern Europe, remain a major concern. These uncertainties are causing significant volatility in global energy markets, with potential for sudden spikes in oil and gas prices. Such fluctuations not only inflate production costs but also create unpredictability in pricing and planning for the industry.
- The tight labor market in several regions is leading to increased wage pressures in the chemical and petrochemical industries. Companies are facing higher labor costs, which are further contributing to inflationary pressures. This is particularly challenging for companies operating in regions with strong labor unions or skilled worker shortages.

Taxation Risks

- The GST rate for organic and inorganic chemicals, plastics, synthetic resins is 18%, fertilizers, medicinal grade hydrogen peroxide, and some specialty chemicals is 12%, and chemicals such as thorium oxalate, heavy water, and fertilizer-grade phosphoric acid
- The chemical and petrochemical industries often involve complex cross-border transactions, making transfer pricing a significant risk area. Tax authorities are increasingly scrutinizing

transfer pricing arrangements to ensure that profits are not artificially shifted to low-tax jurisdictions. Disputes over transfer pricing can lead to lengthy audits, penalties, and reputational damage.

- While there were no direct tax law changes specifically targeting the chemical industry in 2024, the implementation of mandatory BIS standards and QCOs for chemicals and petrochemicals has cost implications for businesses.
- A massive ₹11,11,111 crore was allocated for infrastructure projects, representing 3.4% of the GDP. This investment in roads, railways, and other infrastructure supports the logistics and supply chain needs of the chemical industry.

Regulatory risks

- Regulations like the EU's Chemicals Strategy for Sustainability (CSS) and the Eco-design for Sustainable Products Regulation (ESPR) are driving significant changes in how chemicals are produced and used.
- Regulations related to the safe handling, storage, and transport of chemicals are becoming increasingly stringent.
- There's a heightened focus on identifying and managing hazardous substances, with regulations like those concerning PFAS (per- and polyfluoroalkyl substances) receiving significant attention.

Foreign Exchange risks

- The Indian Rupee, subject to fluctuations against major currencies like the US Dollar, presents a significant risk. Depreciation of the Rupee directly inflates the cost of imported raw materials and equipment for the chemical and petrochemical industries. This volatility can lead to unpredictable increases in production expenses and impact profit margins.
- The uncertain global macroeconomic outlook, coupled with geopolitical tensions, contributes to volatility in foreign exchange rates. These uncertainties affect trade dynamics and impact the pricing of petrochemical products, creating challenges for companies engaged in international trade.
- The implementation of mandatory Bureau of Indian Standards (BIS) certification for chemical imports, aimed at maintaining quality standards and curbing imports from specific countries, can influence trade flows and, consequently, foreign exchange rates. Changes in import volumes and trade patterns can affect the demand and supply of foreign currencies.
- India's projected increase in the chemical sector's trade deficit by 2040, with imports outpacing exports, will likely exert long-term pressure on the Indian Rupee. This widening deficit can lead to further depreciation of the currency, increasing the cost of imports and impacting the competitiveness of the industry.

Geopolitical Risks

- Rising trade tensions and protectionist measures, such as tariffs and import restrictions, can disrupt chemical trade flows, increase costs, and create uncertainty for businesses. The US-China trade war led to tariffs on various chemicals, impacting both exporters and importers. Brexit has introduced new trade barriers between the UK and the EU, affecting chemical supply chains
- Political instability, conflicts, and social unrest in key producing or consuming regions can disrupt production, transportation, and trade of chemicals. Conflicts in the Middle East can affect oil and gas supplies, impacting the production of petrochemicals.
- Governments may prioritize domestic access to critical raw materials, potentially restricting exports and impacting chemical production in other countries. Governments may prioritize domestic access to critical raw materials, potentially restricting exports and impacting chemical production in other countries.

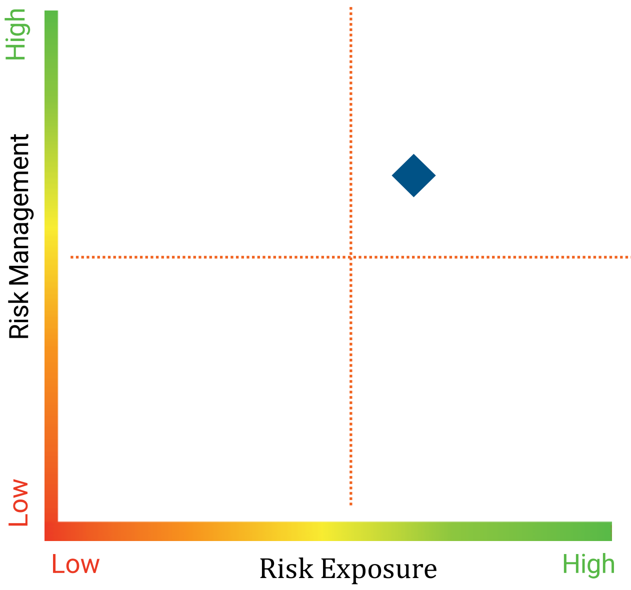
Competitive risks

- Significant capacity additions, particularly in regions like China, have led to oversupply in various petrochemical products. This puts downward pressure on prices and margins.
- Global economic uncertainties and potential slowdowns in key sectors like construction and automotive are dampening demand for petrochemical products.
- The petrochemical industry is highly sensitive to fluctuations in crude oil and natural gas prices, which serve as primary feedstocks
- Differing regional regulations, and access to feedstocks create imbalances in competitive ability. For instance, those with access to low cost ethane, like in the middle east, and the US, have a competitive advantage.

Risk Dimension Analysis: Technology

Risk Exposure Score: 59

Risk Management Score: 62



Innovation Risk / Obsolete Technology

- Rapid The chemical and petrochemical industry in India is experiencing significant growth and transformation, driven by various factors such as rising demand, policy support, investments, and global trends. However, along with these opportunities come innovation risks that need to be carefully considered.
- Benchmarking against global clusters reveals challenges such as limited domestic feedstock availability, delayed regulatory approvals, and a scarcity of skilled R&D talent.
- Global chemical companies entering or expanding in India need to strategically consider factors like catering to demand via exports or local manufacturing, resource allocation strategies, and overcoming structural challenges
- The growing emphasis on sustainability and changing consumer preferences towards eco-friendly products globally present both opportunities and risks for the Indian chemical industry. Adapting to these trends requires innovation in product development and manufacturing processes.

Intellectual Property Risk

- The intellectual property (IP) landscape for the Indian chemical and petrochemical industry in 2024 is becoming increasingly complex and crucial. This highlights the evolving nature of IP, suggesting that the challenges and opportunities related to IP are not static but are actively changing and growing in importance.
- While India has made strides in IP protection, the industry still faces challenges in safeguarding its innovations. This acknowledges progress while emphasizing that there's still work to be done. It sets the stage for discussing the specific IP risks that persist.
- One major risk is the potential for infringement, particularly from competitors in countries with less stringent IP laws. This pinpoints a specific and significant threat. It suggests that even with improved domestic IP protection, companies need to be vigilant about potential infringement from external sources

Disruptive technology

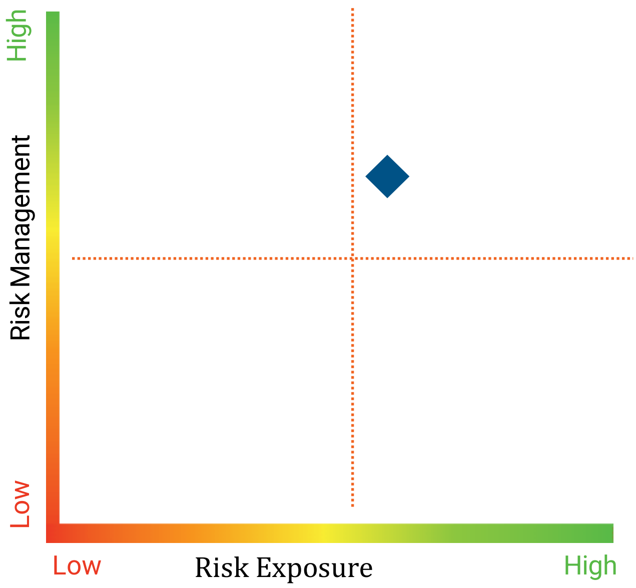
- The Department of Chemicals & Petrochemicals' initiative to launch and maintain an updated website (https://chemicals.gov.in) reflects the government's recognition of the need for accessible information and digital engagement in the face of rapid technological changes. In 2024, this digital platform becomes even more critical for disseminating information about emerging technologies, regulatory updates, and funding opportunities related to innovation.
- The persistent challenge of limited indigenous technology development remains a key vulnerability for the Indian chemical sector in 2024. This lack of homegrown innovation leaves the industry susceptible to disruptions caused by global technological advancements. Specifically, the growing emphasis on sustainable chemistry and advanced materials necessitates accelerated domestic R&D efforts

Data compromise

- The chemical and petrochemical industry is increasingly adopting digital technologies, including industrial internet of things (IIoT) devices, cloud computing, and advanced analytics. This expanded digital footprint creates more potential entry points for cyberattacks
- The chemical and petrochemical industry relies heavily on proprietary formulas, processes, and research and development. Data compromise can lead to the theft of valuable intellectual property, giving competitors an unfair advantage.

Risk Dimension Analysis: Operational and Physical

Risk Exposure Score: 62
Risk Management Score: 64



Critical Infrastructure Failure / Machine Breakdown

- Many chemical and petrochemical facilities have aging infrastructure, increasing the likelihood of breakdowns and failures. Corrosion, wear and tear, and outdated equipment contribute to these risks.
- Governments worldwide are implementing stricter regulations for infrastructure safety, maintenance, and cybersecurity in these industries. This includes regulations related to equipment integrity, process safety management, and environmental protection.
- Advanced technologies, such as sensors, data analytics, and artificial intelligence, are used for predictive maintenance. This allows companies to identify potential equipment failures before they occur, reducing downtime and safety risks.

Business Continuity/ Sustainability

- The transition towards circular business models, the use of renewable feedstocks, and the emphasis on the reuse and recycling of end-of-life products are gaining momentum in 2024. This shift reflects a growing recognition of the need for a more sustainable and resource-efficient industry.
- The industry is facing increasing pressure to reduce its carbon footprint and achieve carbon neutrality. This necessitates investments in carbon capture, utilization, and storage (CCUS) technologies, as well as the adoption of renewable energy sources.

Supply Chain Risk:

- The petrochemical industry's import dependency due to the lack of growth in the petrochemical intermediate industry remains a critical concern in 2024. This vulnerability highlights the need for strategic investments in domestic manufacturing capabilities to reduce reliance on external sources.

- The disruptions caused by the Russia-Ukraine war continue to impact global supply chains in 2024, particularly for chemicals and raw materials. This necessitates diversification of sourcing strategies and exploration of alternative suppliers. For India, this could mean strengthening trade relationships with other nations and exploring regional trade partnerships.
- Logistical challenges, such as port congestion, persist in 2024, hindering the smooth flow of imported raw materials and finished product exports. This calls for investment in infrastructure development, including port expansion and improved logistics management. For Bodh Gaya, being landlocked, this underscores the importance of efficient inland transportation and connectivity to major ports
- The ongoing geopolitical tensions and potential conflicts in various regions of the world pose a significant threat to supply chain stability. For example, the situation in the South China Sea, or any new regional conflicts, could have a ripple effect on global trade.
- The Red Sea crisis's impact on shipping through the Suez Canal continues to disrupt global trade in 2024.This necessitates contingency planning and alternative shipping routes, potentially increasing costs and lead times. For industries in Bihar relying on imported materials, this emphasizes the importance of robust inventory management and supply chain resilience.

Commodity Price Risk - Volatility in prices of raw materials

- Crude Oil and Natural Gas Volatility, These are primary feedstocks, so fluctuations in their prices directly impact production costs.
- Feedstock Supply and Demand Imbalances Variations in supply and demand for key feedstocks can cause price swings. Factors like refinery outages, new capacity additions, and changes in consumer demand play a role.

Portfolio Risk:

- Fluctuations in crude oil and natural gas prices remain a constant risk. Unexpected increases in oil prices due to geopolitical events or supply disruptions can significantly impact the cost of production for petrochemical companies.
- The increasing push for stricter environmental regulations, particularly in regions like Europe, is forcing companies to invest heavily in sustainable technologies and practices.
- Global economic uncertainties, including potential recessions or slowdowns, directly impact demand for chemical and petrochemical products. This creates volatility in revenue streams.
- Trade disputes, political conflicts, and sanctions can disrupt supply chains, alter feedstock availability, and create unpredictable market conditions.

Environmental Hazard Risk

- The chemical industry in India continues to prioritize safe, sustainable, and eco-friendly production practices in 2024, driving further development of new technologies and innovations. This commitment is becoming increasingly crucial as global environmental concerns intensify.

- Regulations like the Chemical (Management and Safety) Rules (CMSR) and Extended Producer Responsibility (EPR) are not only in place but are being further strengthened in 2024. This reflects a growing emphasis on accountability and transparency in environmental management. For industries considering establishing operations in Bihar, strict adherence to these regulations is paramount.

Human Resource

- The industry faces a growing skills gap, particularly as experienced workers retire. Attracting and retaining younger talent is a challenge as the industry competes with other sectors for skilled Professionals.
- Continuous training and development are crucial to keep pace with technological advancements and regulatory changes. Focus on safety training remains paramount, given the hazardous nature of the industry

Workplace Accident

- Reports from organizations like IndustriALL Global Union highlight a concerning trend of workplace accidents in India's chemical and pharmaceutical sectors. There are reports of large numbers of fatalities in 2024. A key factor raised is the relaxation of workplace inspection and licensing regulations, which is believed to be contributing to these accidents
- There's also a growing emphasis on prevention. In India, the Department of Chemicals and Petrochemicals has launched training programs focused on "Chemical and Petrochemical Industrial Safety."

Financial Risk

- The industry's heavy reliance on crude oil and natural gas makes it extremely vulnerable to price fluctuations. Geopolitical events, supply disruptions, and changes in global demand can lead to significant cost variations.
- Increased production capacity, particularly in regions like Asia, has led to oversupply in certain petrochemical markets. This intensifies competition and puts downward pressure on prices, impacting profit margins.

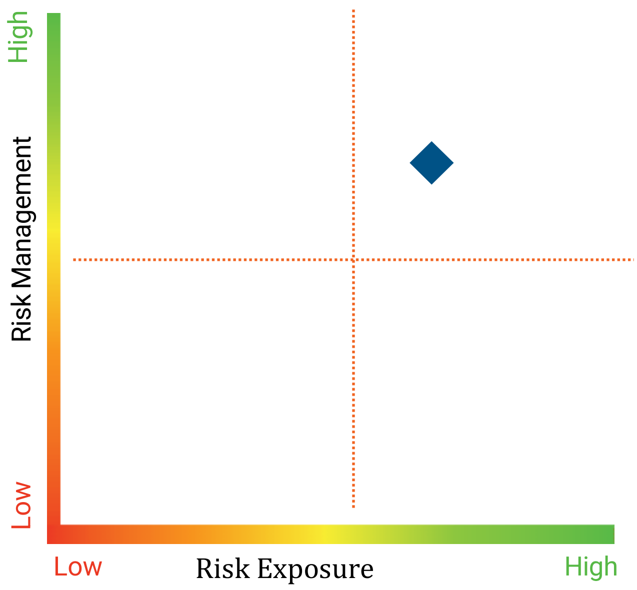
Breaches of Law (local/international)

- Breaches related to air and water pollution continue to be a significant concern. This includes illegal discharges of pollutants, exceeding emission limits, and improper handling of hazardous waste.
- The increasing regulation of PFAS (per- and polyfluoroalkyl substances) is leading to potential breaches as companies struggle to comply with new restrictions.
- Eco-design for Sustainable Products Regulation (ESPR) With the ESPR being in force, lack of compliance to the new EU framework for enhancing product environmental sustainability, will lead to breaches of law.

Risk Dimension Analysis: Crime and Security

Risk Exposure Score: 57

Risk Management Score: 58



Cyber-crimes

- Cyber-attacks continue to pose a significant threat in 2024, with the potential to compromise environmental safeguards and disrupt critical operations. This underscores the growing interconnectedness of digital systems and physical infrastructure
- The disruption caused by cyber-attacks can compromise environmental safeguards put in place by regulations. This remains a key concern in 2024. For instance, attacks that hamper a company's ability to monitor air emissions or manage liquid waste treatment can lead to environmental violations and risks to local ecosystems.
- Collaborative efforts with government agencies, such as the Cybersecurity and Infrastructure Agency (CISA) and its Indian counterparts, are crucial in 2024 to promote a higher standard of cybersecurity across the sector. This partnership focuses on capabilities for visibility, threat detection for industrial control systems, information sharing, and analytical coordination. In India, initiatives like the National Critical Information Infrastructure Protection Centre (NCIIPC) play a vital role.

Counterfeiting

- There are ongoing concerns about counterfeit versions of high-demand medications entering the market. There are reports from organizations like the National Association of Boards of Pharmacy (NABP) about the rise of illegal online sales of GLP-1 agonists (like those used in diabetes and weight loss medications). These reports show that there are many websites that are selling fake versions of these medications. This poses a very serious health risk
- Counterfeit industrial chemicals, such as solvents and additives, can compromise the quality of manufactured goods and lead to equipment failures.

Threat to Women Security

- A significant development in 2024 is the increased global awareness of the impact of EDCs on women's health. Reports from organizations like IPEN (International Pollutants Elimination Network) and collaborations with groups like the Endocrine Society are highlighting the specific dangers these chemicals pose to women's reproductive health.

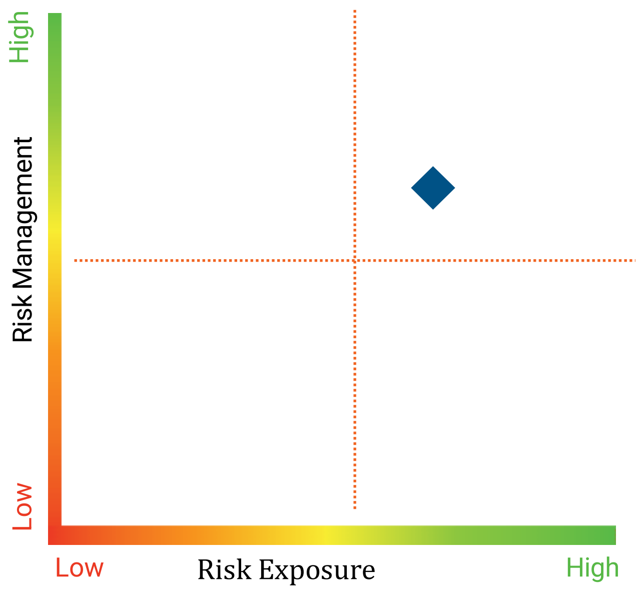
- Women, face risks from exposure to hazardous chemicals. However, there can be gender-specific concerns, such as the impact of certain chemicals on reproductive health. Ensuring that personal protective equipment (PPE) is designed to fit women properly is crucial.

Terrorism

- A notable trend is the increased emphasis on preparedness through simulation exercises. the UNODC (United Nations Office on Drugs and Crime) is conducting exercises to test responses to chemical terrorism threats.

Risk Dimension Analysis: Natural Hazard and Event

Risk Exposure Score: 60
Risk Management Score: 61



Natural Hazards like flood, drought, famine, earthquake, landslide etc

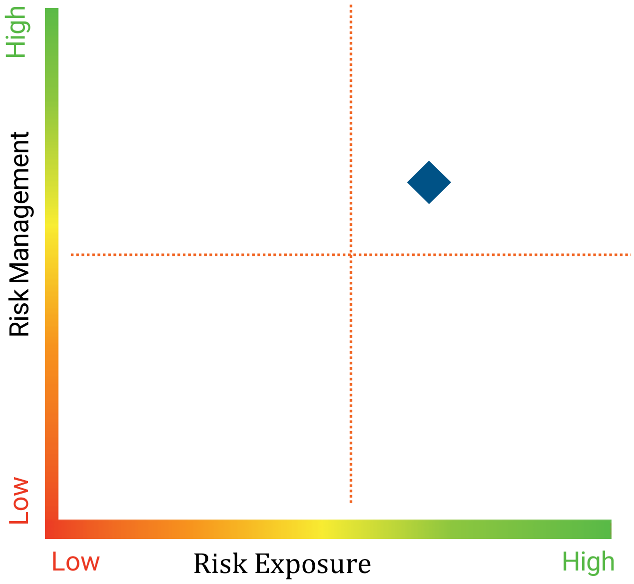
- The increasing frequency and intensity of natural disasters in 2024, driven by climate change, pose a significant and growing threat to the Indian chemical and petrochemical industry. This necessitates a proactive and comprehensive approach to risk management
- Natural disasters like floods, earthquakes, and cyclones can lead to catastrophic infrastructure damage, potentially causing chemical spills or leaks that contaminate soil, water sources, and air. The focus is on strengthening infrastructure resilience and implementing robust containment measures to minimize the impact of such events

Pandemic & other global epidemic diseases

- The COVID-19 pandemic led to disruptions in supply chains, affecting the availability of raw materials, transportation, and logistics within the chemical industry. This disruption impacted production schedules and overall operational efficiency.
- The pandemic altered demand dynamics for chemicals and petrochemicals, leading to fluctuations in market demand for various products. Changes in consumer behaviour, industrial operations, and global trade patterns influenced the demand for chemicals in India
- Despite the challenges posed by the pandemic, there were opportunities for growth within the chemical industry. The need to de-risk supply chains dependent on China presented growth opportunities for the sector in India, driving investments and expansion
- These consequences highlight the resilience of the chemical and petrochemical industry in adapting to unforeseen challenges while also emphasizing the need for agility, strategic planning, and innovation to navigate through such crises

Risk Dimension Analysis: Strategic Risk

Risk Exposure Score: 56
Risk Management Score: 61



Resource scarcity / Misutilisation / Overall Utilisation

- Building upon the challenges identified in 2023, the resource scarcity risks for the Indian chemical and petrochemical industry in 2024 are intensifying, particularly in relation to water scarcity, volatile energy prices, and the increasingly stringent demands for emissions reduction. These factors are not only impacting operational costs but also influencing long-term sustainability and investment decisions.
- The urgency to address these resource scarcity risks is heightened in 2024, as their impact on the industry's operations, sustainability efforts, and overall growth trajectory becomes more pronounced. The industry is actively pursuing strategies that go beyond incremental improvements, focusing on transformative changes.
- The need to secure access to critical raw materials, particularly those required for emerging technologies, is becoming a strategic priority in 2024. This includes exploring domestic sources of raw materials, diversifying supply chains, and investing in recycling and recovery technologies.

Public Sentiment

- In 2024, the inherent public perception that the chemicals business deals with potentially hazardous substances remains a significant factor influencing public sentiment. This perception stems from the industry's use of caustic end products and hazardous chemical intermediaries, raising concerns about worker safety and environmental impact
- The increased likelihood of product recalls and stringent quality audits, driven by the need to maintain tight quality control and a secure workplace, continues to shape public perception in 2024. Consumers and communities are increasingly aware of the potential risks associated with chemical products and demand greater transparency and accountability.

Delay in Execution of Projects

- Due to over capacity of some chemical products, and also due to economic uncertainty, that some chemical companies are re-evaluating the need for some of their projects This re-evaluation process is causing delays to the start of many projects.

Increased number of recalls and quality audits

- The ongoing concerns regarding PFAS (per- and polyfluoroalkyl substances) are driving increased quality audits and potential recalls.
- There are numerous reports of water contamination and soil contamination, that are causing chemical companies, and also companies that use those chemicals, to conduct large amounts of quality audits
- The increased amounts of online pharmacies, has increased the amounts of counterfeit drugs, that are being sold, and this is causing a large increase in the amount of quality control testing.

Failed / Hostile Mergers & Acquisitions

- In a volatile economic climate, disagreements over company valuations are a major hurdle. With fluctuating commodity prices and uncertain market forecasts, buyers and sellers often struggle to agree on a fair price.
- Antitrust regulators are increasingly vigilant, especially concerning large-scale mergers that could reduce competition.

ICICI LOMBARD: Key Solution Offerings

Property

Evaluation of various risks to understand areas for improvement, such as fire preparedness, electrical safety, safety & emergency preparedness, maintenance and house-keeping, etc. By evaluating risks, we can identify potential hazards and advise on mitigating risks.

- **Property Loss Prevention:** We believe users should carry out detail risk visit followed by benchmarking of the industry good practices (Industry Risk Profiling). For instance, industries such as chemicals & petrochemicals impose a major challenge in manufacturing due to inherent risk. We recommend solutions for "Low Focus - High Loss Areas. This can help in minimizing severity losses. All the risk recommendations are grouped into four different segments based on cost-impact matrix and the priority is decided accordingly. Key decision makers at user's end can ensure to get recommendations implemented.
- **Comprehensive Risk Assessment (CRA):** A Comprehensive Risk Assessment is a systematic approach to electrical safety specially designed for industries to evaluate potential hazards and recommend improvements, coupled with savings. It is an important tool for identifying risks, severity of hazards and avoid incidents arising out of electrical faults.
- **Electrical Risk Assessment (ERA):** An Electrical Risk Assessment is a basic solutions focused towards electrical safety designed to evaluate potential hazards and recommend improvements. Majority of fires in India are caused due to electrical installations. Ensuring safety of electrical installations of industrial unit or organization is critical to reduce risk and ensure safety compliance with Safety Standards and Regulation. ERA is an important tool which have 6 inbuilt solutions such as Electrical Audit & Thermography, etc.
- **Fire Hydrant IoT:** Fire Hydrant IoT: Fire hydrant IOT (ILGIC Patented Solution) is an automated device for monitoring key parameters such as Hydrant and Sprinkler line pressure, Main and Jockey pump on-off status, Firewater tank level. These can be interpreted to provide intelligence on unauthorized usage of water and leakage, effectively saving water. This information pertaining to breach of above-mentioned parameters is notified through dashboard & email alerts. Monitoring of such system is essential as these fire fighting systems are lifeline during any emergency.
- **Temperature & Humidity IoT:** Provides end-to-end plug & play ambient temperature and humidity monitoring Solution to manage temperature and humidity-controlled environment more efficiently. It generates - Automated reports (historical trends for different locations etc.). Intelligent Alerts - SMS & emails is sent to the concerned (one or multiple) stakeholders in case

any anomaly.

- **Electrical IoT:** Electrical IoT is a patented solution (ILGIC Patented Solution) to avoid any instances of short circuiting due to abnormal voltage & current conditions. These are mainly built for application in warehouses. This solution has been created as these locations are having huge stocks with lesser manpower during emergencies mainly during non-business hours. The device automatically cuts off power in case of abnormality & restarts back when situation is normal.
- **Ultrasound technology for Gas Leak Detection:** Use of ultrasound technology for leak detection in process lines. The methodology recommends a non-destructive way of avoiding losses with no downtime. The main objective is to identify the leakages in all pressurized systems including pipelines by using ultrasound technology and tag them for rectification. It also includes listing leaks with individual CFM losses and cost savings possible.
- **Fire Mitigation Solutions:** Solutions have been designed based on their specific needs, keeping in mind the level of awareness and complexity of the location. These best-in-class solutions which are installed at correct locations.
- **Renewable Solutions:** In line with our philosophy of recommending business solutions, we recommend efficiency measurements for wind and solar power generating assets. Drones are used to provide high accuracy and quick reach which is not possible through any traditional methodology. User get to know about the low performing module and ways to improve the same within the entire solar plant with latlong identification. We recommend advanced drone-based technology for inspection of wind turbines and solar PV modules.

Marine

In the dynamic realm of marine insurance, cargo faces a myriad of risks, from unpredictable weather conditions to unforeseen accidents, safeguarding against potential challenges at sea and in surface transportation / INLAND movement is paramount.

- **MLCE (Marine loss control engineering):** Frequent occurring losses due to Peril such as accident, wet damage, theft, non-delivery, pilferage, hijack of consignments, mishandling shall be examined with ground inspections, to determine root cause analysis with MIS, claim assessment reports collectively in the form of logistics audit.
- **MWS (Marine warranty surveys):** Our inhouse practices of condition survey prior risk inception & post risk inceptions helps our customers to have an independent risk management of the high value / ODC (over dimensional cargo) movements conducted by the Insured so that reliance over logistics service provider is supervised with Insured's nominated risk assessment team having a worldwide presence with a supervised network. Not only marine cargo, but HULL insurance risk exposures are surveyed for risk assessment and risk management.
- **Technical engagements:** Uncertainty of the risk associated with the transit can be concluded

with marine experts. Assessing vessel's condition for SEA transit as a full chartered load on behalf of the Insured, Risk assessment of cargo from packing, handling, lifting, securing, transit and final delivery methodology shall be discussed with the logistics team. Vessel selection, stowage and securing methods can be jointly discussed with the User's logistics team for a safe transit, dispatch and delivery coverage after assessing the risk on desktop with a virtual or F2F engagement and / or a ground visit.

- **Transit Telematics:** With the government's constant agenda of upgrading to digitalized operations by introducing ULIP and NITI Aayog mode of operations, not having a visibility of transit will hamper your logistics operations. IOT and SAAS (software as a service) based products incorporating the design of a cost efficiency and loss mitigation system can help enhance delivery with safe operation. Additionally, a 24*7 risk control is recommended to effectively monitor and mitigate theft / pilferage prone dispatches to ensure a safe transit delivery. Be it a temperature-controlled cargo, expensive cargo in transit or liquid bulk cargo in lorry tankers, it is essential to mitigate the risk and losses that might occur due to accidents caused by fatigue, unexplained conditions, or theft. We have case studies of successful recovery of stolen goods with our telematics services.

Liability

The growing adoption of technology in organizations has not only led to crucial data being stored and processed on digital platforms but also facilitated the automation of operations, thereby enhancing business efficiency. However, this shift also amplifies cyber risk, exposing sensitive information to potential threats and rendering organizations vulnerable to financial losses, reputational damage, and legal liabilities. As organizations delve deeper into the digital realm, fortifying cybersecurity measures becomes imperative to safeguard operational integrity and protect critical data from unauthorized access or breaches.

- **Phishing Simulation:** Experience cutting-edge phishing simulation tests to fortify your organization's defenses against cyber threats. You can enable phishing attack simulations to educate your employees on identifying and handling potential risks. Through engaging and interactive scenarios, you can raise awareness and equip your team with the necessary skills to detect and thwart phishing attempts.
- **Awareness Campaigns:** With Cyber Awareness Campaigns, you can go beyond just educating organizations about cybersecurity. The campaigns are meticulously designed to empower your team with essential best practices, insights into global incident trends and a comprehensive understanding of potential risks. Interactive designs help you captivate and engage your employees, fostering a cyber-aware culture within your organization. Customized campaigns can perfectly align with your unique needs and requirements and stay informed and vigilant.
- **Incident Response and Readiness:** A bespoke service that fortifies organizations with robust processes and clear communication channels for proficient cyber-incident management. This

recommendation not only trims down the incident response time but also facilitates prompt, accurate action within the crucial initial hours. By meticulously assessing your organization's incident response policies and sculpting response systems in alignment with global industry benchmarks, this ensures you are thoroughly prepared to tackle the evolving digital threat landscape.

- **CXO's Session:** CXO’s Session service provides immersive training sessions, personalized coaching & interactive discussions to empower your CXOs with cybersecurity knowledge that aligns with your business objectives. The subject matter experts recommend strategic guidance and in-depth insights into the ever-evolving threat landscape, translating technical jargon into practical language. Regular cybersecurity forums facilitate peer-to-peer learning and benchmarking against industry standards. CXO- focused approach ensures a cyber-aware leadership team that drives your organization’s success securely into the future.
- **Weekly Threat Intelligence Bulletin:** Stay ahead of cyber threats with the Weekly Threat Intelligence Bulletin. We meticulously curate this comprehensive bulletin, providing timely insights on emerging threats, vulnerabilities, and attack trends. Delivered directly to your inbox, it recommends proactive advantage by promptly identifying potential risks. With continuous updates and ongoing support, you can confidently adapt your Defence strategies to combat the most sophisticated threats. It enables you to make informed decisions and protect your organization from emerging threats with Weekly Threat Intelligence Bulletin.
- **Email Security:** Safeguard your organization's communication channels with the Email Security solutions. We recommend robust measures to protect against phishing, malware & other email-borne threats. The advanced email filtering and authentication technologies prevent malicious emails from reaching your users inbox. Implementing encryption protocols to ensure the confidentiality of sensitive data in transit is a good idea. With real-time monitoring and threat intelligence, email security measures provide proactive Defence, detecting and blocking suspicious activities promptly. You can protect your organization's reputation and sensitive information with comprehensive Email Security measures, ensuring a secure and reliable email environment.
- **Agent-less Patching:** Agent-less patching platform for companies and MSMEs who want a rapid solution to distribute critical security updates and vulnerability fixes without causing system downtime. The patching platform not only assists with patch deployment, but it also enables your system administrator in understanding the patches, Adjustments & impact of the patches on the system. Before applying the patch, the software generates a warning if the system requires downtime or a reboot. You can experience a hassle-free patching process with the platform recommending enhanced security for your organization.
- **EDR/MDR Services:** Elevate your organization's cybersecurity capabilities with the Endpoint Detection and Response (EDR) and Managed Detection and Response (MDR) services. These advanced solutions provide continuous monitoring, rapid threat detection & effective incident response, safeguarding your digital assets in real-time. With EDR, proactively detect and

respond to threats at the endpoint level, while MDR service offers 24/7 monitoring and expert support. You can strengthen defenses against the most sophisticated cyber-attacks with EDR/MDR services, ensuring a resilient and secure digital environment.

- **All-in-one Operating System:** All-in-One Operating System is a true game-changing platform that provides a fortified desktop environment to foster secure collaboration and centrally managed cybersecurity resilience. Inbuilt endpoint security serves as a vigilant guard, blocking potential dangers. Effortless IT management provides with a user-friendly interface, leading to significant cost savings in IT infrastructure. It provides in-built end-point security, automated updates and patches along with extensive device reports. Organizations can unlock a secure and prosperous future by embracing the All-in-One Operating System in their IT infrastructure.
- **Cyber Risk Management & Compliance Dashboard:** Gain a clear understanding of your organization's cyber risk exposure with Cyber Risk Management & Compliance Dashboard. This powerful tool assesses your risk posture, quantifies potential financial Impact & evaluates compliance with industry standards and regulations. Armed with this information you can make informed decisions to prioritize cybersecurity investments and ensure compliance with relevant laws and regulations. The intuitive dashboard provides a comprehensive view of your cybersecurity performance enabling data-driven decision-making. This solution enables organizations to stay ahead of threats and ensure a resilient cybersecurity posture.
- **Security Score Card:** Track your organization's cybersecurity performance with a dynamic Security Score Card solution. This comprehensive rating provides a clear overview of your security posture, highlighting areas that require attention and improvement. It empowers data-driven decisions, allowing you to focus on strengthening key areas. Identify potential risks and compliance gaps with industry standards and regulations. With actionable insights, you can prioritize cybersecurity investments effectively, ensuring a robust and resilient Defence against cyber threats. This Security Score Card solution can be your strategic tool to proactively elevate your cybersecurity posture.
- **VAPT:** Enhance your organization's cybersecurity defenses with the Vulnerability Assessment and Penetration Testing (VAPT) service. Skilled professionals conduct rigorous assessments, simulating real-world attacks to identify potential vulnerabilities in your digital infrastructure. With detailed insights, you can fortify your defenses and proactively address weak points before malicious actors exploit them. This service goes beyond identifying vulnerabilities, you also get actionable recommendations to mitigate risks effectively. Organizations can be one step ahead of cyber threats, ensuring the security and resilience of your critical assets with the comprehensive VAPT service.

Engineering

In engineering risk management, it's vital to adopt a holistic approach that extends beyond immediate concerns to proactively tackle potential risks and uncertainties. Drawing upon considerable expertise in claims handling and risk evaluation, a robust and customized protection strategy can be ensured.

Construction endeavors face a myriad of risks such as floods, cyclones, impact damage, fires, theft, and collapse. However, the adverse effects of these risks can be mitigated through the implementation of extensive loss prevention measures specifically tailored for engineering projects.

- **Engineering Loss Prevention Exercise (ELP):** To effectively manage losses in Engineering Risk, fostering a culture of loss prevention is crucial. It's widely acknowledged that each construction project is distinct, presenting specific challenges related to geography, geology, occupancy, and construction methodology, which in turn result in unique associated risks. To cater this challenge a specific risk management framework which deals about the unique requirement of each project could be created for the loss prevention with reference to some parameters of distinctive research and industries best practices.
- **Drone Solutions for Linear Projects:** In recent years, the construction industry has undergone significant changes due to the introduction of drone-based construction solutions. These cutting-edge technologies are transforming the planning, design, and execution of construction projects. A major benefit of drone technology in construction is its capacity to conduct aerial surveys, providing extensive coverage and detail. Drones, equipped with advanced cameras and sensors, can rapidly capture precise images and data, offering project managers valuable insights into site conditions. This data can facilitate project planning, cost estimation and design optimization by providing a comprehensive understanding of the project's parameters.
- **CPM - Fleet & Fuel Management:** An advanced GPS-equipped sensor is available to precisely measure direct fuel consumption, evaluate engine efficiency, and detect potential tampering of diesel engines in both mobile vehicles and stationary machinery. This solution enables real-time alerts for service reminders and critical health issues, facilitating prompt resolutions and enhanced utilization. Additionally, it offers valuable insights into machinery and equipment performance through comprehensive analyses, resulting in optimized inventory usage and increased efficiency.

Health

We highly recommend exploring proactive and preventive healthcare solutions, which can make a significant difference in maintaining good health. Recognizing that majority of in-patient department (IPD) admissions could be prevented with timely interventions and regular healthcare, it is important to focus on health, not just during illness.

- **Pioneering Digital Platform:** We recommend exploring digital health innovations offered by industry leaders, which provide cutting edge health solutions through the IL TakeCare (ILTC) app. Our platform has transformed the way health services are delivered by introducing a fully digital and cashless Outpatient Department (OPD) and Wellness Program.

- **Health Advisory Services:** We recommend a suite of health advisory services on the IL TakeCare app. Users can access health risk assessments, diet and exercise trackers, health parameter tracking and trends and sleep, meditation & hydration reminders. In addition, the platform recommends a feature to upload health records up to 1GB, and provides informative health blogs.
- **IL TakeCare App:** IL TakeCare app is a One-Stop-Solution for users with insurance needs. This robust user engagement is a testament to the high-value features that the app provides. Unique to the app is the innovative self-health assessment feature, which includes Face scan technology that can measure blood pressure, heart rate, cardiac variance, and SpO2 levels. The platform provides seamless teleconsultations with medical practitioners and specialists, and even recommends access to mental wellness experts to the insured. The facility for cashless OPD services and the efficient claim settlement process further enhance user experience. By encapsulating a wide range of state-of-the-art health services and solutions, the IL TakeCare platform revolutionizes corporate health management and serves as a comprehensive digital health solution.

Bibliography

https://www.thehindu.com/business/Economy/year-in-review-how-indias-economic-indicators-fared-in-2023/article67641756.ece#:~:text=India's%20retail%20inflation%20rate,by%205.55%25%20in%20November%202023.
https://pib.gov.in/PressReleasePage.aspx?PRID=2087498
https://pib.gov.in/PressReleasePage.aspx?PRID=2066478
https://www.krungsri.com/en/research/industry/industry-outlook/petrochemicals/petrochemicals/io/io-petrochemicals-2024-2026
https://rising.rajasthan.gov.in/chemicals-and-petrochemicals
https://www.indianchemicalnews.com/petro-chemical/petrochem-summit-2024-sustainability-impetus-opens-up-huge-growth-opportunities-in-petrochemicals-24601
https://chemicals.gov.in/about-department#:~:text=Main%20objectives%3A,the%20chemical%20and%20petrochemical%20sectors.
https://www.india.gov.in/topics/industries/chemicals-and-petrochemicals#:~:text=1991.,of%20Chemicals%20and%20Petrochemicals%20Industries.
https://www.niir.org/blog/indias-efforts-to-reduce-import-dependency-in-chemical-sector

Disclaimer 1: Risk management Solution / Value Added Solution mentioned in the report are as per the assessment observation & experience in that sector. These solutions are suggested or intended to for a better management and mitigation of corporate risks. The content of the solutions is a proprietary of ICICI Lombard cannot be copied and/or distributed without permission of ICICI Lombard. The content provided is for improvement purposes only and ICICI Lombard is not responsible for any issues or liability arising out of the use of the said information. ICICI Lombard does not make representations or warranties, either express or implied, of any kind with respect to the third party, its actions, content, information or data. ICICI Lombard does not represent or endorse the accuracy or reliability of any advice, opinion, statement, or other information provided for the purpose of rendering services hereunder. Users acknowledges that any reliance upon such opinion, advice, statement, memorandum, or information shall be at his/her sole risk. Any such person or entity should seek advice based on the particular circumstances from the experts of the respective filed arenas.

ICICI Lombard

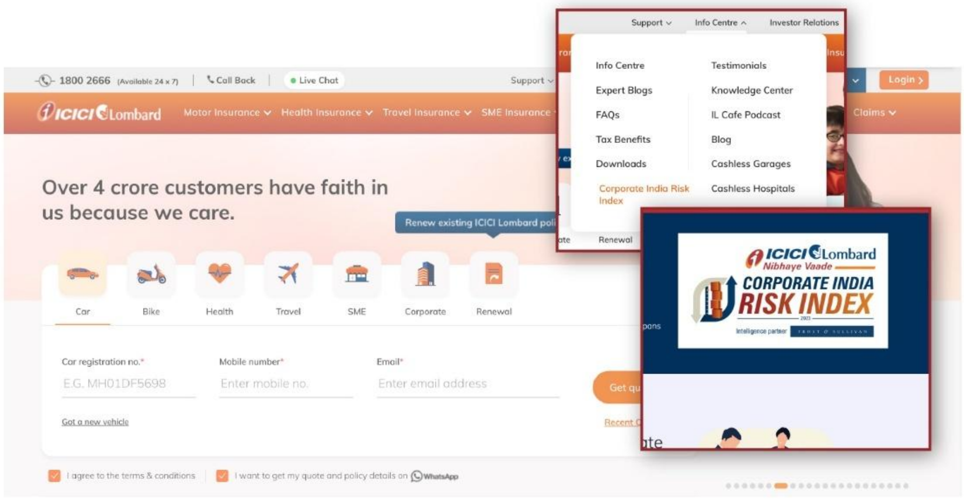
CORPORATE INDIA RISK INDEX 2024

Intelligence partner FROST & SULLIVAN

Navigating Risks, Powering India's Growth

Now accessible at

www.icicilombard.com/corporate-india-risk-index



Please send a mail to ciri@icicilombard.com to get your customized ICICI Lombard Corporate India Risk Index Report

ICICI Lombard

CORPORATE INDIA RISK INDEX

2024

Intelligence partner FROST & SULLIVAN

Navigating Risks, Powering India's Growth