ICICI Lombard
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CORPORATE INDIA RISK INDEX
2023

Intelligence partner FROST & SULLIVAN

SECTOR REPORT 2023

CHEMICALS & PETROCHEMICALS

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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

The Indian chemical sector made notable progress in 2023, with foreign direct investment (FDI) growing by 91% and the sector contributing around 7% to the country's GDP. India's chemical industry is ranked the sixth-largest globally by output and third in Asia. This growth was driven by increased global interest in sourcing from India, a rising share of speciality chemicals, and robust capital expenditures by domestic chemical firms. Despite global challenges such as volatile commodity prices, geopolitical tensions, and supply cuts by OPEC, India's chemical sector demonstrated resilience.

Growing Environmental, Social, and Governance (ESG) adoption drove focus towards achieving net-zero emissions. Pressure from stock exchanges and regulatory bodies led to mandatory reporting on ESG factors, with initiatives like Business Responsibility and Sustainability Reporting (BRSR) aiding in climate change reporting methodologies. The sector adopted digital technologies and AI to accelerate research and development, predict the impact of changes in production, and optimise operations. The Indian chemical industry's importance in de-risking global supply chains dependent on China was a significant factor in its growth. The sector's strategic positioning and potential to contribute to global chemical sales and exports further bolstered its growth prospects.

The risk index in the Indian chemical sector decreased in 2023 compared to 2022, indicating improved overall stability. However, both the risk management score and risk exposure score declined, suggesting that while the sector became less risky, its ability to manage and mitigate risks also decreased.

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

Operational & 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. Such 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 COVID-19 pandemic and similar another global epidemic.

Strategic Risk

Strategic risk is the risk that failed business decisions may pose to 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

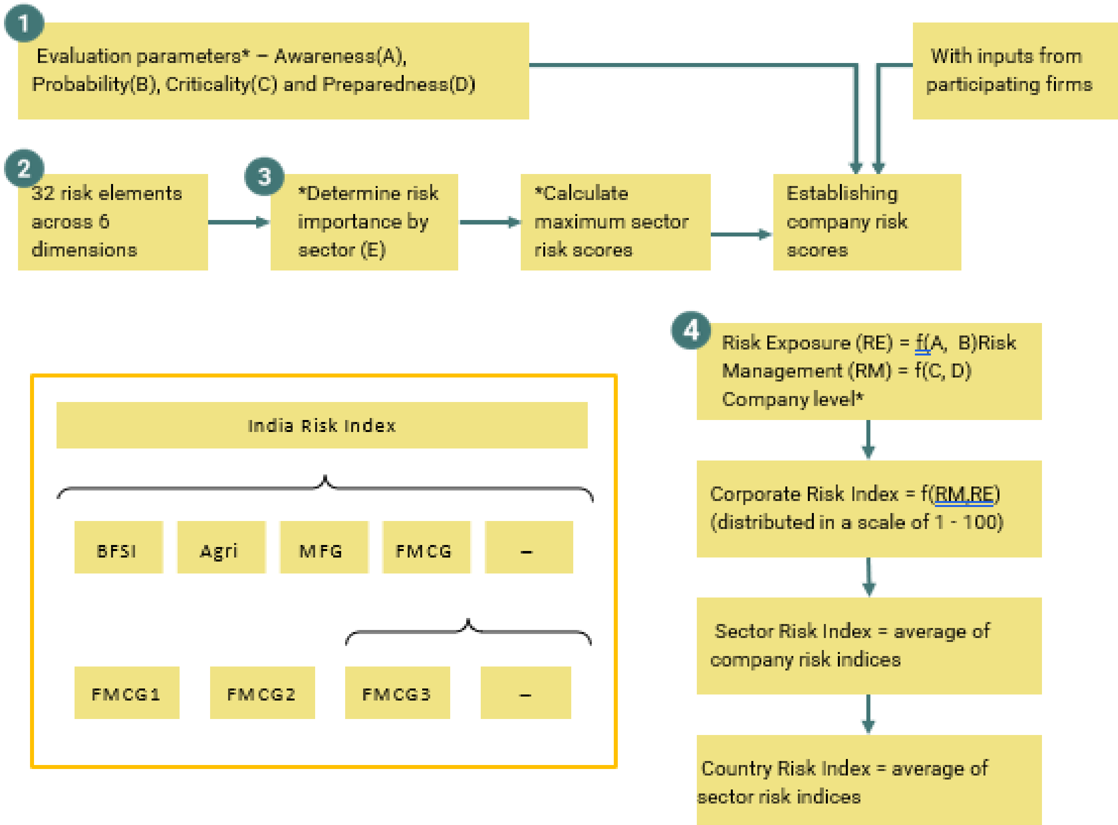


Figure 1: Risk Assessment Approach

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 riskto 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

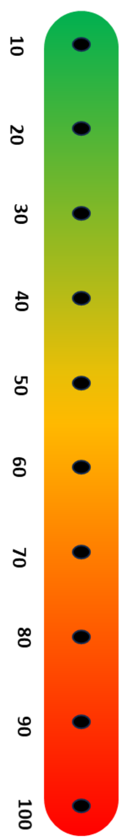
We have selected 20 sectors to understand the current stand of our country today in terms of risk. Risk for various sectors is measured on the risk exposure scale and risk management scale.

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 somethingto 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.



A score **less than 30** indicates very low risk exposure and the corporate entity has minimal overall risk exposure.

A score **between 30 and 50** indicates low risk exposure and the corporate entity's risk exposure is within acceptable or tolerable limits

A score **between 50 and 60** indicates moderate risk exposure and the corporate entity can balance the impact of overall risk to a certain extent.

A score **between 60 and 80** indicates high risk exposure, and its impact is very high in the industry in which the corporate entity operates.

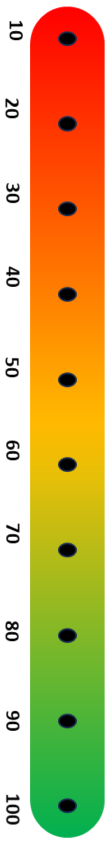
A score **greater than 80** indicates very high Risk Exposure and the corporate entity is unable to foresee risk incidence and the probability of occurrence of these incidents may be extremely high.

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.



A score **less than 40** indicates poor risk management and the corporate entity is unable to understand the concept of risk management.

A score **between 40 and 50** indicates below-par risk management and the corporate entity has inefficient risk management practices that are reactive to newer or unknown risks.

A score **between 50 and 70** indicates acceptable risk management and the corporate entity is prepared to handle known risks and the criticality of its risks is not severe.

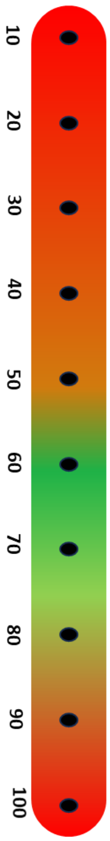
A score **between 70 and 80** indicates superior risk management and the corporate entity has employed top-class risk management practices to manage dynamic and unknown risks.

A score **greater than 80** indicates exemplary risk management and the corporate entity is over-prepared in risk management practices and is proactive in addressing emerging risks.

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.



A score **less than 40** indicates an ineffective risk index meaning the corporate entity has very high risk exposure or very poor risk management practices or both.

A score **between 40 and 55** indicates a suboptimal risk index suggesting that not all risks are handled effectively and risk management practices of the corporate entity are likely to be outdated or inefficient.

A score **between 55 and 65** indicates an optimal risk index, indicating that most current risks are being handled effectively by the corporate entity. However, emerging risks associated with strategic initiatives need more diligence.

A score **between 65 and 80** indicates a superior risk index, indicating very effective and efficient risk management practices. The corporate is well-positioned to handle current and future risks across dimensions.

A score **greater than 80** is over preparedness indicating high investment in Risk mitigation practices likely over investment in one or more risk dimensions difficult to justify ROI

India - Emerging Superpower with Optimized Corporate Risk Handling

In 2023, India witnessed a number of developments in various sectors, reflecting changes in consumer preferences, technological advances and regulatory trends. These developments shaped the industry and affected strategic decisions among industry players.

Electric vehicles (EVs) gained traction across sectors, driving investments in infrastructure and incentivized by government policies promoting electric mobility. The Automotive industry witnessed a surge in demand for EVs, while Logistics & Transportation embraced electric fleets to reduce carbon emissions and operational costs. Digital transformation accelerated across sectors, fueled by the COVID-19 pandemic. Telemedicine, online banking, and remote work solutions proliferated in Healthcare, BFSI, and IT/ITES sectors, enhancing operational efficiency and customer experiences.

In 2023, sustainability took center stage as sectors across India embraced eco-friendly practices. The Energy sector witnessed a shift towards renewable energy sources, with significant investments in solar and wind power. Industries like Manufacturing and FMCG prioritized energy efficiency and waste reduction initiatives. Hospitality and Real Estate sectors focused on green building practices, while Agriculture adopted precision farming techniques to conserve resources.

AI integration surged in 2023, revolutionizing business operations across sectors. Manufacturing companies leveraged AI for predictive maintenance and quality control, enhancing efficiency and reducing costs. Healthcare adopted AI-powered diagnostics and personalized treatment plans, improving patient care. Financial institutions utilized AI for fraud detection and risk assessment, bolstering security and compliance.

Social media emerged as a powerful tool for brand building and customer engagement in 2023. FMCG and Retail sectors capitalized on social media platforms to launch targeted marketing campaigns and drive product sales. Hospitality and Tourism industries utilized social media influencers to enhance brand visibility and customer loyalty. By leveraging social media analytics and customer feedback, companies across sectors tailored their strategies to effectively connect with their target audience and build brand reputation.

The "Make in India" initiative drove significant changes in supply chain operations in 2023. Sectors like Automotive, Manufacturing, and Pharmaceuticals emphasized local sourcing to reduce dependency on imports. Companies diversified their supplier base and optimized logistics networks to mitigate supply chain risks. This strategic shift towards domestic production enhanced resilience and competitiveness across industries.

Diversity, Equity, and Inclusion (DE&I) initiatives gained momentum in 2023, fostering inclusive workplaces across sectors. Companies in BFSI and IT/ITES led the way with diversity training programs and gender-neutral policies. Healthcare organizations focused on addressing healthcare disparities among marginalized communities. Manufacturing and Retail sectors prioritized inclusive hiring practices to tap into diverse talent pools, driving innovation and employee engagement.

Leadership risks emerged as a critical concern in 2023, prompting sectors to reassess their leadership strategies. Companies in BFSI and Technology faced challenges in adapting to rapid technological advancements and changing market dynamics. Healthcare organizations navigated leadership transitions amidst the COVID-19 pandemic, emphasizing the need for agile and resilient leadership. Strategic investments in leadership development and succession planning became imperative to mitigate leadership risks effectively.

Disruptive technologies like artificial intelligence, blockchain, 5G, and IoT reshaped traditional business models, offering new avenues for innovation and growth in sectors such as Telecom & Communication, Biotech & Life Sciences, and New Age Industries.

The scenario of the Indian economy in 2023 had a myriad of risks and opportunities in various sectors. Cybersecurity emerged as a pervasive risk, affecting industries from banking and finance to healthcare and IT/ITES. With more than 400 million cyber threats detected in nearly 8.5 million locations by 2023, organizations prioritized strong cybersecurity measures. Advanced threat detection systems, encryption protocols and employee training programs were implemented locally to enhance cyber resilience and protect sensitive data.

Another common risk was supply chain disruption, exacerbated by factors such as geopolitical pressures, natural disasters, and semiconductor chip shortages. To mitigate these risks, companies diversified their supplier base, invested in inventory management systems, and adopted agile supply chain practices to enhance resilience and flexibility.

Regulatory uncertainty was rife in industries such as Pharma, Energy, Telecommunications, which required active engagement with regulators. Furthermore, environmental risks emphasized the importance of sustainability and green technologies, renewable energy and waste management practices to reduce environmental impact around us and compliance with legal standards.

Despite the challenges posed by common risks, several sectors emerged as resilient performers in 2023, whose efforts helped us understand the situation in 2023 better. Noteworthy efforts included the "National COVID-19 Vaccination Drive" in healthcare, "Electric Vehicle Adoption Mission" in automotive, and "Green Freight Movement" in logistics. Additionally, initiatives such as the "Make in India Defence" program in aerospace and "Skill India Mission 2.0" in education underscored the nation's commitment to innovation and development.

The Automotive industry in India showed resilience in the face of supply chain disruption and regulatory uncertainty. Focusing on sustainability and innovation, the sector saw an increase in electric vehicle (EV) adoption, with sales reaching Rs 4.22 lakh crore. The Aerospace & Defence sector focused on developing indigenous manufacturing capacity and technology to strengthen national defence by investing Rs 1.5 lakh crore.

In the Healthcare sector, India has invested heavily in digital health solutions and infrastructure to combat the lingering effects of the COVID-19 pandemic. With a total investment of more than Rs 50,000 crore, companies have expanded telemedicine and implemented AI-powered diagnostics to improve patient care.

The Manufacturing sector prioritized digitalization and process optimization to enhance productivity and competitiveness amidst supply chain disruptions and inflationary pressures. Companies invested Rs 1.2 lakh crore in automation technologies and smart manufacturing initiatives to streamline operations and reduce costs. The Logistics & Transportation companies invested Rs 800 crore in blockchain-based traceability systems and cyber security protocols to secure supply chains and protect sensitive data from cyberattacks.

The Hospitality industry adapted to customer preferences and regulatory requirements through new service offerings and customer engagement strategies. With an investment of Rs 0.5 lakh crore, companies also focused on using contactless technology to improve health and safety measures, ensuring that guests have satisfaction and compliance.

The Agricultural & Food Processing sector embraced technological initiatives to increase agricultural productivity and ensure food security in the face of climate change and supply disruptions. With an investment of Rs 1 lakh crore, companies focused on precision farming and farm-to-fork traceability solutions to improve crop yield and quality.

The BFSI sector focused on digital transformation and risk management to address cyber threats and regulatory challenges. Banks and financial institutions invested Rs 2,50,000 crore to implement advanced cyber security measures and fraud detection systems to protect customer data and prevent financial fraud.

The Biotech & Life Sciences sector showcased innovation and resilience amidst regulatory complexities and supply chain disruptions. The Chemicals & Petrochemicals sector navigated environmental regulations and market volatility through sustainable practices and operational excellence initiatives. Digital learning and job training were adopted to meet workforce challenges and enhance productivity in the face of technological disruption and demographic changes in the Education & Skill Development sector.

The Energy sector has shifted towards renewable energy and sustainable development policies to mitigate the risks of climate change and reduce dependence on fossil fuels. Moreover, with investments of Rs 1.5 lakh crore in smart grid technologies and demand-side management initiatives to optimize energy consumption and reduce emissions, the sector prioritized grid modernization and energy efficiency.

The IT ITES sector continued to drive digital transformation and innovation to address cybersecurity threats and meet evolving customer demands. With investments of Rs 4 lakh crore, companies focused on cloud computing and cybersecurity solutions to protect data and ensure business continuity.

The Metals & Mining sector focused on sustainable practices and community engagement to address environmental concerns and social risks associated with resource extraction. With investments of over Rs 0.8 lakh crore, companies implemented reclamation and rehabilitation projects to restore mined areas and promote biodiversity conservation.

The New Age sector, comprising startups and technology companies, showcased innovation and resilience amidst market uncertainties and funding challenges. Additionally, the sector prioritized talent acquisition and retention, with investments of Rs 0.5 lakh crore in employee benefits and workplace diversity initiatives to attract top talent and foster a culture of innovation.

The Telecommunication sector continued to expand connectivity and digital infrastructure to meet growing demand for broadband services and IoT applications. With investments of over Rs 2 lakh crore, companies deployed 5G networks and fiber-optic cables to enhance network capacity and speed.

In summary, India's diverse sectors demonstrated resilience and innovation in navigating through a challenging operating environment in 2023. As India continues its journey towards economic prosperity, proactive risk management and innovation will remain critical drivers of success across diverse sectors.

India Showcasing an Optimized Risk Handling

Figure 2: Corporate India Risk Index 2023

A score of 64 on the Corporate Risk Index indicates optimal handling of risk by the Indian companies. However, to enter the superior risk handling territory, the Indian companies have scope to improve upon their risk management practices in the areas of crime & security risks and strategic risks. It was observed across sectors that there is an increased focus on cybersecurity and other technological risks.

In the sectorial analysis of risk exposure, it was found that companies were most affected by market & economy and operational & physical risks due to inflation, global volatility and geopolitical events like the Red Sea crisis, Israel Palestine conflict and Russia Ukraine War.

Another common risk was supply chain disruption, exacerbated by factors such as geopolitical pressures, natural disasters, and inflation. To mitigate these risks, companies diversified their supplier base, invested in inventory management systems, focused on localization and adopted agile supply chain practices to enhance resilience and flexibility.

It was observed that risk management is getting an increased focus in the growth strategy of every organization with companies having dedicated risk teams to manage their risk exposure. All the organizations fell either into 'Superior Risk Management' or 'Optimal Risk Management' category indicating good risk management practices.

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

Figure 3: Corporate India Risk Index 2023 Sector Score

Superior Risk Index

Superior risk handling was found in nine industrial sectors: Telecom & Communication, Pharmaceuticals, Healthcare Delivery, Automotive & Ancillary, Manufacturing, FMCG, Media & Gaming, New Age & Startups and Tourism & Hospitality.

Optimal Risk Index

Optimal risk handling was found in 11 industrial sectors: BFSI, Energy, Transportation & Logistics, Agriculture & Food processing, Metals & Mining, Aerospace & Defence, IT ITES, Education & Skill Development, Infrastructure & Realty, Biotech & Lifesciences and Chemicals & Petrochemicals.

Chemicals & Petrochemicals Insights 2023

The chemical and petrochemical industry in India stands as a cornerstone of the nation's economy, boasting a valuation of approximately INR 18 Lakh Crore. and poised for substantial growth to reach INR 25 Lakh Crores by 2025. 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 sector witnessed substantial investment activities in 2023, with petrochemical projects worth approximately 1.3 Lakh Crore under implementation and projects worth around INR 8 Lakh Crores announced. The Department of Chemicals and Petrochemicals (DCPC) aims to position India as a manufacturing hub for chemicals and petrochemicals, fostering a business-friendly environment for investors. The Department of Chemicals and Petrochemicals implements the New Scheme of Petrochemicals with sub-schemes on (i) the Scheme for setting up of Centres of Excellence; (ii) The Petrochemicals Research & Innovation Commendation Scheme; and (iii) the Scheme for setting up of Plastic Parks.

The industry confronts multifaceted challenges arising from soaring energy costs, escalating raw material prices, and the mounting expenses associated with adhering to stringent Environmental, Social, and Governance (ESG) standards. The devaluation of the Indian rupee against the US Dollar has further exacerbated inflationary pressures on imports, particularly impacting the industrial chemicals segment. Currency depreciation has inflated import costs, thereby impacting raw material prices within the sector. Initiatives like Atmanirbhar Bharat Abhiyan have been set forth to curtail import dependence and fortify self-sufficiency within the chemical domain.

Geopolitical upheavals such as Russia's actions in Ukraine have reverberated across the chemical sector in India, triggering spikes in fuel expenses, heightened freight charges, and elevated raw material prices. These events underscore the intricate interplay between global geopolitical dynamics and local industry operations.

The Department of Chemicals & Petrochemicals (DCPC) in India has initiated the enforcement of Bureau of Indian Standards (BIS) standards as mandatory for specific chemicals to safeguard human, animal, and plant health, ensure environmental safety, prevent unfair trade practices, and bolster national security. In 2023, 12 Quality Control Orders (QCOs) have been implemented to regulate the quality of chemicals and protect consumer interests. These QCOs aim to enhance chemical management practices and require relevant enterprises to adhere to the specified standards and provide essential information to competent authorities.

Projections paint a promising picture for the Indian chemical industry, with expectations set for robust growth to propel it to a valuation of INR 25 Lakh Crores by 2025 at an impressive compound annual growth rate (CAGR) of 9.3%. Looking ahead to 2030, this sector is anticipated to make a substantial contribution of INR 31 Lakh Crores to India's GDP. The burgeoning demand for chemicals is forecasted to surge by 9% annually, driven by escalating needs for speciality chemicals and petrochemicals.

In conclusion, despite contending with inflationary pressures, geopolitical uncertainties, technology risks, and foreign exchange fluctuations, the chemical and petrochemical industry in India remains resilient and primed for significant growth. Bolstered by governmental initiatives and burgeoning global demand, this sector is poised to chart a trajectory of sustainable expansion and economic prosperity.

Chemicals & Petrochemicals Sector Risk Index 2023 Vs 2022

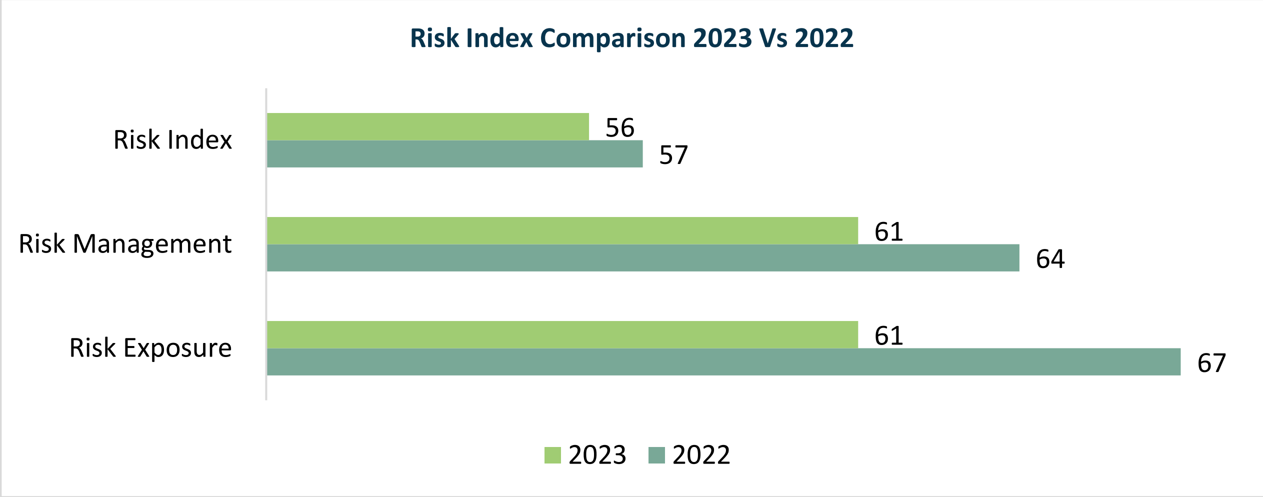


Figure 4: Detailed Comparative Analysis 2023 Vs.2022

Chemicals & Petrochemicals Sector Risk Index 2023 Vs 2022

The chemical sector has shown slight improvement in the risk index by decreasing from 57 in 2022 to 56 in 2023. The Indian government has introduced several regulatory and policy initiatives to facilitate and boost the development of this sector. This decrease is attributed to significant decrease in risk exposure along with a slight decrease in risk management.

Operational and physical factors have improved, with the government's focus on creating an infrastructure for setting up business operations in the state.

The Indian chemical industry drew interest from around the world in 2023 as businesses look to diversify their supply chains away from China in order to reduce risk. The establishment of designated Petroleum, Chemical, and Petrochemical Investment Regions (PCPIRs) to assist downstream companies and increase the industry's GDP contribution further spurs the sector's expansion. In addition to adopting global best practices and lining up with sustainability goals, the Indian chemical sector has also improved risk management and decreased exposure to possible hazards.

Chemicals & Petrochemicals Sector Risk Exposure 2023 Vs 2022

The chemical sector in India experienced a decrease in risk exposure from 67 in 2022 to 61 in 2023, mainly due to improvements in technology and operational factors. Technological advancements, particularly in AI-powered discovery. Operational factors improved due to the government's initiatives to create an infrastructure for business operations, leading to better risk management practices and streamlined operations.

However, other risk parameters such as market and economy, crime and security, natural hazards and events, and strategic risks saw varying degrees of increase. Despite these factors, the advancements in technology and operational practices resulted in an overall decrease in risk exposure for the chemical sector in India in 2023. The lower risk exposure indicates that the sector is better positioned to manage risks and maintain resilience.

Chemicals & Petrochemicals Sector Risk Management 2023 Vs 2022

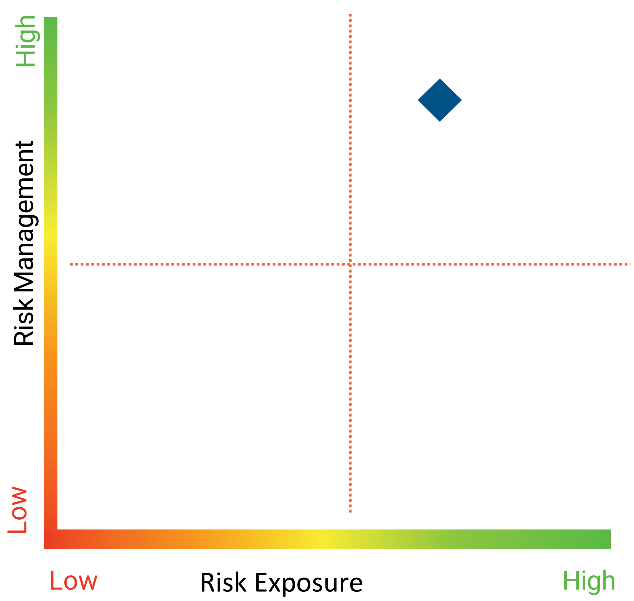
In 2023, the chemical sector in India maintained an acceptable risk management score of 61, consistent with the previous year's level of 64. This stability can be attributed to the sector's growth in market and technology management. However, other aspects of risk management, including operational, crime, and security factors, saw a decrease, particularly in crime and security management scores. Despite these challenges, the sector's overall risk management practices remain effective in handling known risks and adapting to newer or unknown risks. The industry's focus on sustainability and ESG diligence has also contributed to maintaining a steady risk management score, indicating a preparedness to manage risks effectively in the evolving landscape of the chemical sector in India.

Key Highlights

Risk Dimension Analysis: Market and Economy

Risk Exposure Score: 66

Risk Management Score: 65



Inflation

- In 2023, the industry faced challenges such as oversupply, new capacities coming online, weak global demand, and volatile upstream prices. These factors contributed to margin pressures and inflationary impacts on production costs
- The ongoing Russia-Ukraine war disrupted global energy markets, leading to a surge in crude oil and natural gas prices, higher oil and gas prices directly translated to increased production costs for Indian companies
- Increasing geopolitical risk in the Middle East could raise oil prices. A surge in crude oil prices could affect domestic inflation and may lead to prolonged elevated interest rates
- India is grappling with excess supplies of ethylene and propylene, a key feedstock to produce petrochemicals including polyethylene (PE) and polypropylene (PP) – the basis for making plastic -- given a slowdown in global economic growth.So fresh production capacity in India is set to add to the pressure on prices

Taxation and Regulation

- The Indian chemical and petrochemical industry in 2023 experienced changes in customs duties, regulatory requirements mandating unique identification of chemical substances, calls for tax reforms to support local producers' competitiveness, and expectations for policy support to drive growth, innovation, and infrastructure development within the sector.
- The GST rate for almost all chemicals in India is 12 per cent

- In the Union Budget 2023-24, the government allocated Rs. 173.45 crore (US$ 20.93 million) to the Department of Chemicals and Petrochemicals, demonstrating financial backing for sector development

- In July 2023, Global Chemicals and Petrochemicals Manufacturing Hubs in India (GCPMH 2023) was organized in Delhi, India.

- Currently, there is a 7.5% customs duty on intermediates/raw materials and 10% on active ingredients. Industry stakeholders have called for a decrease in customs duty on intermediates/raw materials or a duty gap between raw materials and ready-to-use active ingredients to support the Indian industry

- The Central Board of Indirect Taxes and Customs mandated the declaration of IUPAC names and CAS numbers for certain chemical-related products for import and export from October 1, 2023. This requirement aims to enhance assessment efficiency, reduce queries, and align with global standards for unique identification of chemical substances.

Foreign Exchange Rates

- The Indian Rupee experienced fluctuations against the US Dollar, with the Rupee depreciating by 8% year-to-date in 2023.

- Middle East-based petrochemical producers faced margin pressures throughout 2023 due to volatile feedstock supplies and weak global demand. The uncertain global macroeconomic outlook added further pressure on product portfolios, impacting trade dynamics and potentially affecting foreign exchange rates

- India witnessed a significant increase in polyolefin imports, with polypropylene imports rising by 39% year-on-year and polyethylene imports increasing by 108%.

- Dumping practices and sluggish demand, especially in Europe, negatively impacted companies in the industry.

- The implementation of mandatory Bureau of Indian Standards (BIS) certification for certain chemical imports aimed to maintain quality standards and curb imports from China. This regulatory measure could impact foreign exchange rates by influencing import volumes and trade flows within the sector

- India's current trade deficit in the chemical sector is expected to increase significantly by 2040. While exports are projected to grow, imports are likely to outpace exports, leading to a widening trade deficit. Only the speciality segment is expected to be a net exporter by 2040.

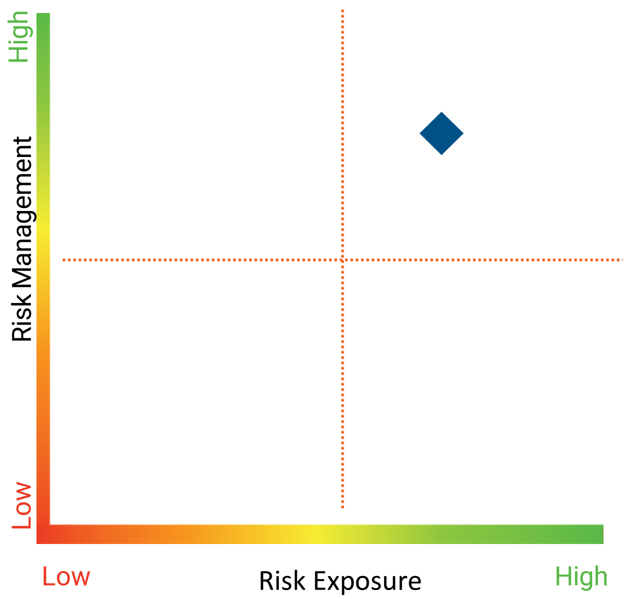
Geopolitical Risk

- The conflict between Russia and Ukraine has led to major disruptions in commodity markets, potentially affecting global trade dynamics. The ongoing conflict posed risks of supply chain disruptions, soaring raw material prices, and intensified geopolitical conflicts worldwide.
- These factors including the disruptions in Venezuelan oil production led to challenges in sourcing raw materials for the Indian chemical industry, affecting production costs and competitiveness.
- The Israel-Hamas war contributed to regional instability, impacting trade routes and supply chains.
- Higher oil prices resulting from geopolitical tensions can trigger inflation and slow down economic growth, affecting industries reliant on oil imports like chemicals and petrochemicals
- India's chemical industry is experiencing an annual growth rate of over 10%, presenting opportunities for both domestic and overseas manufacturers. Stricter environmental regulations in China and global supply chain reassessments are reshaping the industry landscape, making India an attractive destination for investment and expansion

Risk Dimension Analysis: Technology

Risk Exposure Score: 59

Risk Management Score: 60



Innovation Risk

- 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.
- Investments are pouring into the sector, with an estimated Rs 8 lakh crore expected by 2025. The government's initiatives like the production-linked incentive (PLI) scheme aim to boost domestic manufacturing and support industry growth.

Intellectual Property Risk

- The intellectual property (IP) risks faced by the Indian chemical and petrochemical industry in 2023 are crucial considerations for companies operating in this sector.
- The developments in the external value of intellectual property in the chemical industry, highlight potential implications for companies.
- The industry is challenged by the lack of availability of indigenous technologies, stemming from insufficient technological development in the country. This poses a risk as companies may be more

vulnerable to intellectual property infringements.

- Intellectual property risks in the Indian chemical and petrochemical industry require proactive measures such as IP protection strategies, risk assessments, security vulnerability evaluations, and regulatory compliance. By addressing these risks effectively, companies can safeguard their innovations, maintain competitiveness, and ensure sustainable growth

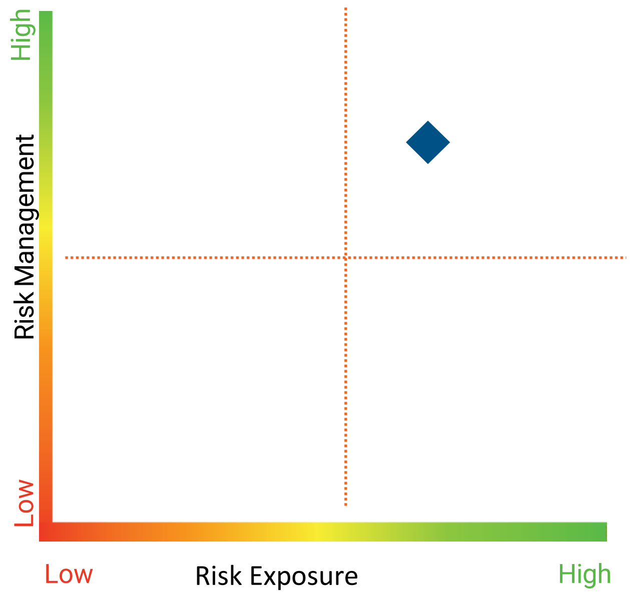
Disruptive Technology

- Department of Chemicals & Petrochemicals has developed and launched a new Website https://chemicals.gov.in and issued instructions to keep the website updated on a regular and continuous basis
- The lack of availability of indigenous technologies due to limited technological development in India poses a significant risk for the sector. This challenge hampers the industry's ability to keep pace with technological advancements, making companies more vulnerable to disruptions caused by new technologies.
- The Indian chemicals sector is undergoing transformative change, emphasizing the importance of investing in research and development (R&D) to innovate new processes and materials. This strategic focus on R&D is crucial for adapting to disruptive technologies and staying competitive in the evolving landscape.
- Companies with limited resources for adopting AI/ML solutions could fall behind in terms of efficiency and innovation. Additionally, concerns about job displacement due to automation might arise.

Risk Dimension Analysis: Operational and Physical

Risk Exposure Score: 65

Risk Management Score: 67



Supply Chain and Critical Infrastructure risk

- The petrochemical industry in India faced challenges due to the lack of growth in the petrochemical intermediate industry, leading to increased import dependency
- Supply of sunflower oil became tight for India, leading to increased freight costs by 35% and transit time by 15 days as vessels from Russia and Ukraine were rerouted through the Cape of Good Hope
- Congestion at major Indian ports worsened in 2023, leading to delays in clearing imported raw materials and finished product exports, further disrupting supply chains.
- The Hamas-Palestine conflict in 2023 posed challenges to the pharmaceutical sector, with companies expressing concerns about potential impacts on sales and manufacturing in Israel. Multinationals with operations in Israel monitored the situation closely to ensure the safety and continuity of critical operations
- The crisis in the Red Sea led to delays in shipments through the Suez Canal, impacting various industries and products globally. The shipping industry suspended Suez Canal transit due to safety concerns, resulting in increased shipping prices and disruptions across multiple sectors.
- The Russia-Ukraine war disrupted established supply chains for various chemicals and raw materials, leading to shortages and logistical bottlenecks.

Environmental Hazards and Sustainability

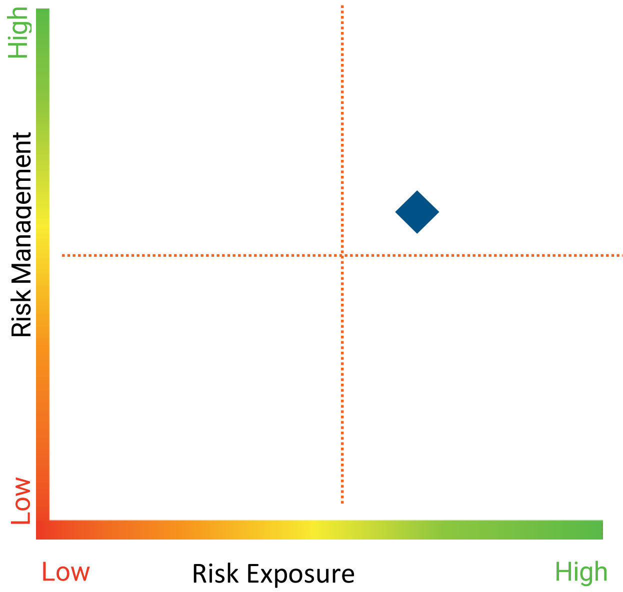
- The chemical industry in India is focusing on safe, sustainable, and eco-friendly production practices, driving the development of new technologies and innovations. Introducing regulations like the Chemical (Management and Safety) Rules (CMSR) and Extended Producer Responsibility (EPR) demonstrates a commitment to creating a safer and more sustainable petrochemical industry critical for long-term economic growth
- The industry's high energy intensity, accounting for around 12-15% of total energy consumption in India, results in substantial greenhouse gas emissions, contributing to climate change

- However, the industry is transitioning towards circular business models, using renewable feedstocks, and emphasizing the reuse and recycling of end-of-life products to promote sustainability.
- Emphasis is placed on cleaner energy consumption to align with environmental goals and contribute to India's journey towards a greener future
- The government is promoting safe, sustainable, and eco-friendly petrochemical production through initiatives like the Chemical (Management and Safety) Rules and Extended Producer Responsibility (EPR)

Risk Dimension Analysis: Crime and Security

Risk Exposure Score: 53

Risk Management Score: 52



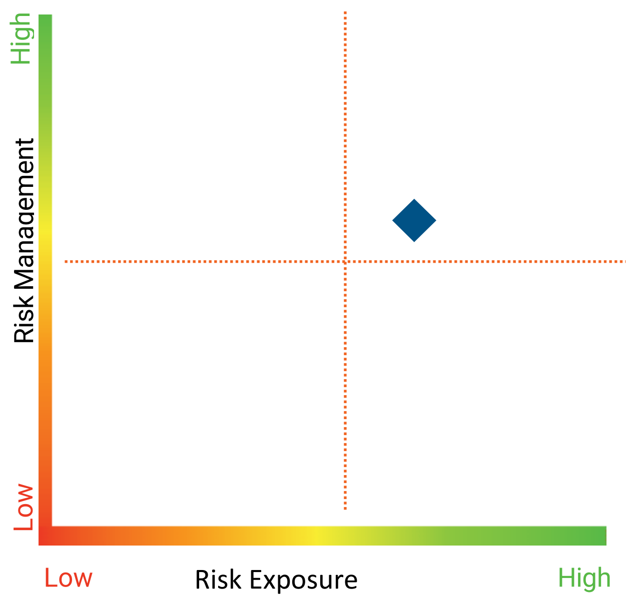
Cyber-crimes

- With The disruption caused by cyber-attacks can compromise environmental safeguards put in place by regulations. For instance, if a cyber-attack hampers a company's ability to monitor air emissions or manage liquid waste treatment effectively, it can result in environmental violations and risks to ecosystems
- Companies in the chemical industry invested in advanced cybersecurity tools and technologies to strengthen their defences against cyber threats. This included implementing network monitoring, endpoint security, access control, and threat intelligence to protect against attacks like ransomware
- Collaborative efforts with government agencies like the Cybersecurity and Infrastructure Agency (CISA) were pursued to promote a higher standard of cybersecurity across the sector. This partnership focused on capabilities for visibility, threat detection for industrial control systems, information sharing, and analytical coordination

Risk Dimension Analysis: Natural Hazard and Event

Risk Exposure Score: 67

Risk Management Score: 63



Natural Hazards:

- Natural disasters like floods, earthquakes, or cyclones can lead to infrastructure damage, potentially causing chemical spills or leaks that contaminate soil, water sources, and air. This contamination can have severe consequences on ecosystems, wildlife, and human health
- Natural hazards increase safety risks for workers in chemical plants and nearby communities. Industrial accidents triggered by natural disasters can lead to injuries, fatalities, and health hazards for individuals exposed to hazardous substances

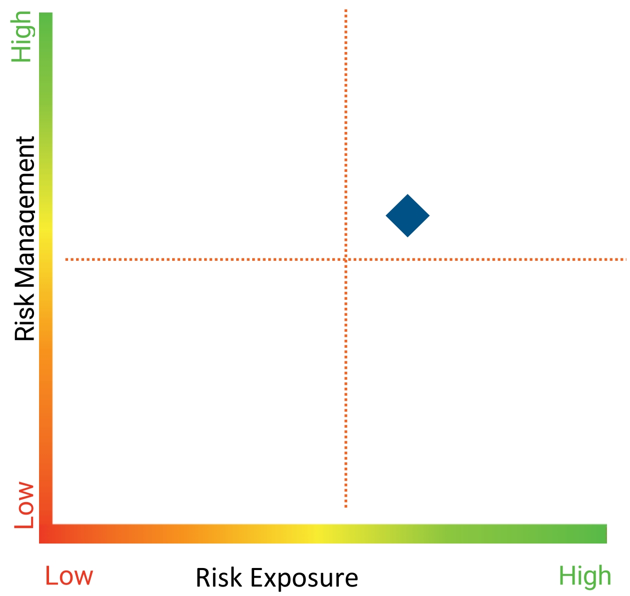
Pandemic and other global epidemic diseases:

- 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: 46

Risk Management Score: 41



Public Sentiment:

- The chemicals business is predisposed to the possibility of working with caustic end products or hazardous chemical intermediaries, which can endanger workers' lives and have a negative impact on the environment.
- Because of this, there is a much higher chance of recalls and quality audits in order to maintain tight quality control and a secure workplace. Concerned parties and the government have established a number of laws and guidelines pertaining to quality control and safety audits in order to reduce this danger and guarantee everyone's safety.

Resource scarcity / Misutilization / Overall Utilization

- Specific resource scarcity risks faced by the chemical and petrochemical industry in India in 2023 include challenges related to water scarcity, energy prices, emissions reduction trends, and hazardous future implications.
- These risks can impact the industry's operations, sustainability efforts, and overall growth trajectory. The industry is adapting to address these challenges through initiatives focusing on decarbonization, sustainability, and digitalization to mitigate risks associated with resource scarcity and create new investment opportunities.

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 activities such as Electrical Audit & Thermography built in with other such solutions.

- **Fire Hydrant IoT:** Fire hydrant monitoring is an automated solution that monitors key parameters such as Hydrant and Sprinkler line pressure, Main and Jockey pump on-off status. These can be interpreted to provide intelligence on unauthorized usage of water and leakage. 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. The outcome of the exercise will help the plant maintenance team to rectify the leaks and reduce the energy cost. This will also improve the process parameters and production quality.

- **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 places by risk assessors.

- **Renewable Solutions:** In line with our philosophy for recommending business solutions, we recommend advise on efficiency measurements for wind and solar power generating assets. Drones are used to provide high accuracy and the 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 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, root cause analysis with MIS, claim assessment reports.

- **Technical engagements:** Uncertainty of the risk associated with the transit can be concluded with marine experts. 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 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 station and detailed post hijack recovery case studies is recommended to effectively monitor and mitigate theft / pilferage prone dispatches and 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.

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 minimization with reference to some parameters of distinctive research and industries best practices.

- **Drone Solutions:** 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.

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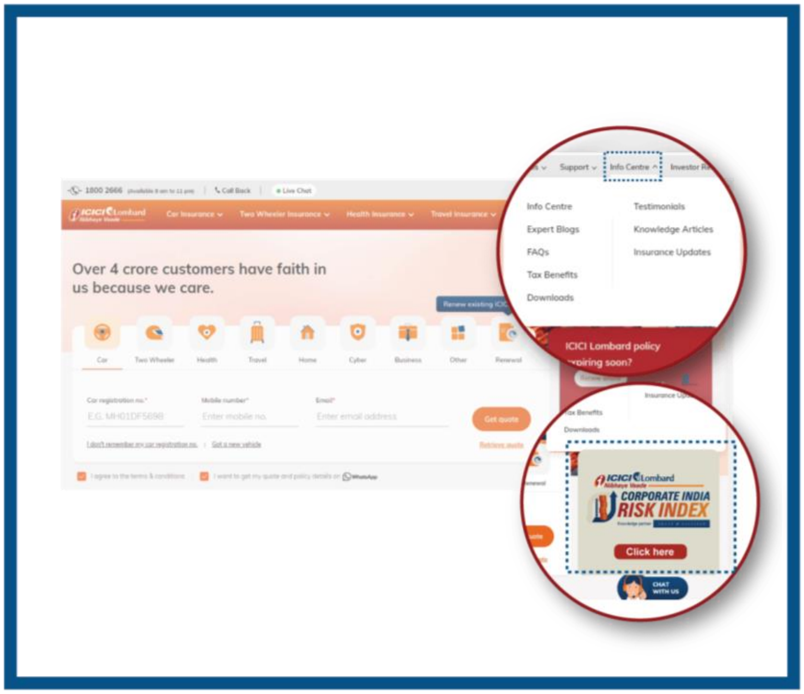

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