The India risk taxonomy 2023–24

First edition

An annual compendium of emerging risks and key risk descriptions

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1. Preface by KPMG in India

We welcome you to the very first edition of 'India risk taxonomy', which aims at compiling various risks that businesses in today's world are facing. The need for such a taxonomy is long overdue for India because in addition to the globally applicable risks, rules and standards, India too stands threatened with various risks that are unique to our region.

India is an emerging economy steady on the path of development and like any other economy of the world, it faces various fundamental, topical, and operational risks and challenges. Today, we stand on the cusp of being a leading economy of the world and can rightly do so if we manage these risks efficiently and continue staying ahead of the pack.

Challenges faced by the Indian economy range from climate crisis to cyberattacks along with socioeconomic problems that affect the country, leading to the emergence of more risks than can be anticipated.

The onset of the pandemic in 2020 resulted in significant shifts in how we work and live. This period witnessed the enforcement of repeated lockdowns that dried up opportunities in sectors such as aviation, leisure and hospitality, construction, travel, and transportation, etc., leading to a complete shift in migratory trends as people moved back to their villages/towns from the cities that provided their living. This created a new wave of job opportunities in tier II, III and IV towns/cities, leading to a lack of resources in tier-I cities across the globe. This has been further complicated with the phenomenon of the great resignation across industries that has raised the attrition level to more than double the pre-COVID levels.

On the environmental front, we see grave concerns with continued environment degradation. This is evident as society at large and businesses are setting aggressive targets to become carbon neutral in the coming years (in some cases, even carbon positive) to mitigate the impact of the climate crisis. The action has already begun in India with the government focusing on renewable energy. Some initiatives that have been announced include the accelerated adoption of electric vehicles (EVs) and reduction in the usage of oil by increasing the ethanol percentage in the blend, increase in the use of green hydrogen etc. These initiatives are backed by providing incentives to the industry for setting up new ventures to attain the carbon neutral goal and reduce overall pollution.

The rapid advancement in technology has also introduced a whole new set of vulnerabilities, ranging from data leakage to cyberattacks to the distortion of facts to manipulate election results. This is and will remain a challenge for the country and the world at large that needs to be addressed to ensure that people are not exploited to favour a few and alter the course of the world.

This year and the next will witness a lot of changes in the Indian economy and the direction in which the country will progress due to possible changes in the political landscape on account of multiple state elections in 2023 and the national election in 2024.

The foundation of the report is based on our India Risk Perception Survey, completed by 81 members of the Indian business community from diverse backgrounds. We are extremely proud to present the first edition in collaboration with the Institute of Risk Management (IRM)-India Affiliate, a leading global professional body in Enterprise Risk Management (ERM) qualifications.

2. Foreword by Institute of Risk Management (IRM) - India Affiliate

Every uncertainty and external shock have reinforced the importance of an effective ERM programme in organisations, whether these are private or public. As the world wades through choppy waters with the ongoing Ukraine-Russia war, the economic crisis in neighbouring countries, rising inflation due to geopolitical constraints and complex cybersecurity issues compounding due to fast-paced technological advancements, individuals, organisations, and society at large need to be prepared with responses instead of reactions to current and emerging risks.

As the need for building risk intelligence across the value chain (including the extended enterprise) shifts from ‘good’ to ‘must have’, the role of the Chief Risk Officer (CRO) and the risk function will require a significant transformation in the coming years with a sharpened focus on ‘risk culture’. The IRM has been advocating the need for a robust risk culture through its publications. One of the leading indicators of risk culture is how the management responds to bad news. The extent to which management encourages the reporting of risk events and ensures learning is captured and shared to prevent recurrence is critical. Shooting the messenger sends a very rapid signal about how openly risk issues can be discussed. Creating a risk culture means that the staff is aware of what kind of risks can be identified, escalated, and discussed regularly with transparency.

This—coupled with an increasing emphasis on risk disclosures by regulators and rising expectations from stakeholders on environmental, social, and governance (ESG) commitments—requires a reboot of the ERM process with:

1. A refreshed perspective on the accuracy, quality, completeness, and adequacy of risks identified
2. A proactive approach towards risk-based mitigation strategies, and
3. A sharpened focus on the culture of compliance in organisations.

This report is part of the India Risk Taxonomy series that we will publish each year. The objectives are to

1. Create appreciation for and seriousness towards the risk function
2. Elevate risk thinking in organisations
3. Bring a 360-degree perspective to risk identification through our A–Z risk taxonomy that shall be updated every year
4. Enhance the quality of risk reporting and disclosures, and
5. Drive meaningful discussions at Risk Management Committee (RMC) meetings.

In line with our ERM thought leadership initiatives across the globe, we are extremely delighted to support KPMG in India with this publication and sincerely thank the community that participated in the survey and shared insights.

By Hersh Shah, SIRM,
Chief Executive Officer,
Institute of Risk Management (IRM) -
India Affiliate

3. India risk perception survey

Enterprise risk has become a talking point across boards and organisations due to the changing environment both within the country and globally. As India is becoming more connected to the global economy, the headwinds across the world are also affecting the Indian economy.

Following are the top global risks identified by the people surveyed:

1. Global inflation and the resultant synchronised tightening of monetary policy across the globe led to a slowdown in demand. As India is a global export hub for certain established products and is expanding into other new export categories, this slowdown will impact the country's overall utilisation of manufacturing capacity.

2. Higher oil prices across the globe—driven by various factors, such as the war, increase in demand for oil, increase in commodity prices, etc.—which has already led to overall inflation across all economies.

The above-mentioned themes resonated with people surveyed in India as well, as the country witnessed high inflation in 2022, which has increased the overall cost of living. This has led the Reserve Bank of India (RBI) to increase its repo rate to contain inflation, which has been passed on by banks to borrowers.

Respondents also felt that the availability of useable water can also be a challenge in the mid to long-term considering India's vast population and resource constraints. Providing clean and drinkable water is a long-term challenge that will need to be tackled sooner or later as water is a very important commodity for humans to survive.

Many respondents also felt that the high unemployment rate will be a risk factor in 2023, aggravated by various other elements such as the slowdown in the economy, changes in the business model, a slowdown in business expansions, etc., which will disrupt the economy and affect the common man, which will, in turn, also affect overall consumption.

4. India risks 2022–23

A. Top risks

With the help of the survey conducted and risk perception shared by various leaders with diverse backgrounds, we were able to arrive at the following top risks for India:

1. Climate action failure

Extreme weather affecting the country:	The last few years have seen extreme weather events across the country, which have led to severe loss of life and property. According to the Indian Meteorological Department, extreme weather events led to 1,750 deaths in 2021 and 2,200 deaths in 2022[1] .
Climate change affecting the overall growth of the country:	According to Mr. Chandra Bhushan, Founder-CEO of the International Forum for Environment, Sustainability and Technology, 'India is already losing 3–5 percent of its GDP due to climate change and this number could increase to as much 10 percent if global warming is not limited to below 2 degrees celsius.' Also, around 80 percent of India's population lives in regions that are vulnerable to heat and cold waves and severe floods[2]
Reduction in cultivable land and overall cultivation:	India lost 5.04 million hectares (mha) crop area to cyclonic storm, flash floods, floods, landslides and cloudbursts till 25 November 2021, Mr. Narendra Singh Tomar, Union Minister of Agriculture and Farmers' Welfare, told the Lok Sabha on 30 November 2021. In India, around 36 mha agricultural area was affected due to hydro-meteorological calamities, including heavy rain and floods, 6.65 mha in 2016; 5.08 mha in 2017; 1.70 mha in 2018; 11.42 mha in 2019; 6.65 mha in 2020 and 5.04 mha in 2021[5].
Reluctance to change the way of doing business:	To reduce the impact of climate change, a lot needs to be done by countries across the globe, which, in turn, means that a lot needs to be done by companies leaving carbon footprint. However, any action on this front would lead to an increase in overall cost of doing business or product cost, which will either have to be borne by the business or will be passed on to customers. Certain companies are willing to change and absorb some cost and pass on some. However, the constraint here is that all companies in the segment need to follow the same strategy or companies which will change and increase the cost of the product will lose out to the competition. This is resulting in reluctance in certain segments to change the way of working, thereby slowing down the pace of addressing climate crisis.
Emergence of new pandemic/ virus	Climate change is fast melting the ice in the Antarctic, Arctic region and other parts of the world including the Himalayas.[3] Scientists have collected samples from various locations and have recorded finding viruses/bacteria in these samples, which are as old as 15,000 to 48,000 years, which could trigger new pandemics.[4]

1. "Over 2,220 deaths in India due to extreme weather in 2022, highest in three years"; Times of India; January 2023
2. "Extreme weather events strike India almost every day"; DW; November 2022
3. "Next pandemic may come from melting glaciers, new data shows"; The Guardian; October 2022
4. "Scientists Revive 48,500-Year-Old ‚Zombie Virus' Buried In Ice"; NDTV; November 2022
5. "Climate crisis has cost India 5 million hectares of crop in 2021", DownToEarth, December 2021

2. Increase in cost of living:

The cost of living is dependent on various factors, such as food, transportation, health care, taxes, etc. However, there is a very important commodity that affects all the factors, either directly or indirectly, and that is oil. Any changes in the price of oil have cascading effects on all the factors in the short to long term. Prices of oil have fluctuated from as low as USD 1 per barrel in April 2020 to over USD 115 per barrel in March 2022; this again slowed down to below USD 80 in 2023. Fluctuations such as these are related to global events like the pandemic, global slowdown, geopolitical conflicts, etc. These events led the Organisation of the Petroleum Exporting Countries (OPEC) and other oil-producing countries to artificially control oil prices by lowering the output to ensure that prices are at a level wherein they earn normal or super profits.

Rise in fuel cost: The cost of petrol and diesel, the basic fuel used by millions of Indians, had skyrocketed to INR 120.51/l and INR 104.77/l respectively before the government (followed by certain states) decided to reduce the taxes levied on fuel to reduce the overall burden on the common man.

However, the price fell marginally to only INR 106.31/l and INR 94.27/l wherein fuel marketing companies have frozen the price. Between July 2021 and 2022, petrol prices in India were hiked 78 times, while only seven reductions were carried out. Similarly, diesel saw 76 hikes whereas only 10 times reductions have taken place.

Even though there has been a correction in the oil prices, which could have been passed on to consumers to help reduce the overall cost of living expense, the same has not been done as oil marketing companies wanted to compensate for their losses.

Increase in transportation and input costs: With the fuel cost increasing, the overall cost of transportation has increased over the years, denting personal budget. Simultaneously, basic commodity prices have also increased due to the increase in transportation costs and input costs.

Reduction in overall purchasing power: India is a huge country and is seeing development in each sector, which is increasing overall consumption. However, with the increase in costs of products and the cost of living, there is a high likelihood that the consumption story could see a downfall if any of the following events take place in the near future, such as a natural/climate event affecting agricultural output, untimely rainfall ruining crops, inflation, social unrest in states, severe border escalations with neighbouring countries or another pandemic breakout.

Negative sentiments among consumers: Euromonitor conducted a social listening exercise on a leading social media platform between 8 August 2022 and 8 September 2022, which showed that words such as 'inflation', 'recession' and 'price' had the highest volume of tweets and displayed clear negative emotions. In terms of sentiment, of all social media posts under consideration for the cost of living, 47 percent had negative sentiments associated with these. Assessing the top negative sentiment topics in India, it was found that 'food and non-alcoholic beverages' dominated the discussion, as consumers were extremely worried about the increasing cost of edibles. This is pertinent as this category comprises a large proportion of household monthly expenditure.[6]

6. "Increasing Cost of Living in India: Impact on Consumers and Businesses"; Euromonitor International; November 2022

3. Unresolved border issues and other matters between various states

India is one of the most diverse countries in the world, hosting people from different religions whose languages and cultures are unique. Based on these distinctions, most Indian states were formed. However, the border regions when bifurcated led to some of the cities or villages being made part of other state than the state in which they fall as per people's and other states' perception. Any kind of unresolved matter between states might impact social harmony, the law-and-order situation and business activity in these states, as has been seen in the past.

At the time of publishing this report, several regional border conflicts exist within the country.

4. Border conflicts with neighbouring countries

India shares its international land borders with seven different countries and often faces territorial disputes and escalating tensions:

Long-standing land dispute in the northwest: Over the last few decades, India has had major land dispute issues in the northwest, which has led to several wars and continuous conflicts at the border, leading to multiple repercussions.

Increasing disputes in the north and northeast have led the government of India to increase spending in that area considerably to develop infrastructure and other preparedness to protect the country's borders.

Increase in cost of living: Any war needs resources and funds and affects global stability when the countries involved are the two most populous countries in the world with enough economic power and are considered as the world's factories. This will heavily impact the supply chain, increase the cost of production, and reduce the consumption story as the product scarcity will lead to less purchase and people would also save their money during this uncertain time.

5. Disruption through social media

Social media has become an integral part of our life, more than 450 million people in India use social media platforms via their mobiles, laptops or desktops, spending an average of 2.4 hours a day. This has made social media a critical platform for advertisement, influencing, trolling or creating disruption in business or society.

Advertising through influencers: The emergence of social media as a platform to connect with millions of people has led many to take up freelancing and influence users to use a product, visit a place, follow a certain type of diet, or wear certain types of clothes and so on. These influencers are sponsored by companies to promote their products, which helps them capture the market as influencers have many followers and can alter customer preferences.

The flip side of this is that social media can pressurise youth and adults alike to follow these trends, which makes them want to purchase things they cannot buy or do not need, go to places they cannot afford, eat things which may affect their health and so on. All leading research on the use of social media have warned of the adverse impact it has on users and, especially, the youth.

Rampant trolling and cyberbullying: Social media also enable users to troll other users for their posts and bully people for their actions by posting indecent comments or ridiculing them. While some users are used to such behaviour and can ignore such things, many people cannot accept such offensive comments, which can adversely affect their mental health.

Negative impact on businesses: Social media can also affect businesses, causing losses or resulting in other adverse impacts. Recent events in startup world wherein outrage on social media by many users have led to termination of employee. There are many such instances where people have either boycotted products/companies or have asked companies to ban certain products or remove products from their websites and so on.

6. Increasing current account deficit

The widening of India's merchandise trade deficit pushed India's Current Account Deficit (CAD) to an all-time high of USD 36.4 billion (about 4.4 percent of GDP) in the quarter ending of September 2022. This can have multiple implications for the Indian economy.

Higher overseas liabilities: Higher CAD essentially means that India's liabilities with the rest of the world have increased. Capital inflows under the financial account are used to fill the current account gaps. When foreign investors start withdrawing capital at a time when CAD remains higher, the country will face more challenges to navigate such a situation.

Rupee depreciation: If CAD continues to widen, it will lead to further depreciation of the rupee, making imports expensive. This will, in turn, have a cascading impact on supply chains and basic commodities needed in the everyday life of the common man. The result is thus an increase in overall inflation/cost of living in the country.

Depletion of foreign currency reserve: Excessive rupee depreciation will require the RBI to strengthen the rupee by selling the dollar drawn from India's foreign exchange reserves. This could gradually reduce foreign exchange reserves and create more challenges if the country sees a sudden reversal of capital inflows in the future.

Ray of hope: India has increased its presence on the global stage. Given strong economic conditions, the existence of a huge domestic market and favourable reforms, new investments are flowing into India to set up manufacturing facilities. This could help global companies to export out of India to the rest of the world. The impact would be a persistent increase in foreign exchange inflows and a sustainable reduction in CAD. Also, the fact that India's external debt ratios are low by international standards means that it is in a relatively better position to manage the risk of a sudden reversal in capital flows.

7. Cyberattacks leading to large-scale infrastructure breakdown[7]

Cyberattack is the new-age warfare used by miscreants primarily to extort money or other response from countries, companies, and individuals. While the intention behind some of these attacks is to extort money, there are instances where miscreants aim to damage another country or to get access to vital information that can give them an advantage.

Critical infrastructure hit

In the recent past, certain critical assets/ companies have been hit by cyberattacks, which are shown below:

1. A ransomware attack forced a low-cost carrier to cancel multiple flights in June 2022
2. A large securities trading company detected a malware in some of its internal machines. According to the company, this incident, however, did not result in confidential information or investor data being compromised
3. A large Delhi-based healthcare institute came under a cyberattack. This attack affected outpatient and inpatient records and digital hospital services, including smart lab, billing, report generation and appointment scheduling. The attack was believed to be a possible ransomware attack
4. People are falling prey to cybercrime and losing significant money due to unawareness. Multiple retail card frauds and phishing attacks have been carried out in the last couple of years which brought nationwide attention to the seriousness of this crime.

Money lost or demanded

In some high-profile ransomware attacks reported last year, certain well-known companies faced extortion demands from the attackers

Growing data breaches

As they say, data is the new oil. Data breaches thus have become very common, and incidents reported are becoming frequent. Hackers monetise the stolen personal data and sensitive information, such as credit card or bank account details, by selling them to other criminals on the dark web.

Cloud services and data are the new target in 2023

Experts believe that state-sponsored hackers will start targeting cloud services amidst growing digital transformation. According to Bob Huber, Chief Security Officer at Tenable, a cybersecurity firm, 'Nation states will begin to target managed Cloud Service Providers (CSPs) as companies migrate more of their attack surface to these managed services.'

7. "Top 7 Recent Cyber Attacks In India 2022"; India Observers; June 2022 "India saw the highest number of cyberattacks on govt agencies in 2022: report"; Mint; December 2022 "The AIIMS cyberattack reflects India's critical vulnerabilities"; Observer Research Foundation; December 2022

8. Moonlighting or gig economy

A completely new era emerged in the job market post the COVID-19 pandemic.

First

We saw the Great Indian Resignation phenomenon, wherein people resigned from their current jobs and opted for new jobs that gave them flexibility, better pay, better work-life balance and so on. This phenomenon started around September 2019 and is still continuing in certain sectors/industries.

Second

As people started resigning, there was a talent shortage across the country. As firms wanted to fill out their vacancies immediately to ensure the smooth functioning of operations, this led to a surge in salary levels and laxity in background verification/basic checks for the new recruits.

Third

The pandemic and subsequent lockdowns persuaded companies to opt for a remote working model. As this model provided extra time by cutting down commute time, few workers utilised this time to work on a second job within the same industry and outside normal business hours. They managed to do so without their primary employers' knowledge. For instance, in one case, it was found that an employee worked for seven companies at the same time. This practice is commonly known as moonlighting, which the primary employer feels could affect productivity and thereby pose challenges to revenue growth.

Last

As companies started clamping down on moonlighting or discouraging the same, employees started to participate in the gig economy wherein they associate with companies on an assignment-to-assignment basis.

Data confidentiality

As moonlighting and the gig economy gained pace over the last two years, a pertinent question that has come to the forefront is how can confidentiality of the client's propriety information or confidential sales pitch be protected? This is because practices such as moonlighting allow employees to work for competing organisations at the same time, thus increasing the risk of one of the organisations facing confidentiality breaches.

Employee's productivity

Employee productivity would reduce towards all the companies in which they are working even if their overall productivity remains the same, which is also a question mark as excess multitasking eventually reduces overall productivity. This raises a larger question of whether it is ethical for employees to get paid in full but not give their 100 percent of efforts to the same.

9. Water crisis

India has an estimated 18 percent of the world population but only four percent of the global water resources. This number clearly projects the problem India as a country faces when it comes to the availability of water. This means that we have an adverse balance in our water requirement, which needs to be immediately addressed. There is a prevalent fear that water will lead to countries declaring wars in the 21st century. Despite the criticality of this situation, we do not give water scarcity the attention it deserves because most of us are fortunate enough to have access to water at reasonable prices. However, the Aqueduct Water Risk Atlas, released by the World Resources Institute (WRI), places India—home to over 1.3 billion people—among the world's 17 'extremely water-stressed countries'.[8]

The NITI Aayog's Composite Water Management Index (CWMI) report (2018) stated that about two lakh people die every year due to inadequate access to safe water. When we talk about preserving water, we generally believe that the water usage for domestic or industrial purpose consumes the most water. But it is agriculture that consumes 85 percent of our water resources. Also, the irrigated area accounts for only 49 percent and the rest is being catered through either rain or groundwater, due to low irrigation coverage there is also huge wastage of water.

8. "9.1 crore Indians don't have basic water supply. But India isn't paying attention"; The Print; October 2021

B. Areas of emerging risks—potentials black swans and grey rhinos for the country

1. **Black swan events:** A black swan is an unpredictable event that can have a significant impact on the world and has potentially severe consequences.

   a. Satellites hacked to cause disruption or use as weapon of mass destruction:

   Currently, there are 6,000+ satellites orbiting the earth and the number is only going to increase over the years as the satellite usage expands to cover various areas, including surveillance, weather forecast, communication, global positioning system (GPS), geological studies, missile launch detection, the internet, etc. New age war is getting more sophisticated with cyberattacks and hacking becoming mainstream, where radicals and blackmailers use these techniques to get countries to meet their demands. Against this backdrop, the chances of satellites being used as a weapon have increased exponentially.

   Satellites can largely be used in two ways:

   I. **As a weapon:** A lot of satellites are made using high calibre material, including titanium that has a very high melting point. Due to this, titanium can re-enter the earth without getting burnt up in the atmosphere. As satellites travel at an average speed of over 28,000 km/h, these have almost the same intensity as that of a nuclear bomb with the capacity to cause great catastrophe in the region where they crash.

   II. **To create disruption:** As satellites have a variety of uses, which can further be expanded in the future, any outage or destruction of these will massively affect the way the world operates. In a worst-case scenario, it can even set back certain countries or even the entire world by a few decades.

2. **Grey rhinos:** These are slowly emerging but are obvious threats which could either be ignored or minimised by decision makers.

   a. Appreciation of dollar:

   Although it had seen some dips, the dollar rose steadily over the last 11 years. Dollar has always had a downturn after appreciation over years. The appreciation of dollar could be slow and steady over the next few years, but it can have a larger side effect on the Indian economy as India is slowly increasing its exports in service and manufacturing industry. Any appreciation could make Indian services or products less competitive in the market. On the flip side, this will significantly help bring down the oil import value and even help reduce the over fuel cost in the country, which will then ultimately be an overdue relief for people in general who face the brunt of high fuel cost in their day-to-day life.

   b. World War III:

   The catastrophic impact that World War I and II had on the world is yet to be forgotten. The world has come along far to avoid such a situation in the future. However, with many ongoing conflicts among countries that the world is witnessing right now, the possibility of a flare-up on a larger scale due to even one country's misstep can lead to a global war.

   c. Change in supply chain leaders:

   Before the outbreak of the COVID-19 pandemic, some countries in the west had become vocal about reducing import dependency and manufacturing goods within the country. However, this narrative slightly changed after the pandemic, as global firms started reducing their supply-side dependence and started increasing the share of imports from countries such as India. This situation comes as a both opportunity and a threat for India.

   Opportunity: Companies diversifying their supply base can set up operations in India, thereby helping the country to emerge as a leading manufacturing hub, which will not only meet domestic demand but also caters to export markets.

   Threat: Other nations having comparative advantages, such as low labour cost and government incentives, could also attract foreign firms and enable them to manufacture goods at cheaper prices as compared to India. This could even pose risk to India's exports of certain products. Further, as countries slowly set up manufacturing units to meet internal demands, in the long run of 10–15 years, the global scenario on supply chain could change which will affect not only India but all countries across the globe.

5. Quotes on Risk Management from Industry Leaders

"Risk cognisance, percolation of awareness about risk, the evolution of mitigation strategies in a participative manner and actual mitigation actions are now clearly a CEO office's task. Macro risks of the pandemic-led disruption, climate effects, war, inflation and debt and equity market volatility are looming large. In this environment, all six capitals—Physical, Environmental, Social, Human, Brand and Financial—are getting affected in critical ways. To make an enterprise sustainable, it has become necessary to manage the myriad of micro risks emerging. It is, therefore, a small wonder that enterprises are scrambling to acquire risk management skills and risk-qualified professionals to effectively manage the function. Leadership of a high quality and excellence in sustainable business are getting intertwined like never before."

- Shailesh Haribhakti,
Chairman, Shailesh Haribhakti & Associates, and Governance Board Member,
Institute of Risk Management-India Affiliate

"The future of risk management will move (and, in some cases, has already moved on) from risk identification, prioritisation and mitigation to building organisational capability to address all types of uncertainties. Organisations will be expected to display a risk maturity level wherein risks and opportunity management becomes part of the organisation's DNA and culture. A great risk management process cannot be seen in isolation; it must be demonstrated through consistent performance in a company's bottom line, cash generation and working capital management."

- Venkatesh S.,
Head of Risk and Internal Control and Investor Relations,
Siemens Limited

"Understanding emerging risks and the resulting opportunities has never been more relevant in India. Rarely has there been a time when the entire country has made a paradigm shift in the way they conduct commerce. Yes, I am speaking about digital payments. Whether it is paying the fruit vendor for a few apples, the salon for a haircut or making a multi-crore investment subscription; today the mode of payment is digital, and the money moves at the speed of light. The cross flow of funds from the informal, unorganised sector to the organised, corporate/institutional sector has made this space an interesting arena for risk managers. And the fact that India is leading the way in this space of digital payments creates an opportunity for risk managers in India to advise globally as the world catches up with the way India transacts!"

- Nandita Parekh,
Co-Chair, Internal Audit Committee,
Bombay Chartered Accountants' Society

“The changing risk landscape due to climate risks, increasing catastrophes and pandemics can have significant implications for global financial systems and economies. These risks can cause financial recessions, rising inflation, higher costs of borrowing and reduced revenues, which will ultimately lead to a significant financial burden for governments as they try to respond to and mitigate the impacts of these risks. Insurance and reinsurance can play a crucial role in helping to mitigate these risks and protect communities, assets, and critical infrastructure, which can help reduce the overall financial burden on governments, organisations, and individuals, ensuring financial resilience to the country.”

- G. Srinivasan,
Director,
National Insurance Academy, Pune

“Cyber resilience against attacks targeting critical infrastructure and the crown jewels of countries and corporations is a strategic priority in the evolving geopolitical, technology and threat landscape. Building resilience calls for global collaboration, standards, and the enforcement framework. While technological advancements in artificial intelligence (AI), blockchain, cloud and the Internet of Things (IoT) can help mitigate some of the resilience risks, it is important that adopters should have robust risk, technology, and cyber governance.”

- Geethy Panicker,
SVP and Head Risk Appetite and Risk Strategy | Group Risk Management,
First Abu Dhabi Bank (FAB)

“There is a big shift in how the global economy is evolving. Moonlighting and the gig economy are ubiquitous terms with 23.5 million workers expected to be gig employees by 2030. This trend of Uberising work poses unique and critical challenges in terms of governance, supervision, risk management, organisational culture, and the quality and loyalty of employees. It also raises serious questions about data privacy and security and how organisational interests can be safeguarded from competition. Given the disruptive characteristics of the gig economy, the production and consumption systems across the globe will be driven by flexibility and autonomy. This will require institutions to create real-time dynamic and technologically driven frameworks for risk assessment, compliance, and governance. The onus of steering the businesses in future would have compelling implications on individual values and ethical standards of doing the right thing when nobody else is watching.”

- Professor Rajita Kulkarni,
Hon’ble President,
Sri Sri University

“With fast-evolving geo-political scenarios and pandemic causing supply chain disruptions, there was a need to improve the focus on enterprise risk management (ERM) in India. Regulators such as SEBI have also increased their scrutiny of the functioning of the RMCs with key focus on newly evolving risks such as ESG, information, and cyber security risks amongst others. Overall, the risk management landscape in India is evolving, with greater awareness and adoption of risk management practices across different sectors of the economy. However, there is still a long way to go in terms of building a strong risk management culture and embedding risk management practices into the core operations of companies and institutions in India.”

- Kartikeya Nath,
Group-Head of Global Internal Audit and Financial System and Processes,
LIBERTY Steel Group

"The prominent emerging risk areas in the fast-changing business environment are cyber security risk, regulatory compliance risk, supply chain risk, climate change risk and disruptive technologies risk. Excessive reliance on technology and increased use of digital platforms have exposed the organisations to cyber security risk involving cyber-attack and data breaches, threatening the information security system of the organisations. Use of remote access technologies viz Virtual Private Network (VPN) have further augmented the cyber risk. Climate change risk comprises of physical risk i.e., damage to the physical assets and transition risk causing changes in the regulatory guidelines for transition from high carbon reliant economy to low carbon economy may impact the financial position of the entities. With the increased and complex compliance regime in the current milieu, any noncompliance may translate in to financial and reputational risk to the organisations. In this era of globalisation, geopolitical risk disrupts supply chain which has its adverse impact on essential supplies causing inflationary pressures on the economy. Disruptive technologies like artificial intelligence, blockchain are other challenges to the traditional businesses. To address these challenges organisations should keep updating and honing their risk management skills to remain relevant to the current challenges."

- Abhay Dandwate,
Chief Risk Officer,
National Bulk Handling Corporation

"As the fifth largest economy, India is an extremely attractive market considering its size, demography and ever rising population, with higher disposable income. India should be looked at like a more like a continent than a country, with 23 different languages and varying consumer preferences across geographies. Consumer behaviours are seen to change with revival of innate buying patterns. India has become a powerhouse of tech innovations and digital transactions. With smartphones and accessibility to wider e-commerce portals, consumers are constantly on the lookout for deals and discounts while the increasing competition has led to price wars and wafer-thin margins in the Business-to-Consumer (B2C) space. While India has become a hotspot for startup's, many of them are burning cash and reporting sizable losses. Data from MCA shows that 14 startups alone have reported a total loss of ~38,540 crores in FY22. Economic slowdown, climate change, business interruption, human capital and cash flow/liquidity are some of the biggest risks that Indian companies may face in coming years. Inflation has led to increase in Consumer Price Index (CPI), Wholesale Price Index (WPI), commodity prices and the subsequent counter measures by RBI to increase the repo rate, has led to an overall increase in cost of capital to businesses. Diminishing rupees, exchange rate risks, ease of doing business and corruption continues to be watched closely by foreign investors. While there are no major political risks envisaged, there is this changing regulatory landscape and unpredictable regulations one must be wary about. While many mid/small size businesses are yet to adopt structured risk management practices, many large businesses continue to have risk frameworks that are mostly ornamental and not integrated within business processes. The importance of a sound risk management framework has a prominent attention of business houses in recent years, especially after COVID 19. Through robust risk processes, organisations should build business resiliency, operational excellence, sound governance with the ability to adopt and assault."

- Navin Achuthan,
Chief Risk Officer,
Eversource Capital

“Robust enterprise risk management practices will continue be an important success enabler for organisations. The ability of organisations to identify material risks proactively and establish an agile framework to implement risk mitigation strategies will be absolutely critical. To this end, it is imperative that organisations add impetus to their risk management mechanisms and invest in risk management capabilities by embracing leading ERM practices, upskilling resources on risk management techniques and harnessing digital capabilities”

- Deepak Viegas,
Global Head of Internal Audit and Risk Management,
Cipla

“The water crisis in India represents a significant risk to the country's social, economic, and environmental stability. Without immediate and sustained action, the shortage of fresh water will continue to threaten public health, exacerbate poverty, and undermine agricultural productivity. To mitigate this crisis, a public private partnership is required to prioritise innovative solutions that promote sustainable water use and management practices, while also addressing the complex social and political challenges that contribute to the crisis. This will require us to conduct public awareness campaigns, involve all stakeholders in water conservation efforts, and incentivise them to invest in sustainable water practices.”

- Vijay Agarwalla,
Head – Risk and Internal Audit,
Hero Future Energies

“Interstate Border Conflicts are a legacy of our country’s colonial past. These disputes hinder development in the affected areas and are a risk to both economic growth and at times law and order. These can be resolved either through mutual consensus or through the judicial process. Resolving these though time consuming would help in the economic growth of the areas affected. Separate laws for land disputes and a determined polity can accelerate the process of resolution which will help end these issues.”

- Suraj Eksambekar, GradIRM,
Member of the Institute of Risk Management

"If there’s anything that has massively affected, rather disrupted, the way we do things, it’s social media. It has totally changed the way we interact with people, express opinions, voice complaints, look for and share information, how we shop, and even how we handle emotional relationships. In fact, social media can very well be the poster child of the word ‘disruption’, which has shrugged off its traditionally negative connotations and has morphed into something we often strive for. That’s because disruption challenges the status quo. However, with great power comes great responsibility. Social media may give us unprecedented access to, and engagement with our customers, but it also creates expectations of exceptional levels of customer satisfaction. That’s a risk worth considering."

- Nishtha Khurana, CFIRM,
Chief Risk and Compliance Officer,
MMTC-PAMP India Private Limited

"Climate change is a clear and present danger humanity is facing. The frequency of occurrences of natural disasters has been increasing alarmingly in past few years, and worst affected is the most vulnerable strata of society - the lower income groups, especially in developing and third world countries. Direct impact of climate change is visible in the melting glaciers, depleting ground water and global food security. The urgency and need to act fast, has come to the fore now – in the recently concluded COP 27, all the countries have made significant commitments to expedite the net-zero carbon emission target. High priority has been placed on phasing out of fossil fuel-based energy generation and replace it by renewables and emerging technologies like hydrogen and carbon capture."

- S.M. Sundaresan,
Head Corporate Risk Management,
Larsen & Toubro

"Social media has revolutionised the systems on the way we communicate, consume information, and interact with each other. It has also disrupted traditional business models, political systems, and societal norms. Customer interactions and Brand management now needs to include Digital medium including social media for its management and can no longer rely solely on traditional media to reach their target audiences. Social media influencers have also become a powerful force in marketing. Overall, social media has had a profound impact on our society, both positive and negative. Reputational risk is a major risk associated with the social media usage. Being a highly visible and publicly accessible platform, and any negative comments, feedback, or posts about a business can spread rapidly, potentially causing damage to the business's reputation. To mitigate these risks, businesses should develop a comprehensive social media strategy, establish clear policies and guidelines, allocate sufficient resources, and monitor and respond to feedback promptly."

- **Sachin Mutha,**
Head of Risk Management,
Reliance Jio

"Increased reliance on digital technologies, connected devices and the internet can expose the organisation to cyber-attacks, which could disrupt critical systems and services, lead to litigation, cause financial loss and damage reputation, not to forget the indirect impact of supply chain disruption and loss of productivity. Organisations need to increase awareness with its personnel and customers, build intelligence, leverage external expertise, continuously update technologies, conduct regular assessments, and strengthen security audits, with creating awareness amongst the stakeholders being key."

- S Y Raman,
Vice President – Internal Audit,
The Indian Hotels Company Limited

"Climate risk is one of the biggest risks facing humanity. Yet, despite the urgent need for action, we continue to play politics and prioritise short term economic interests over the long term future of our planet. It is high time we stop being spectators and start making decisive and concerted efforts with a greater sense of urgency or be ready to face the consequences of our inaction, that will not only impact us but our future generations as well."

- Jitender Arora, CFIRM,
Deputy Chair South Region,
IRM India Regional Group

6. About KPMG in India

KPMG entities in India are professional services firm(s). These Indian member firms are affiliated with KPMG International Limited. KPMG was established in India in August 1993. Our professionals leverage the global network of firms and are conversant with local laws, regulations, markets, and competition. KPMG has offices across India in Ahmedabad, Bengaluru, Chandigarh, Chennai, Gurugram, Hyderabad, Jaipur, Kochi, Kolkata, Mumbai, Noida, Pune, Vadodara, and Vijayawada.

KPMG entities in India offer services to national and international clients in India across sectors. We strive to provide rapid, performance-based, industry-focused, and technology-enabled services, which reflect a shared knowledge of global and local industries and our experience of the Indian business environment.

For more detail about our structure, please visit home.kpmg/governance.

7. About the Institute of Risk Management (IRM) and IRM India Affiliate

The Institute of Risk Management (IRM), established in 1986 and headquartered in the UK, is the world's leading professional body for ERM qualifications, examinations and memberships (Level 1 to 5), research and education across 140+ countries, with 5,000+ exam centres globally and 360 exam centres in India.

IRM's qualifications cover ERM, which is a much broader concept than financial or insurance risk. Hence, our members across the globe work in many roles in all industries and across the public, private and not-for-profit sectors around the world.

With IRM India Affiliate, students and professionals across India can register for the ERM exams and pursue the 5-level pathway to Certified Fellowship with designations at each stage after Level 2 and join a global community of risk-intelligent leaders. IRM also provides a senior executive route for Chief Risk Officers and Risk Leaders to get their experience recognised and certified through Fellowship at Level 5. Additionally, IRM also partners with organisations to shape their risk culture through the development of certified risk champions and risk teams.

For more information about IRM including access to our global Enterprise Risk magazine, thought leadership, research publications and certification track, please visit www.theirmindia.org

8. Appendix

A. Taxonomy chart

A

1	Adapting to the after-effects of pandemic
2	Altering social culture and norms
3	Anthropogenic risks
4	Anti-microbial resistance
5	Asset price bubble
6	Astronomical impact events
7	Asymmetric warfare
8	Attrition
9	Augmented reality

B

10	Bank failures / run of the bank issues
11	Bankruptcy
12	Behavioral risks
13	Biodiversity depletion
14	Biological warfare
15	Black money
16	Boarder disputes
17	Brainwashing through social media

C

18	Change in forex regulations
19	Changes in geographic/political boundaries due to natural events/wars/etc.
20	Civil disturbances and internal conflicts
21	Class action litigation
22	Climate change
23	Commodity price fluctuation
24	Complications around international transfer of funds
25	Conservative/regressive government policies
26	Consumer laws
27	Contract laws
28	Credit crisis
29	Cultural barriers
30	Currency inconvertibility
31	Customer lifestyle factors and trends
32	Cyber frauds

D

33	Data breaches
34	Data confidentiality
35	Data protection laws
36	Data-centre recovery
37	Debt trap
38	Decline in human development and living standards post pandemic
39	Declining consumer confidence
40	Default risk
41	Demand – supply inequalities
42	Dereliction of duty
43	Desertification
44	Dietary regimens
45	Disinformation
46	Disruptive technology
47	Distributed denial of service
48	Divergence in customer perceptions
49	Divestitures and disposal of assets
50	Divisions based on race and religion
51	Downgrade in digital rights and privacy

D

52	Economic stagnation / growth concerns
53	Ecosphere disintegration
54	Elections and government changes
55	Emerging bureaucratic obligations
56	Employee strikes
57	Employment laws
58	Employment rates
59	Energy crisis

E

60	Environmental damage
61	Environmental protection legislation
62	Environmentalism
63	Erosion and degradation of soil in areas coming in contact with sea breeze
64	Ethical violations (frauds, corruption, employee malfeasance, etc.)
65	Exchange rates
66	Exploitation of unauthorised data
67	Explosions and detonations
68	Extreme temperature conditions
69	Extremism within countries

F

70	Fiscal deficit
71	Failure in transaction execution and Information, Communication and Technology (ICT) failures
72	Failure to attract talent
73	Failure to forecast risks and take action accordingly
74	Fight for global superpower resulting in dire consequences
75	Fire hazards
76	Firewall breaches
77	Fiscal policies
78	Fluctuations in overnight risk-free rates
79	Food scarcity
80	Force majeure risk
81	Foreign trade regulations
82	Fossil fuel production and its corresponding geological risks
83	Fraudulent market manipulation
84	Freelance and temporary jobs
85	Fund management

G

86	Gaps in quality of education and skills
87	Gas pipeline politics and rivalry
88	Gender biases
89	Global warming
90	Government instability
91	Government interventions
92	Growing hunger problems

H

93	Halt in green projects due to insufficient investments
94	Health and safety laws
95	Health hazards
96	Hostile takeovers
97	Human capital risks
98	Human rights issues
99	Hydrocarbon deposits
100	Hydrological variability

I

101	Illegal cross border lending
102	Illegal migration and border crossing
103	Illegal trafficking of narcotics
104	Impact on nature due to infrastructure development
105	Implementation of economics to further promote political agendas
106	Implementation of zero covid policy in specific nations affecting worldwide economy
107	Inability to meet net zero targets
108	Increased tension among states
109	Increasing military power and architecture
110	Increasing sovereign debt
111	Industrial accidents
112	Industry disruptions
113	Inefficient financial management
114	Inequality and increase in income disparity
115	Infectious diseases
116	Inflated financial results because of unusual windfall gains
117	Inflated values for fundamental commodities
118	Inflation
119	Information Technology changes
120	Insufficiencies in healthcare services
121	Insufficient preparation towards economic distress
122	Insurrection uprising

123	Interest rate voltaility
124	International influences
125	Internet failures
126	Introduction of natural alternatives impacting conventional assets
127	Irregular patterns of rainfall
128	Irreversible existential risks
129	IT data integration and outsourcing risk

J

130	Judicial and government conflicts
131	Judicial pronouncements

K

132	Key influencer disruption

L

133	Labor cost
134	Labor strikes and disputes
135	Lack of governance and leadership
136	Lack of resources to adapt to latest technology
137	Lack of technological awareness
138	Left-wing immoderation
139	License rescindment
140	Limited growth opportunities for working women
141	Loss of key manpower
142	Low literacy rate

M

143	Machine learning and expert systems
144	Macro-economic and political risks
145	Malware epidemic
146	Management execution failure
147	Market risks
148	Mass infraction
149	Mental health issues
150	Merger and acquisitions
151	Monetary policy
152	Money laundering
153	Monitoring and management of IRRBB (Interest Rate Risk in Banking Book) on a mark-to-mark basis
154	Moon lighting

N

155	NATO alliances and its impact around the world
156	Natural disasters (such as floods, droughts, tsunamis, storms, etc.)
157	Natural gas prices at all time high
158	Natural resource deficiency (metals and minerals)
159	Negative customer experience
160	Negative media coverage
161	Non-compliance risk
162	Nuclear war

O

163	Obesity
164	Occupational health and safety
165	Ocean acidification
166	Oil price movements
167	Optionality risks
168	Output cuts by OPEC
169	Overlook on financial supply chain aspect
170	Over-reliance on technology

P

171	Pandemic outbreak
172	Pension claim settlement issues
173	Pension management risk
174	Permafrost defrosting
175	Political turmoil
176	Political violence
177	Pollution levels

178	Polycrisis
179	Poor investment in the economy due to higher lending rates
180	Population demographics
181	Power outages
182	Presence of patriarchy
183	Preventable disease outbreaks
184	Price rise
185	Private lawsuit
186	Product failure
187	Provenance of logistical management
188	Provision of political risk insurance by private insurers
189	Public administration lapse
190	Public anger and discontent due to provision of sub-par services

Q

191	Quality assurance with respect to goods and services

R

192	Rapid downfall in the economy in a short span
193	Rapid transfer to ecommerce
194	Raw materials unavailability or accessibility
195	Recession
196	Reducing focus on Research & Development (R&D)
197	Reduction in foreign capital investments
198	Reduction in kick starters and overall guidance funds for startups
199	Reduction in security as innovation soars
200	Reliance on digital technology on high levels
201	Reputation risk
202	Reserve currency shift
203	Resorting to unfair business practices by competitors
204	Resource rivalry between food security and nature conservation
205	Restructuring the organisational strategy
206	Revised accounting standards
207	Right wing radicalism
208	Rise of communism and factional forces
208	Rise of communism and factional forces
209	Rising prices for fuels
210	Rising sea levels
211	Risk of export reduction as countries become self-reliant
212	Rivalry for resource export to gain control over said resource
213	Robots and automation

S

214	Saline intrusion
215	Satellite systems
216	Semi – conductor shortage
217	Severe crunch of working capital
218	Smuggling of contraband
219	Social influencers and social media trends
220	Social unrest
221	Steady growth concerns
222	Storage of nuclear waste issues
223	Structural failure
224	Subnational conflicts and civil wars
225	Sudden changes in the government regulations
226	Supply chain collapse and its effects

T

227	Tariff imposition on exports to eliminate chances of monopoly
228	Tax disputes and excise duties
229	Tax laws / policies
230	Technological deficiencies in business model
231	Technological divide
232	Telecommunication failures
233	Terrorist attacks
234	Trade restrictions
235	Transitions with respect to climate change

U

236	Unable to adapt to changing natural conditions
237	Unavailability of chipsets
238	Unemployment
239	Unhealthy competition with market consolidation
240	Union formation
241	Unknown emergent diseases
242	Uprise of a rebellion

V

243	Virtual reality bullying
244	Volatility in crypto prices

W

245	Wars and war crimes
246	Waste and pollution
247	Water scarcity
248	Wealth inequality
249	Wrongful deployment of surplus funds
250	Wrongful perception of historical events

Y

251	Yield reduction risk

Z

252	Zonal conflicts among countries to promote political agendas
253	Zoonotic Risk

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