



Start-up eco-system in Indian Logistics

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Logistics industry in the simplest sense fulfils the flow of material and information and is an essential part of the global economy with other industries relying on its processes. More broadly, the industry contains within its realm transportation, warehousing, captive and third-party logistics (3PLs) and the related infrastructure.

Indian logistics industry has been experiencing significant growth fueled by e-commerce and the push to “Make-in-India”¹. The contribution of the logistics sector to India’s GDP has been following an upward trend and is expected to grow to 15% by 2025. It is also a significant employment generator with employment expected to grow to 40 million by 2030. This strong growth is supported by the Indian government initiatives over the past few years. The current policy is directed by the National Logistics Policy(NLP) since 2022².

Indian Logistics industry is expected to contribute 15% of GDP by 2025 but costs are high at 14% of GDP

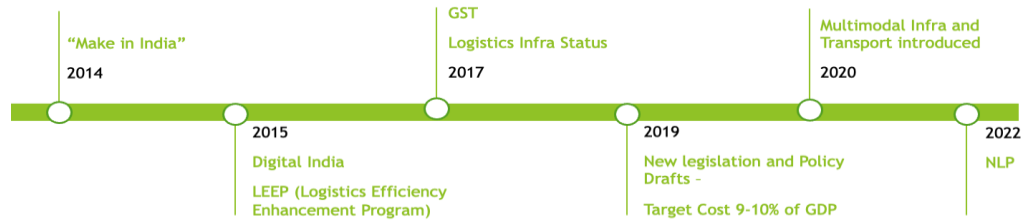


Figure 1: Policy Initiatives

The World bank LPI score places India in the 38th position among 139 countries with a score of 3.4. India aspires to be in the top 25 countries (2023 average of 3.92) by 2030.

Country	LPI	Customs	Infra-structure	Intl shipments	Logistics competence	Tracking & tracing	Timeliness
Singapore	4.3	4.2	4.6	4	4.4	4.4	4.3
Europe	4	3.9	4.1	3.7	4.1	4.1	4.1
Japan	3.9	3.9	4.2	3.3	4.1	4	4
US	3.8	3.7	3.9	3.4	3.9	4.2	3.8
China	3.7	3.3	4	3.6	3.8	3.8	3.7
UK (25 th)	3.7	3.5	3.7	3.5	3.7	4	3.7
India	3.4	3	3.2	3.5	3.5	3.4	3.6

Table 1: World Bank LPI Ranking³

One of the primary goals of NLP, in accordance with the Budget 2023 vision, is to lower the logistics expenses from 14%⁴ of GDP to compete with the top countries by 2030⁵.

Vision of the Government is to bring down Logistics cost to 8% of GDP

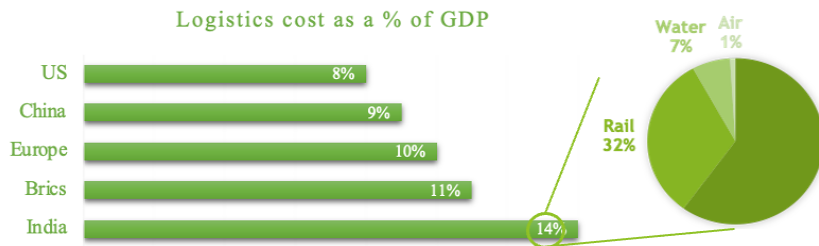


Figure 2:

Several initiatives under NLP to reduce costs and improve performance

Logistics cost as a % of GDP⁶

The NLP rolled out several initiatives including: Unified Logistics Interface Platform (ULIP) and Secured Logistics Document Exchange (SLDE) to improve visibility, multi-modal logistics parks to reduce logistics costs and modernize operations, dedicated freight corridors and technology driven solutions for streamlined communications.

¹ Make in India Webpage (https://www.pmindia.gov.in/en/major_initiatives/make-in-india/)

² National Logistics Policy (https://dpiit.gov.in/sites/default/files/NationalLogisticsPolicy_2022_29September2022_0.pdf)

³ World bank LPI (<https://lpi.worldbank.org/international/global>)

⁴ Economic Survey (<https://www.indiabudget.gov.in/economicsurvey/>)

⁵ ANI: DPIIT Interview on Logistics policy

⁶ Reimagining India’s Supply Chain (https://www.adlittle.com/sites/default/files/reports/ADL_Reimagining_Indias_supply_chain.pdf)

Current Status

There is a steady growth seen in the size of the logistics industry fuelled by the growth of eCommerce.

The biggest disruption to logistics, brought forth by the pandemic, is the shift in consumer behaviour to online commerce. E-Commerce has seen continued growth (69% YOY in FY 22) over the last few years. This shift is expected to sustain into the future and is distributed throughout India with tier 2 and 3 cities contributing to 61.3% of the orders⁷. Subsequently, companies have focused on omnichannel marketing and retailing in an effort to create a smooth shopping experience. This has led to rapid modernisation of logistics including adoption of digital technologies and contactless payments and opened opportunities for control and flexibility of operations.

Consumer behaviour is driving the demand of modern, flexible and rapid logistics processes.

The growth in e-Commerce has been accompanied by an explosion in the need for last-mile transportation. Last-mile refers to the final movement of goods from a transportation hub to the destination (consumer or business) and is often the highest contributor to transportation costs⁸. India's last mile caters primarily to FMCG, eCommerce and retail⁹. Though FMCG remains the highest contributor, eCommerce has led the increase in demand for logistics services (with shipments predicted to reach 5 billion by 2025) and reshaped the industry.

Consumer demand for express delivery and the rising contribution of reverse logistics have forced companies to scale-up their operations. The growing importance of Last mile logistics has opened opportunities for major players to compete on efficiency and speed of delivery.

Industry 4.0 paradigm has enabled the logistics industry to adopt advancements like Artificial Intelligence, Machine Learning and the Internet of Things. The application of these technologies have been proven on field and are expected to become mainstream in the near future.

Warehousing is another critical aspect of logistics in India due to the diverse nature of products and the size of the country. The use of RFID tags and automated inventory management systems, has assisted the industry reduced wastage. However, further investment in warehouse infrastructure is needed for logistics to keep pace with the growth in demand.

State-of-the-art Technology is available; however, manpower is not ready.

There is a strong focus on use of sustainable practices to meet the needs of the regulatory environment and consumer preference. This is expected to drive more automation and optimization and enable the industry to prevent human error and improve costs and efficiency.

The industry's manpower includes both skilled workers who are knowledgeable about the processes and technologies and semi-skilled personnel for transport and deliveries. India logistics sector faces a shortage of skilled labor and work issues (hours, salary and time pressure) for delivery personnel. There is a need to create a better ecosystem for up-skilling and better human resource management practices.

National and multinational logistics players have seen success and are popular due to their unique expertise

Apart from a few large-scale organized logistics businesses and captive logistics, the Indian logistics industry is comprised largely of several small players providing services to industry with localized contracts. International Companies like Blueart, DHL, and FedEx with expansive networks, offer a variety of services including delivery, packaging, warehousing, customs and payments. Indian service providers like Delhivery, Ekart, offer 3rd party logistics service to eCommerce enterprises and cater to demand even in remote locations and same day delivery in several cities. Though these large players have brought innovation to their operations, the nature of the sector causes challenges in standardization and adoption of solutions to some of the most common issues. We discuss the most common issues in logistics in India in the following section.

⁷ Economic Survey 2023

⁸ <https://www.forbes.com/sites/stevebanker/2020/08/26/last-mile-deliveries-complex-costly-and-critical/?sh=4190c76b723c>

⁹ <https://www.itln.in/logistics/indias-last-mile-growth-spurt-to-scale-new-heights-1345966?infinitescroll=1>

Issues

Transportation cost: Transportation contributes the highest to logistics costs and is exasperated by unstable fuel prices and lack of infrastructure. Though, movement of goods via roads is inefficient (because of poor road infrastructure, multiple checkpoints, and congestion) 60% of the freight transport is via road due to over-saturated rail networks and high rail cargo tariffs. In addition, use of coastal shipping is limited due to high turnaround times, overcrowding berths, and evacuation delays and insufficient port facilities.

Warehousing Problems: The poor state of warehousing and the restriction on locations are one of the major concerns of the industry. Storage facilities are quite fragmented and mostly focused on low margin products(including food grain by Government) thereby resulting in low incentive to create large modern integrated warehousing spaces. This results in a lack of automation, essential machinery and basic infrastructure (like Strapping Machines, DCUs, Conveyors, Material Handling Equipment, Racking, Security etc.)

Lack of Technology adoption: In India, automation and standardization is still nascent and adoption of new technology have to be fast tracked. Adoption of tools like shipment tracking systems, automation systems, data analytics and warehouse management system often prove to be a deterrent for logistics companies.

Inconsistencies in tracking: Despite the benefits of IoT, many players continue to follow manual tracking processes using spreadsheets and non-standard software. RFID based tracking though proven are hardly implemented due to lack of investment and resistance to change.

Limited Visibility and Communication: Lack of visibility of the supply chain at all stages leads to delays and fragmented communication increases the number of customer complaints and affects operational efficiency.

Inefficient Fleet and Freight Operations: Non-revenue miles apart from increasing costs also affects the efficiency of the supply chain and adversely impacts the environment. Combining shipments, reducing carriers are practiced but can be improved with better routing systems. Switching between partial-truckload, less-than truckload, and full truck load shipments to manage costs is not controlled centrally and results in lost savings opportunities.

Manpower management: Communicating with drivers and staff who mostly are on the road is not standardized. There is also a lack of quality workforce with sufficient technological skills and a shortage of drivers. Though there is a recognized need to train and upgrade the skills of the manpower there is a complete absence of training institutions.

Regulations: India has a significant number of compliance regulations imposed by national, state, local and other authorities that are subject to changes often. These need constant monitoring and may severely compromise timelines and efficiency. And the complications in the tax regime lead to considerable loss of time in road transit.

Customer Experience: There is generally no dedicated customer support and with the lack of communication, customers are generally left in the dark. The expectations around what constitutes fast delivery and competition has led to lower willingness to pay for fast shipping. Providing touchpoints to improve customer experience remains a huge challenge.

Even though the policy outlook is looking to solve these issues, there is no Implementation mechanisms for the directives and companies need assistance in solving these problems.

Logistics companies face a multitude of issues due to both internal (processes) and external (environment) causes

Though new tech solutions are being implemented the pace of adoption is low due to low investment and resistance to change

Startups in Logistics

World bank study states that Technology is one of the three main drivers of logistics along with Economics and Policy¹⁰. Information technology adoption in the industry is on the rise, Autonomous Vehicles, robots and AI are just on the horizon. Big data, Analytics and Machine Learning (ML) are already supplementing traditional processes. Logistics providers feel the urgent need to adopt technology, improve communications and streamline their operations to create customer satisfaction and get an edge over competitors. This has created opportunities for start-ups to come up with unique propositions to solve issues and provide adoptable solutions to major logistics providers.

Startups have brought in a range of strategies, using technologies that enable logistics companies to optimize delivery routes, reduce delivery times, and improve customer satisfaction. A study of these startups in logistics helps us understand the state of the industry.

Of the 9466 startups¹¹ in India working in fields related to transportation and logistics, we identified ~1500 startups that are directly working on the above identified issues and applying cutting edge technology to solve them.

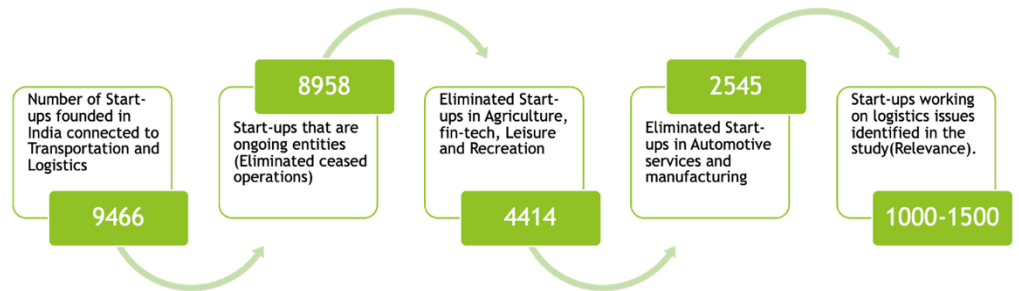


Figure 3: Analysis of the startups

Over the period of study, we see a steady growth in the number of startups founded in India. The trend was affected by the onset of the pandemic however, (partial) data for 2022 and incubator feedback shows the growth trend returning.

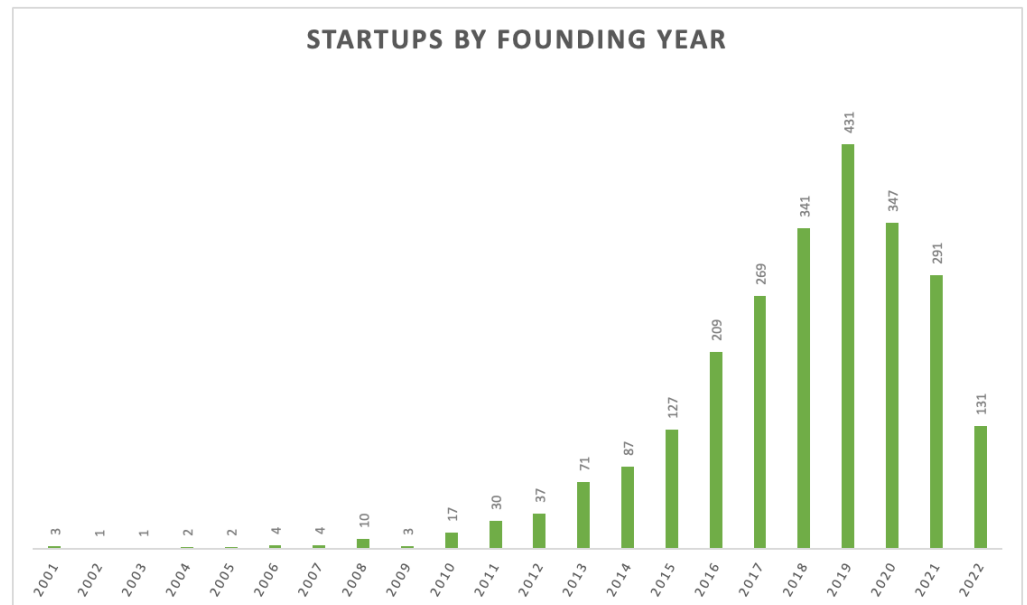


Figure 4: Founded in (year)

Close to 1500 start-ups are working on solutions to the Logistics industry's most common problems

¹⁰ <https://www.worldbank.org/en/news/speech/2017/05/22/performance-and-prospects-of-global-logistics>
¹¹ YNOS.in

The startups are working all over India and are concentrated heavily in certain cities. Delhi, Bangalore and Mumbai are the top 3 destinations for the startups with Pune, Hyderabad, Chennai, Gurugram, Ahmedabad, Kolkata and Noida closing out the top 10 cities favored by these startups.

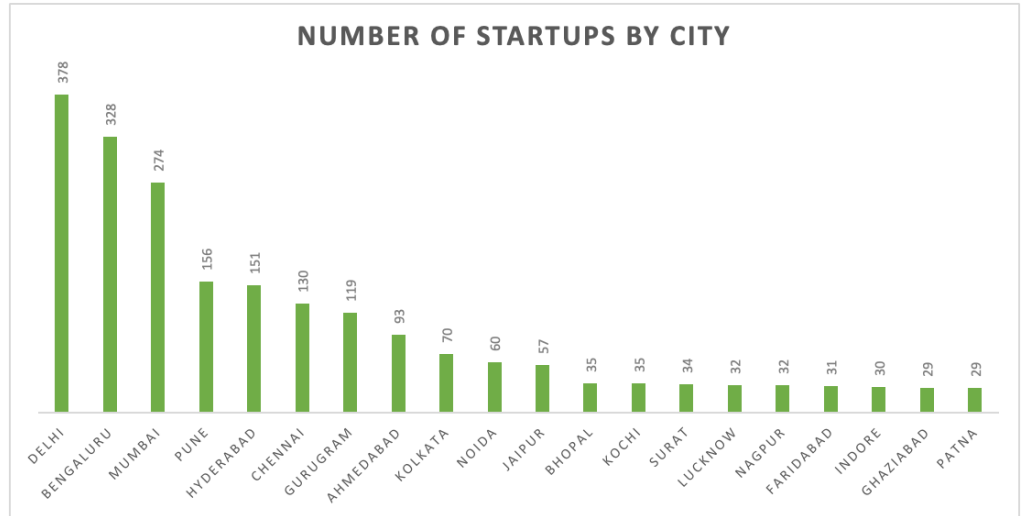


Figure 5: Startups by location

Start up Focus Areas

The most successful start-ups are able to compete with established players through innovation and adaptive practices

A heatmap of these start-ups give us an idea about the major focus areas and the solution methodologies adopted. It also shows us the unfulfilled needs of the industry related to the previously discussed issues.

The below image represents the distribution of startups (number of) based on the issue they are trying to address and the technology solution they are adopting.

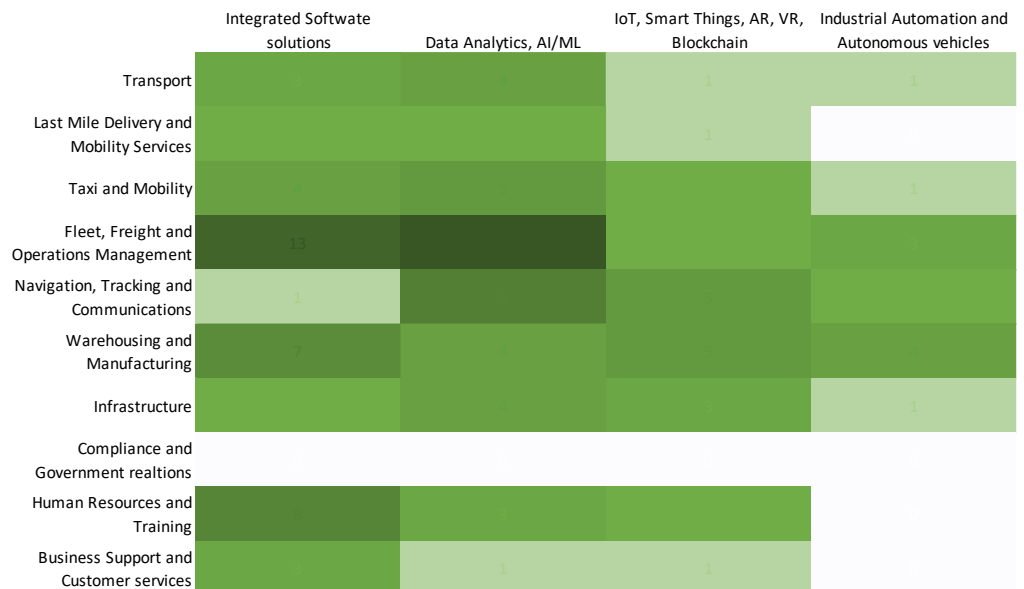


Figure 6: Heat Map of Start-up focus Areas

Nearly 20% of the startups studied are working on traditional logistical operations processes. Half of these startups are helping other logistics operators with Enterprise software solutions or standalone applications and the other half on Data Analytics to improve efficiency of operations. The next largest concentration is on Training solutions, however, we see that it is focused only on high skilled workers (technology learning).

Current Investment Outlay

Though start-ups are bringing solutions to nearly all the identified issues, there is a lack of complete correlation with investments. In the below figure we have mapped around 100 funded startups in Logistics on their focus areas (as presented in the rows) and the types of solutions and technology (Columns). Each blob represents a startup and the size represents the investments (Million \$) in that start-up.

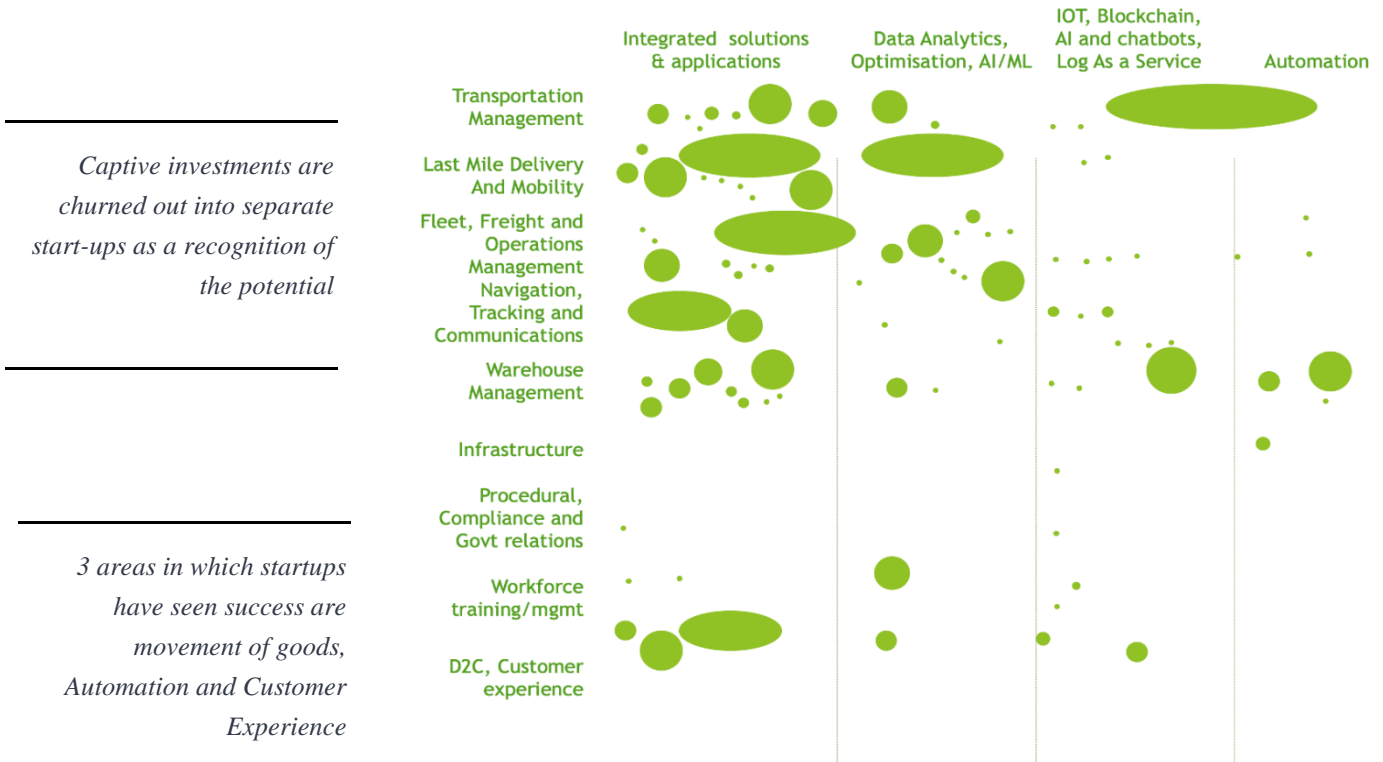


Figure 7: Mapping of Start-ups

Some of the largest startups, which offers logistics services across various sectors such as e-commerce, healthcare, and automobile and have successfully transformed the industry with their innovative technology and business model, have been excluded here by considering them as established players.

Apart from these giants, there are many other startups implementing cutting-edge technologies such as artificial intelligence and machine learning to optimize and streamline logistics operations. Some of the key areas that startups focus on are mentioned below.

Internet of Things (IoT): IoT is being used to track shipments and monitor cargo temperature and humidity. The technology is also enabling real-time monitoring of vehicle performance, which is helping to reduce maintenance costs and increase efficiency.

Robotics and Automation: Robotics and automation are being used to improve warehouse operations. Automated storage and retrieval systems (ASRS), for example, are helping to reduce the time taken to locate products in large warehouses.

Artificial Intelligence (AI) and Machine Learning (ML): AI and ML are being used to optimize logistics operations. Predictive analytics, for example, is being used to forecast demand and optimize routing and scheduling, reducing costs and improving delivery times.

Blockchain: Blockchain technology is being used to increase the transparency and security of supply chains in India. By creating a tamper-proof record of all transactions, blockchain technology is helping to improve trust between parties and reduce the risk of fraud.

Multiple startups are working SCM Tools and integration with current transport management tools (ex: SAP) to enhance functionality and customize solutions based on client needs. They provide both off the shelf and custom solutions for shipment management, on spot pricing, workflow automation, real-time risk management and in-transit visibility.

Startup are working on unique propositions that are seen as attractive answers to industry pain points. Established players are working with these start-ups to streamline their operations and improve overall customer experience.

Startups are providing solutions off-shelf and also customised to meet needs of the industry

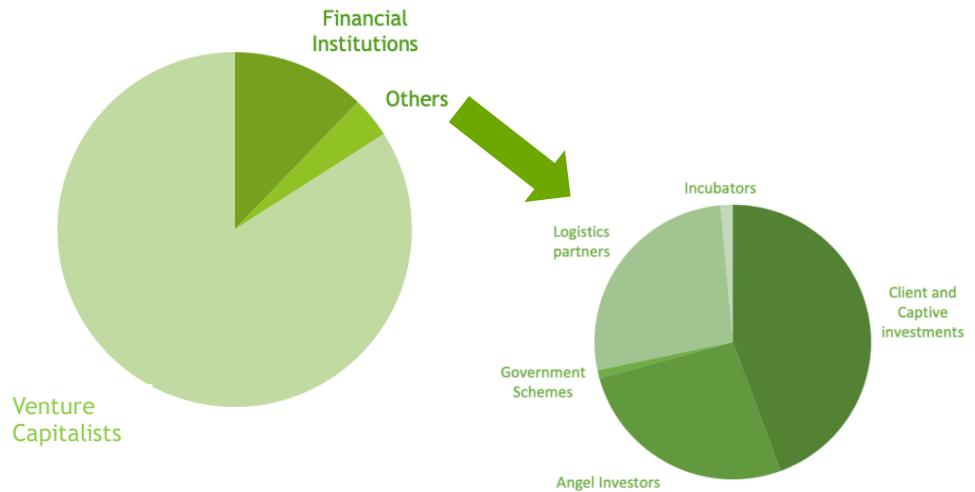


Figure 8: Investor Breakup

The above figure shows the breakdown of investments done in start-ups to highlight who is investing and what the focus of investments are. While startups are working on all aspects there is a clear segregation of interest expressed in the form of investments, most of the startup investments are coming from Venture capitalists and investment firms. Several large capital providing firms and financial institutions are investing in multiple startups in the industry.

There is considerably smaller scale of investments from Clients and logistics majors however the presence of investment is a positive sign towards the effectiveness of the startups. Captive investments are churned out into separate start-ups indicating a modicum of success.

Investments from Clients and other established players in the industry will help speed up the transformation

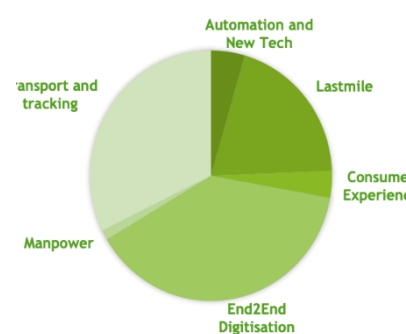


Figure 9: Investment areas

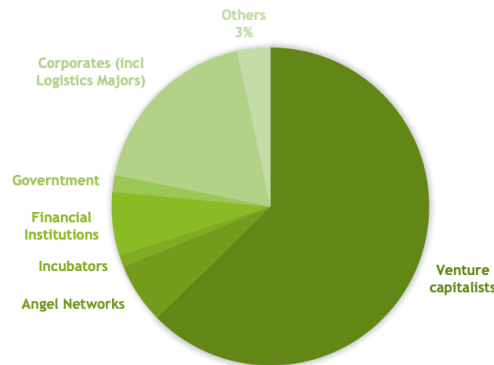
Most of the start-ups that have attracted large investments work in Last mile delivery, Transport software and systems and End to End Logistics software. Large scale investments in Automation and cutting edge technology for tracking is an encouraging sign for the potential improvements they can bring to the sector.

There is a lack of interest and investment in Workforce management, Infrastructure support and solving procedural issues. This highlights a need to attract investment in these areas and encourage startups to solve the major pain points specific to these elements.

Investment Potential

In our Study, we analyzed potential investors in start-ups and among the 4831 investors (surveyed) 845 have expressed interest in investing in Logistics startups. Relating this to the investment outlay Venture Capital firms hold the largest share of investments and highest potential in supporting startups. Collaborations with Logistics companies and Clients also

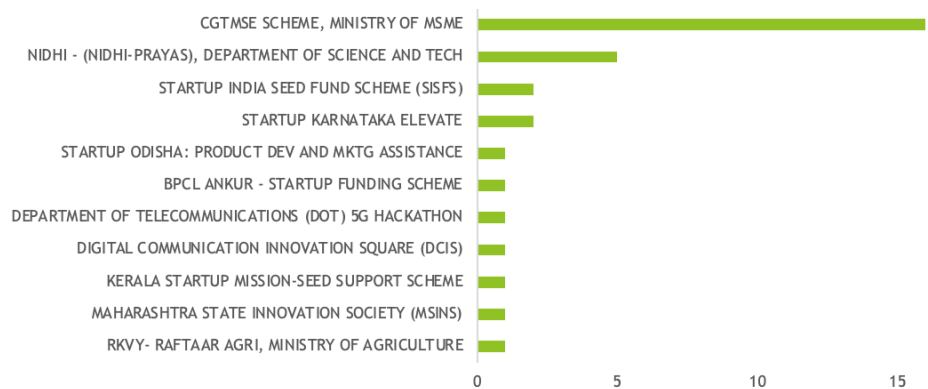
present major financial opportunities for startups. Nearly 455 of these investors are domiciled in India providing ease of access and funds to start-ups.



10 Potential Investors

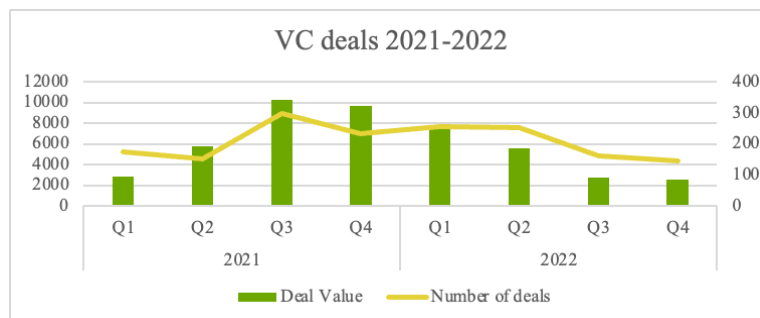
Government schemes for start-ups also holds high potential for promising early stage start-ups to tap into. Several Existing schemes have surplus funds for seed funding startups in this space. Apart from SEED funding through Startup India and MSME schemes and Initiatives there are other state level funds that have invested in Startups. Some of these funds are outlaid in the below image

Total number of investments through different government schemes



11 Government Schemes

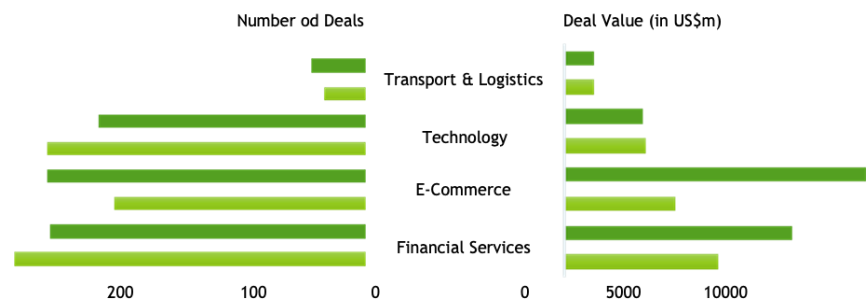
In general, the investments have shown a decreasing trend in 2022 compared to 2021. Early 2023 data, however, shows a recovery in investments by VC/PE in startups in India.



12 VC deals in 2021 and 2022

We compared the deals in Indian start-ups to analyse the portion of the pie claimed by Logistics sector. The below graph compares investments in Transport and logistics to the top 3 sectors in terms of investments. Transport and Logistics investments stand at 6th position in terms of deal value and 10th in number of deals.

Pure-play Logistics startups have claim over a very small share in the piece of pie, while many of the investments in E-commerce also cover startups developing their own logistics solutions. The conclusion shows some hedging through market/client access available due to vertical integration and needs further focus in understanding the reluctance of investors looking at the start-ups only focused on logistics and infrastructure.



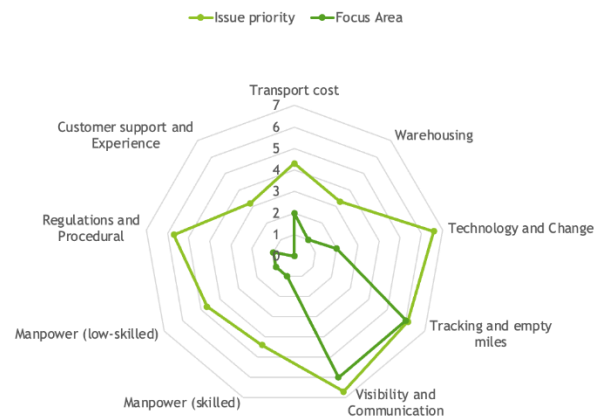
13 Position of Logistics investments compared to other sectors

Survey Outcomes

Focus Areas vs Perceived importance of issues

Our initial survey results help us understand the gaps from the perspective of startups. Based on early inputs from funded startups we see the following key inputs

- Visibility, Tracking and Technology adoption are perceived as the most challenging areas
- Among the startups many are working on improving tracking and visibility but helping logistics industry adopt solutions is not given as much priority in their solutions
- Manpower and Regulatory challenges are a close second in terms of challenges

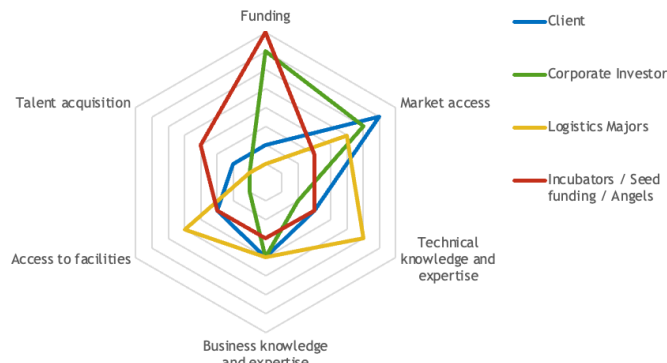
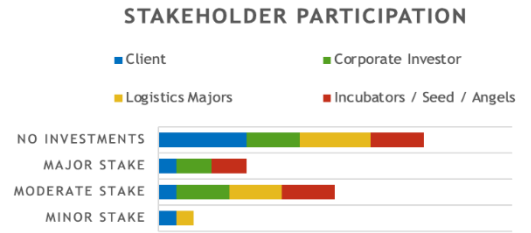


The spider map shows that though startups are aware of priority areas for the industry, the solutioning for these issues is disparate to the perceived importance. This is highly prevalent in regulatory and Manpower issues, where star-ups have indicated difficulty in packaging solutions. The other major issue area which gets neglected is Technology and Change where start-ups feel the competition from large incumbent firms. Additionally, Warehousing and Transport is encumbered by the scale of investments needed and the long time to market.

Stakeholder support

The other key insight from the survey results is in the area of support expected by the startups. 50% of the surveyed startups reported some form of participation from different stakeholders.

We mapped the areas that start-ups feel they need help and from whom they expect these inputs. The level of support varied with start-ups reporting they receive the maximum support from corporate investments and Angels. Logistics majors have contributed to the growth of startups but they can participate better by providing access to facilities and further assistance in funding.



14 Assistance needed

Startups also reported the areas they needed assistance with market access and funding is the priority for startups and seek investor assistance in both areas. They feel clients' guidance would be the best to help access untapped market and Logistics majors could provide expert advice.

Conclusion

As the industry looks to bright young start-ups to take it into over the next wave the environment of financial and operational support needs to be improved for them to succeed. The results from the analysis of existing startups and the pulse of the upcoming potentials support this conclusion. This will help the start-ups unlock the latent synergies in the industry.
