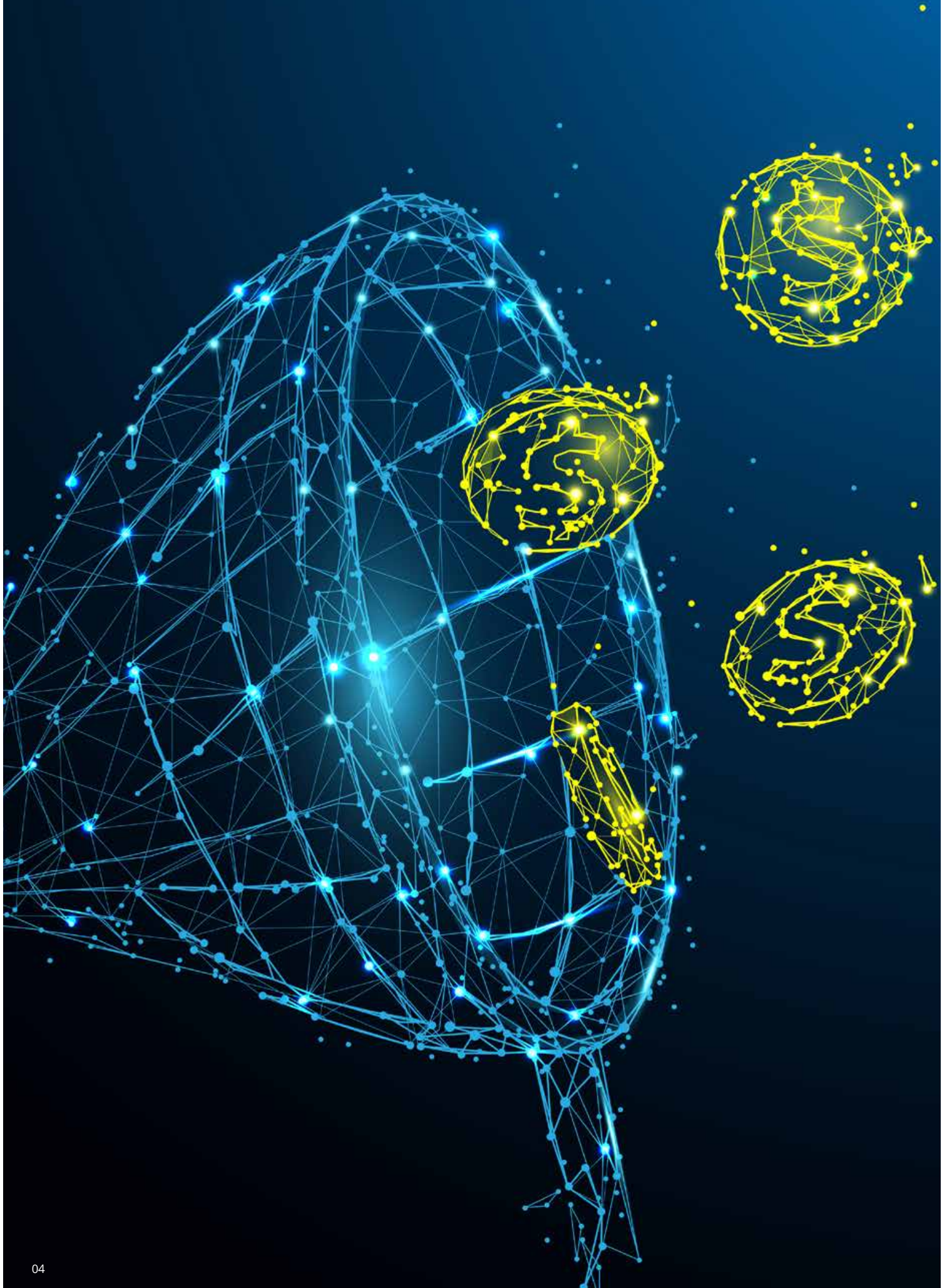


Opportunity in the
times of COVID-19

Positioning Karnataka as
a preferred investment
destination

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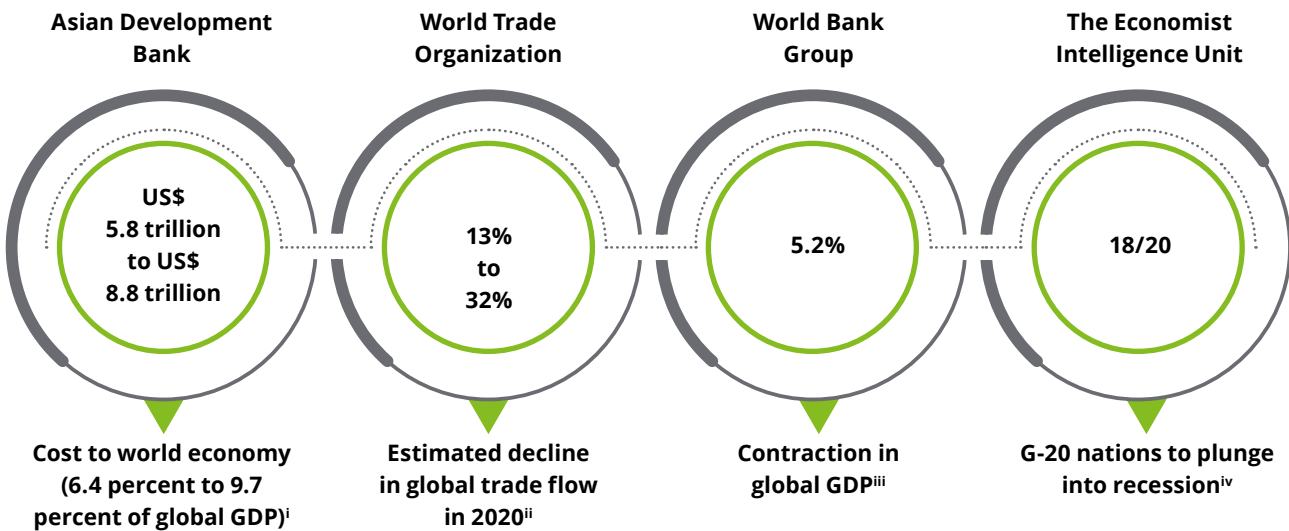


India: Opportunities offered and challenges posed by COVID-19

On 11 March 2020, the World Health Organization (WHO) officially declared the COVID-19 outbreak a pandemic, the highest level of health emergency. Estimates by international organisations highlight significant impact of COVID-19 on the global economy due to supply chain disruptions and demand contraction, as depicted in the figure below.

India is estimated to be amongst the 15-most affected countries by the pandemic, per World Bank; the country's growth is estimated to have slowed to 4.2 percent in 2019-20 and output is projected to contract by 3.2 percent in 2020-21 as illustrated in the figure 2.

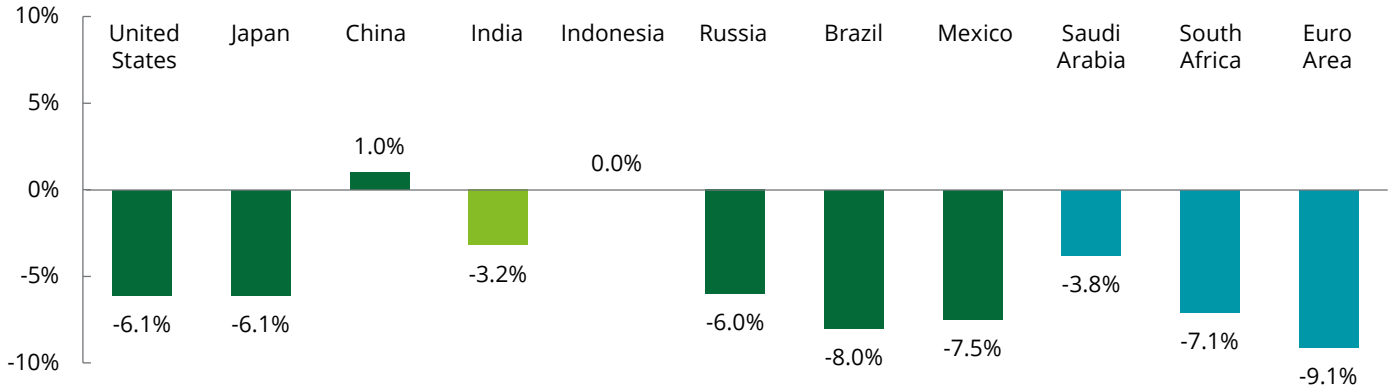
Figure 1: Covid-19 costs estimated by International Organizations



Sources:

- i. ADB Briefs - An Updated Assessment of the Economic Impact of COVID-19, May 2020: <https://www.adb.org/publications/updated-assessment-economic-impact-covid-19>
- ii. World Trade Organization Press Release: https://www.wto.org/english/news_e/pres20_e/pr855_e.ht
- iii. World Bank – Global Economic Prospects, June 2020: <https://openknowledge.worldbank.org/handle/10986/33748>
- iv. The Economist Intelligence Unit article: <https://www.eiu.com/n/covid-19-to-send-almost-all-g20-countries-into-a-recession/>

Figure 2: Growth projection of G-20 nations for 2020 (projected annual percentage of real GDP)



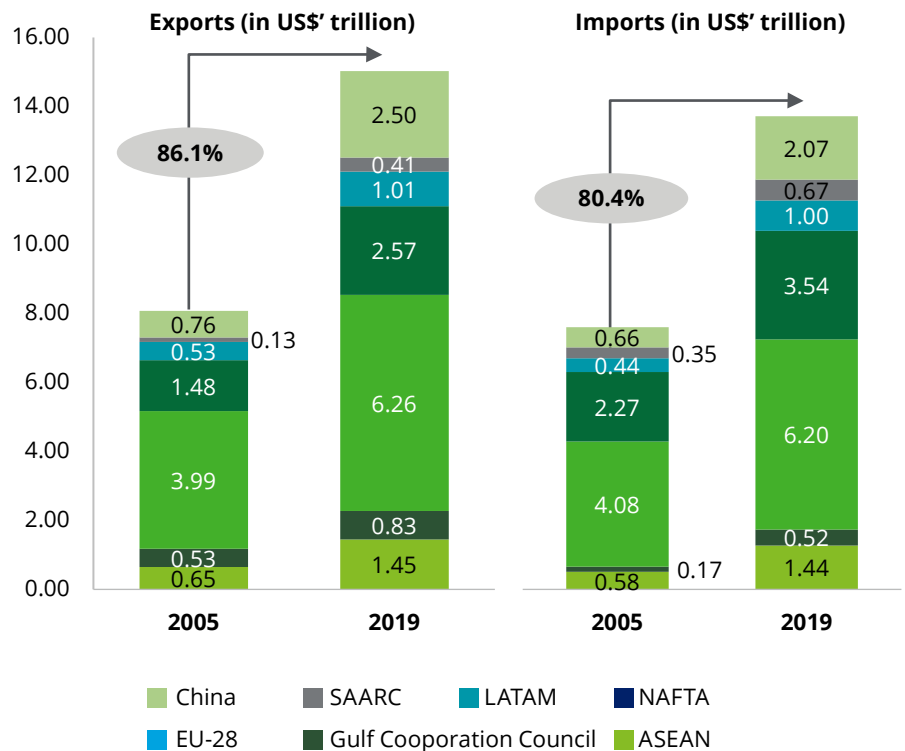
Source: Based on World Bank, Global Economic Prospects, June 2020

Impact of COVID-19 on the global economy

Global integration of economies has seen a sharp increase since the 1990s. The IMF estimated annual growth of world trade at about 6 percent for the 20 years between 1980 and 2000; this was twice as much as the world output in the same period¹.

Overall global exports increased by 86.1 percent and total imports by 80.4 percent over 2005-2019 for the regions indicated in the chart.² The emergence of global value chains (GVCs) has led to fragmentation of production, with value being added in multiple countries, and resulting in formation of regional and global production networks (GPNs). This has increased interdependence across regions and countries linking firms, workers, and consumers across the world, leading to global economic integration.

Figure 3: Exports and imports by region (US\$ trillion)



Source: Deloitte Analysis based on data from Trade Map published by International Trade Centre (<https://www.trademap.org/>)

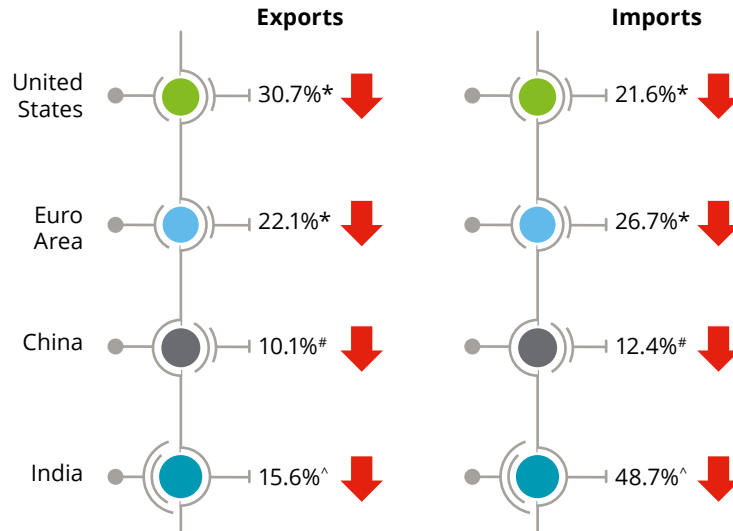
¹ <https://www.imf.org/external/np/exr/ib/2001/110801.htm>

² ASEAN- Association of Southeast Asian Nations, GCC- Gulf Cooperation Council, EU- European Union, NAFTA- North American Free Trade Agreement, LATAM- Latin America, SAARC- South Asian Association for Regional Cooperation, ROW- Rest of World (ROW share also comprises inter-regional trade)

As highlighted in the figure, the COVID-19 pandemic has affected the key hubs of global value chains (the US, the Europe Union, China, and India) with a substantial fall in trade due to supply chain disruption and demand contraction. Per a March survey conducted by the Institute for Supply Chain Management, nearly 75 percent companies reported supply chain disruptions due to COVID-related restrictions³. With the disease becoming more widespread, the disruption is having an adverse impact on trade across sectors that are characterised by complex value chain linkages.

The downturn in the global manufacturing sector continued in May but eased significantly in June with the global manufacturing PMI⁴ (Purchasing Managers' Index) rising by 5.4 points in June 2020 to 47.8. This rise indicates a sharp increase in global economic activity, with growth in manufacturing output reported in 14 of the 31 countries surveyed. However, the export orders continue to fall globally during June, partly attributable to weak demand for imports across the world. The chart below highlights the impact of

Figure 4: Impact of COVID-19 on trade in goods across countries



Note: * May'20 vs Jan'20; #Jun'20 vs Dec'19; ^Jun'20 vs Jan'20
Source: Deloitte analysis of country trade data

shutting down manufacturing facilities to contain the spread of COVID-19 that have continued to exert stress on global supply chains.

Figure 5: Trends in Global Manufacturing Indices

	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Apr'20	May'20	Jun'20
PMI	49.8	49.4	49.3	49.5	49.7	49.8	50.3	50.1	50.4	47.1	47.3	39.7	42.4	47.8
Output	50.1	49.5	49.5	50	50.1	50.3	51	50.4	50.8	43.5	45	32.7	39.2	47.0
New Orders Index	49.5	49	49.3	49	49.4	50	50.4	50.3	50.9	45.2	43.3	31.8	36.3	46.6
New Export Orders Index	49	48.8	48.3	47.4	48	48.9	48.9	49.2	49.5	44.9	42.9	27.3	32.3	43.4
Future Output	58	57.6	57.4	56.7	56.7	57.5	57.2	58	60.9	60.8	52.1	47.4	52.1	58.7
Employment Index	49.9	49.8	49.2	49.6	49.5	49.2	50.1	49.6	49.8	47.2	47.3	41.6	43.2	45.8
Input Prices	52.6	52	50.9	50.2	51	50.4	50.3	51.3	51.8	51.9	50.1	47.4	48	51.6
Output Prices	51.1	50.9	50	49.5	50	49.7	50.1	51	50.6	49.9	48.9	46.8	47.9	49.5

■ High Expansion ■ Moderate Expansion ■ Low Expansion ■ Shrinking

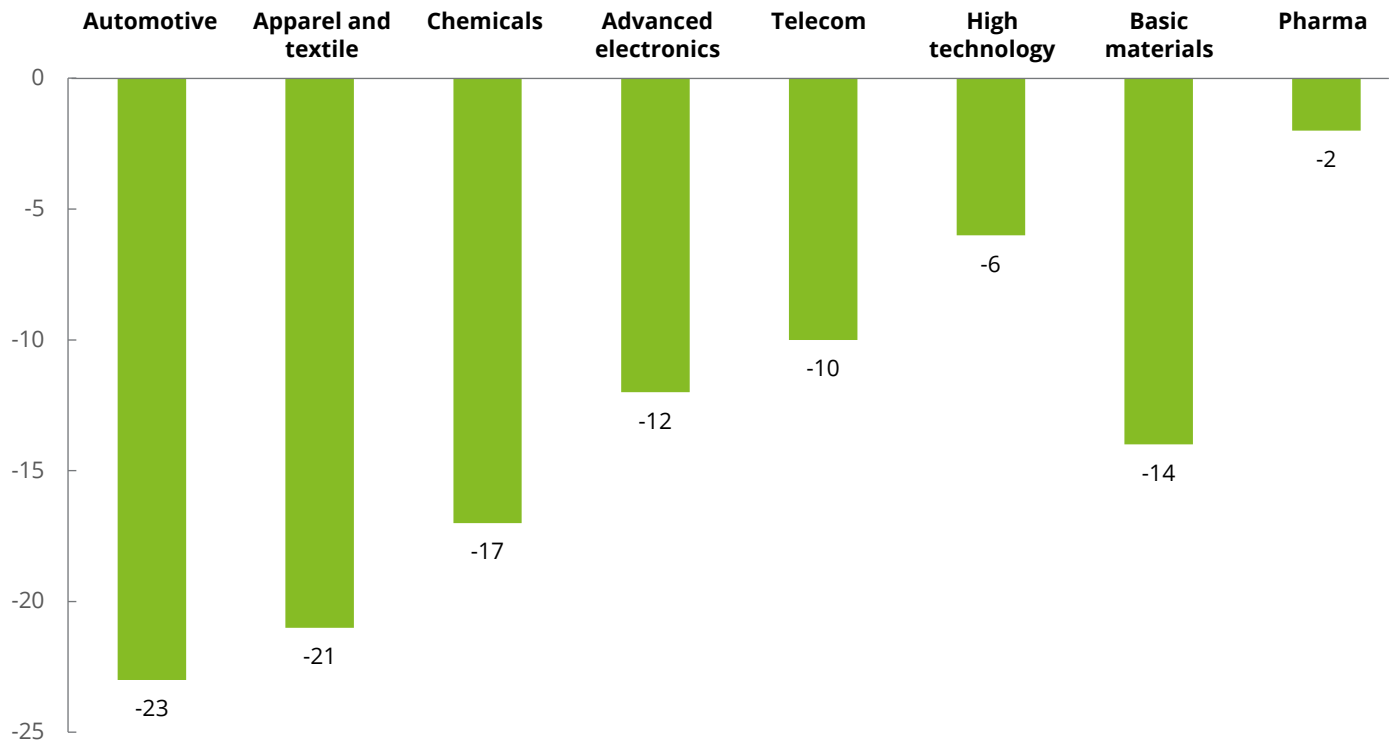
Source: IHS Markit

³ Article COVID-19 Survey: Impacts On Global Supply Chains March 11, 2020: <https://www.instituteforsupplymanagement.org/news/NewsRoomDetail.cfm?ItemNumber=31171&SSO=1>

⁴ PMI is used as an indicator of economic activity. A value below 50 indicates contraction of the economy.

Further, the sectors depicted in the chart saw a significant decline in their market capitalisation on account of the COVID-19 impact across the globe (primarily due to the complex value chain linkages that characterise their manufacturing in terms of either exports of finished goods or intermediates as part of GPNs).

Figure 6: Decrease in market capitalisation across sectors



Source: S&P global values as on 13 April 2020

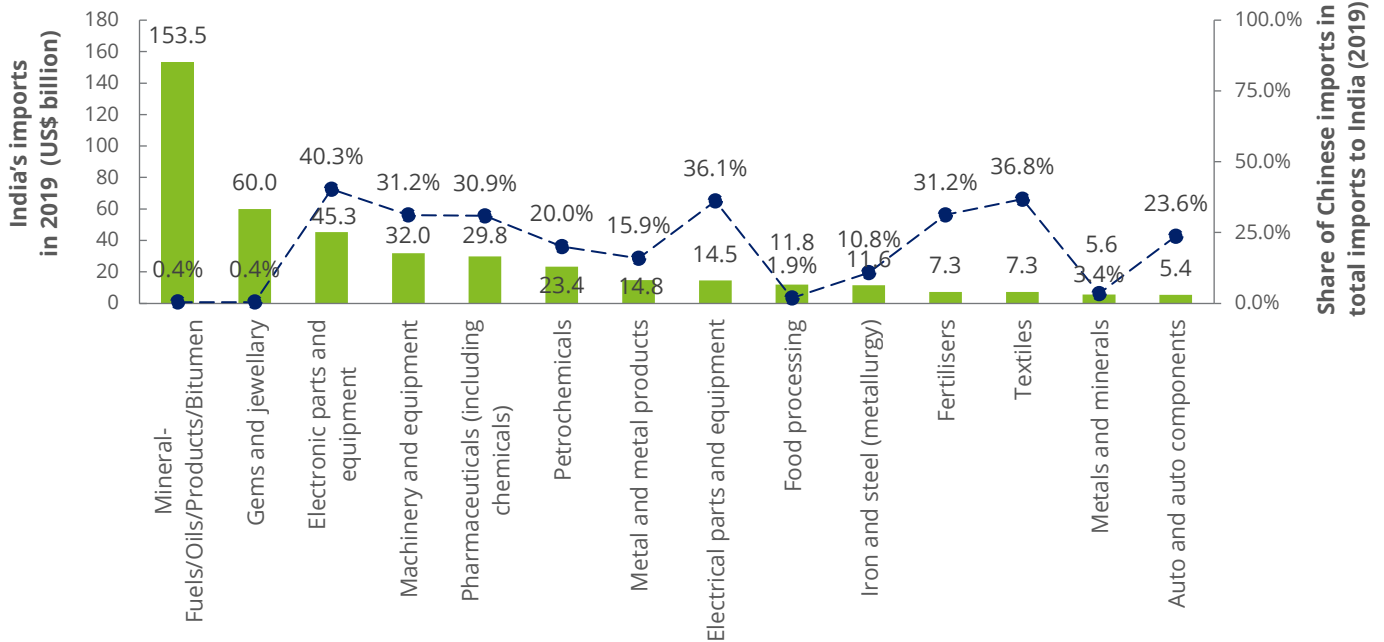
Impact of COVID-19 on the Indian economy

Like other geographies in the world, the Indian economy has also witnessed a decline in economic activity because of the country-wide lockdown imposed for over two months. Supply disruptions, a fall in global and domestic demand, slower growth of investments, and stress on the banking and financial sectors, among others, have affected the economy's growth. With total imports estimated at US\$480 billion and 14 percent of the imports being from China in 2019⁵, India is significantly reliant on

China and other countries, including the US and the UAE for key raw materials and intermediaries. The impact of COVID-19 on supplies from China is expected to have a significant impact on India; the United Nations Conference on Trade and Development (UNCTAD) estimated that the Indian economy to be amongst the top 15 economies affected by COVID-19 globally. Imports from the world, by industry group, and the contribution of China to India's imports is illustrated in the figure 7. The top 15 industry groups contribute about 89 percent to India's total imports.

⁵ Based on data from Trade Map published by International Trade Centre (<https://www.trademap.org/>).

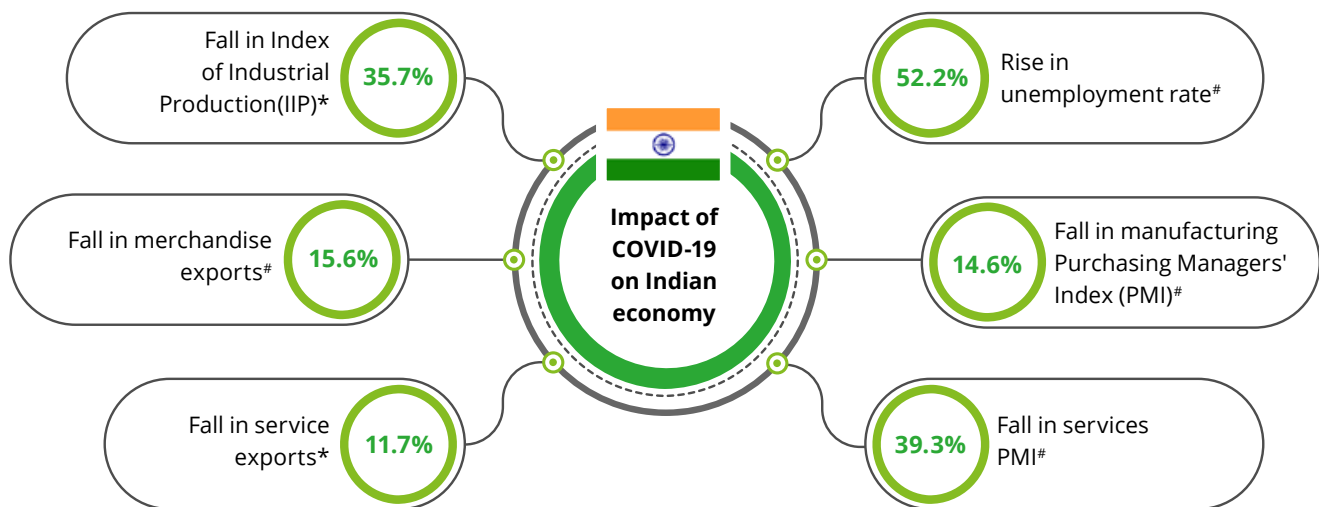
Figure 7: India's imports from the world in 2019



Source: Deloitte analysis based on data from Trade Map published by International Trade Centre (<https://www.trademap.org/>)

The resulting domestic supply and demand disruptions (on the back of weak external demand) in India on account of the COVID-19 situation has affected key economic parameters, as depicted in the chart below.

Figure 8: The impact of COVID-19 on the Indian economy



Note: *May'20 vs Jan'20; #June'20 vs Jan'20

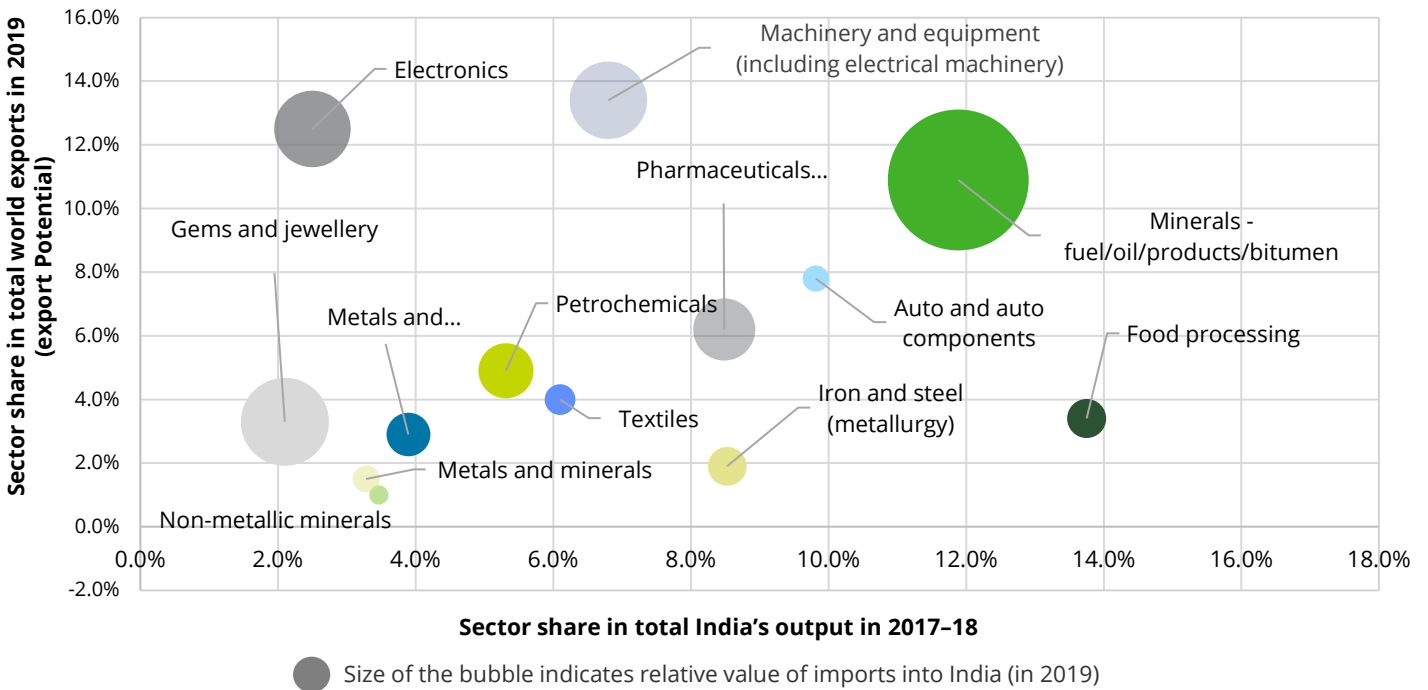
Source: Calculated based on the data from the following sources: a) Fall in Index of Industrial Production based on data from Government of India, Ministry of Statistics and Programme Implementation; b) Fall in merchandise exports based on data from Government of India, Ministry of Commerce and Industry – Department of Commerce; c) Fall in service exports based on data from Government of India, Ministry of Commerce and Industry – Department of Commerce; d) Rise in Unemployment rate based on data from Centre for Monitoring Indian Economy; e) Fall in manufacturing Purchasing Managers' Index (PMI) based on data from IHS Markit; f) Fall in services Purchasing Managers' Index (PMI) based on data from IHS Markit

Near-term outlook for the Indian economy

Despite the challenges India observed in the past and those expected in the immediate future, it is projected to emerge as one of the fastest-growing economies (per estimates by IMF, World Economic Outlook)⁶. This can largely be attributed to the significant domestic demand driven by relatively higher disposable income levels, making it

an attractive alternative destination for de-risking existing supply chains. Further, significant interventions by the Government of India to focus on import substitution and create a conducive business environment for investors is expected to facilitate inward investments. Some key sectors with the potential for greater investments in India, on account of the impact of COVID-19, have been highlighted in the chart below.

Figure 9: Snapshot of key sectors for the Indian economy



Source: Deloitte analysis based on data from MOSPI and Based on data from Trade Map published by International Trade Centre (<https://www.trademap.org/>)

The key sectors identified as potential benefactors for investors looking at alternate investment destinations (for de-risking or catering to a large domestic market with the government support for import substitution) include the following:

- Sectors such as food processing, auto and auto-components, and pharmaceuticals with a significant

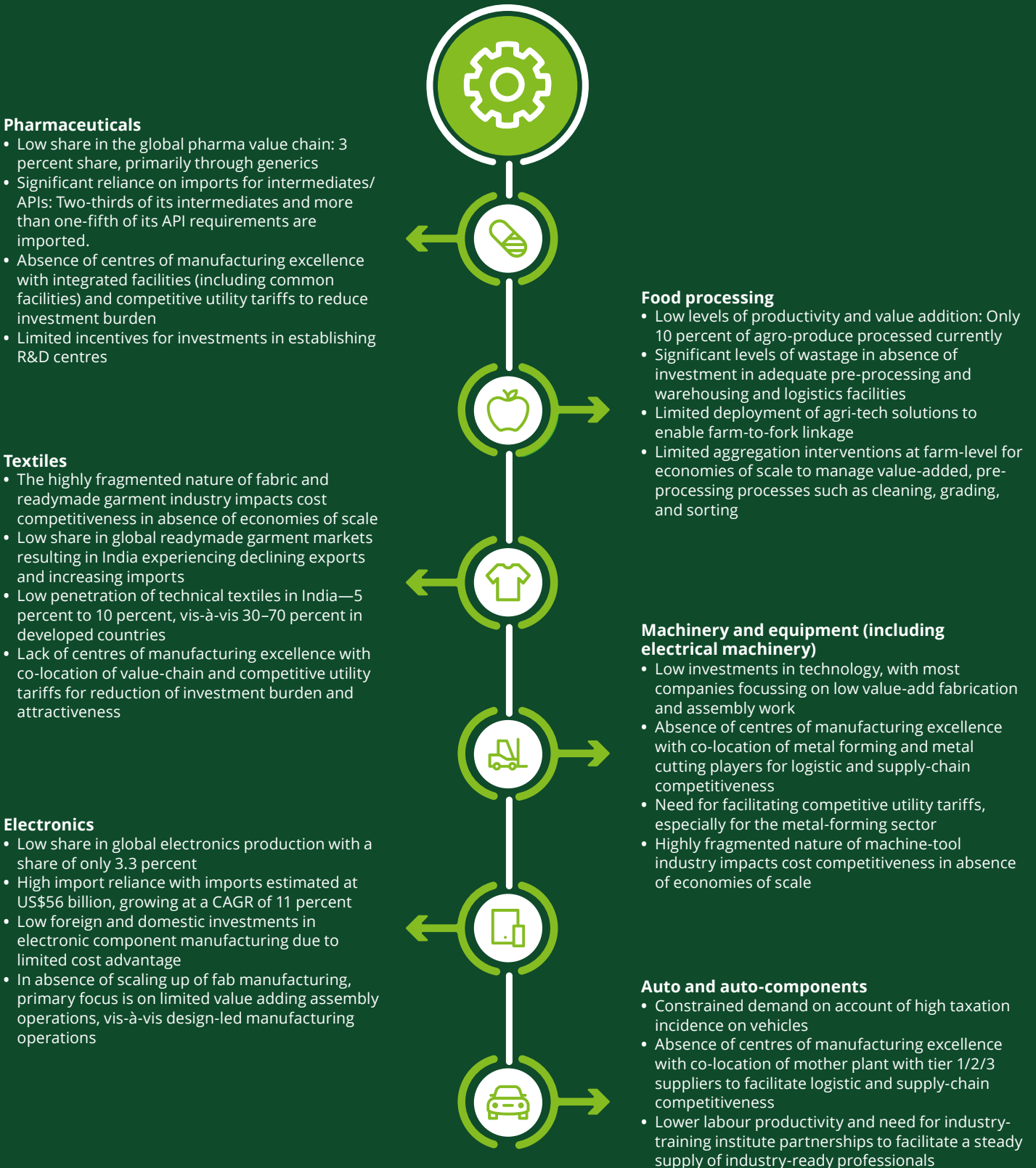
share of the total domestic output, thereby indicating a strong domestic demand

- Sectors such as electronics, machinery and equipment (including electrical machinery), pharmaceuticals, auto and auto-components, and textiles with increasing share of global trade and focus of import substitution for India

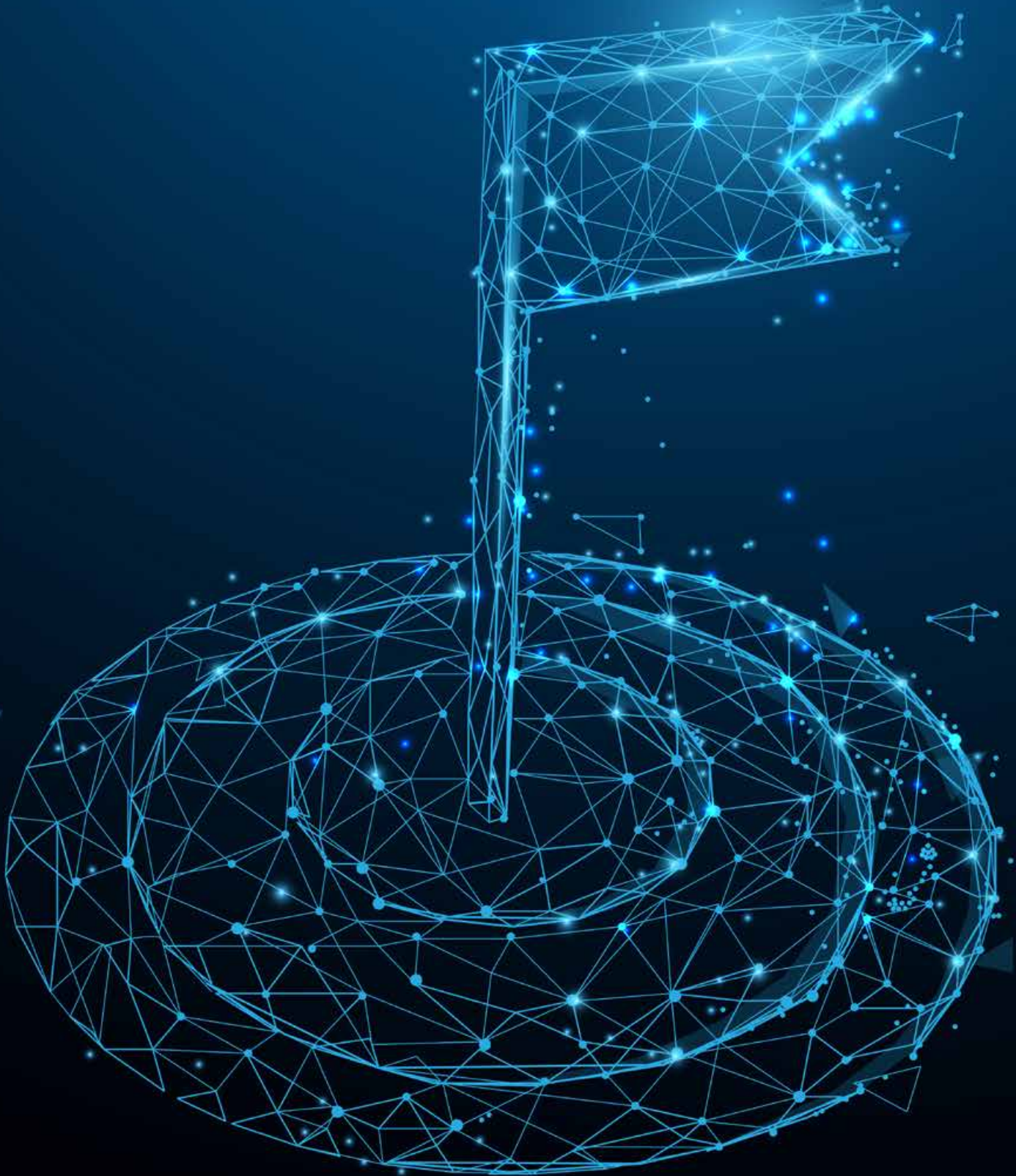
⁶ World Economic Outlook, April 2020: The Great Lockdown, published by IMF (<https://www.imf.org/en/Publications/WEO/Issues/2020/04/14/weo-april-2020>)

Each of these sectors faced the following key challenges in the Indian context that need to be suitably addressed:

Figure 10: Key challenges across sectors in India



Source: Based on primary interaction with select industries, review of industry research reports and Deloitte analysis.



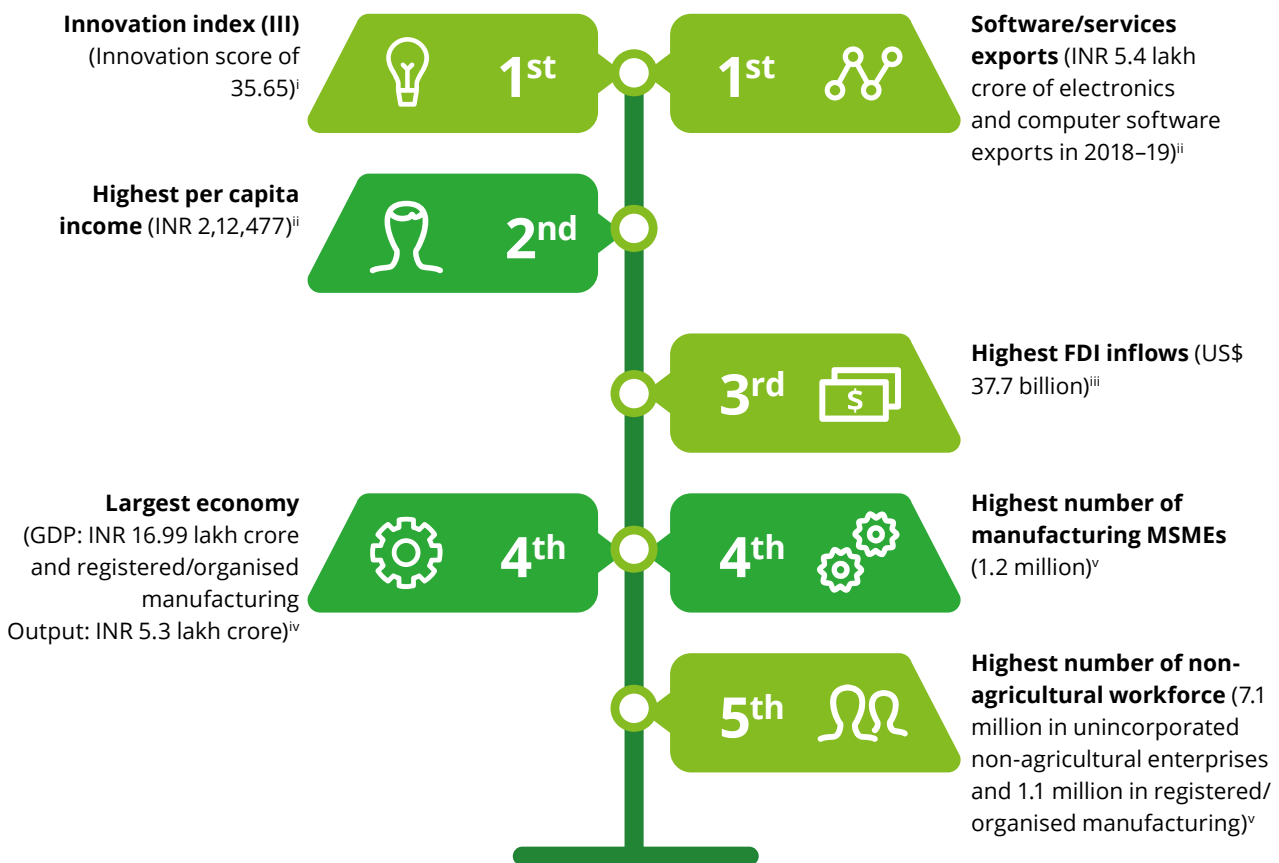
Positioning Karnataka as a preferred investment destination

Economic and industrial profile of the state

Karnataka registered an estimated gross state domestic product (GSDP) of more than INR 16.99 lakh crore (at current prices) in 2019-20; this number

translates to a share of about 8.3 percent of India's GDP and fourth rank amongst Indian states⁷. Select key highlights of the state with respect to its economic and industrial performance is presented in the chart below

Figure 11: Performance of Karnataka state



Sources:

- i. India Innovation Index (III) 2019 released by NITI Aayog
- ii. Directorate of Economics and Statistics, Government of Karnataka (2018-19)
- iii. Cumulative from January 2000 till March 2019 data as published by DIIPP
- iv. GDP in 2019-20 at current prices per Directorate of Economics & Statistics of respective state governments; Output (at current prices) in 2016-17 per Annual Survey of Industries (ASI), Ministry of Statistics and Programme Implementation, Government of India.
- v. In 2015-16 as per NSS 73rd round - Key indicators of unincorporated non-agricultural enterprises (excluding construction) in India and registered/organised manufacturing per ASI 2017-18

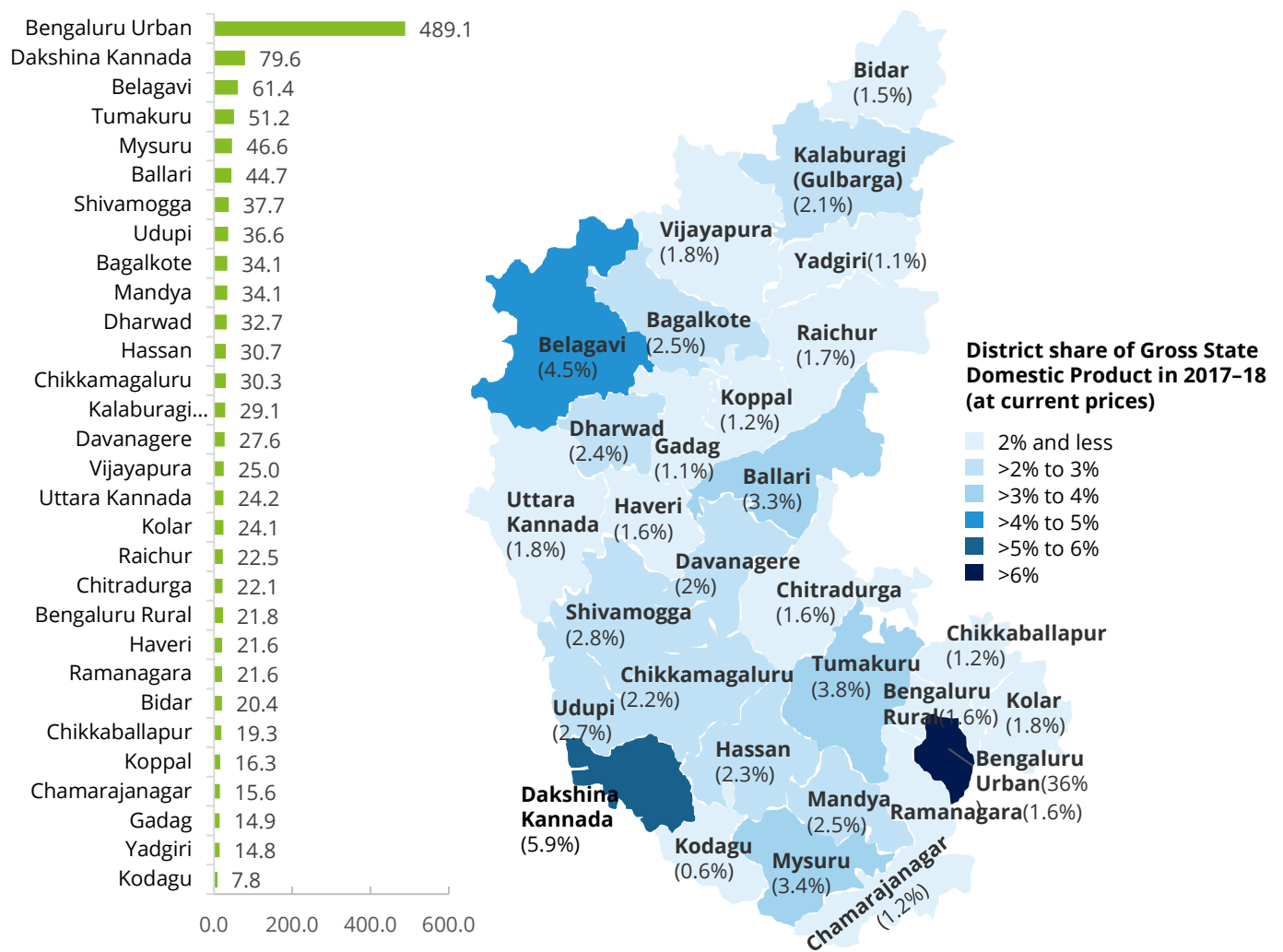
⁷ Based on Economic Survey of Karnataka, 2019-20 and First Advance Estimates of National Income, 2019-20 published by Ministry of Statistics & Programme Implementation, Government of India.

Some of the unique aspects about the state's economic performance include the following:

- The tertiary sector's share at 66.2 percent (at current prices) in 2019-20 is the highest in the country⁸. The key drivers being sectors such as i) IT and ITes (one of the highest recipients of foreign direct investment amongst Indian states, while registering highest exports amongst states (40 percent of all software exports from India⁸), and ii) start-up ecosystem with Bengaluru

emerging as "India's Start-Up Capital" having 36.8 percent share in the country's total funding in this sector. Some of the enablers include the presence of the fourth largest skill workforce in the state⁹ (65.9 percent of the population being in working age of 15-59 years¹⁰), the highest number of engineering colleges/ITIs/polytechnics in the country, and an innovation ecosystem recognised as the best in India.

Figure 12: Gross district domestic product (at current prices) in 2017-18 (INR '000 crore) and share of the districts



Source: Calculated based on the gross district domestic product data published in Economic Survey of Karnataka, 2019-20

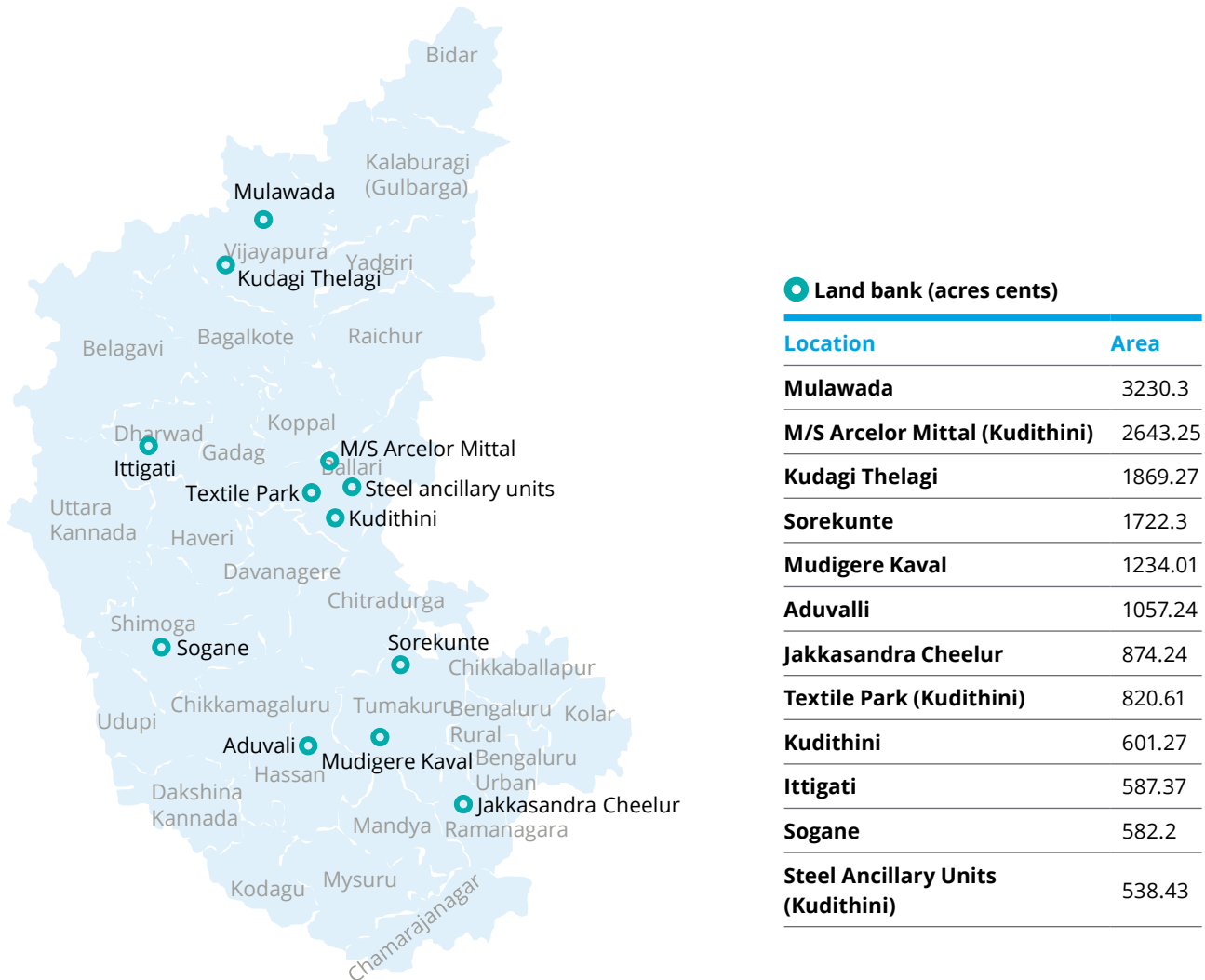
⁸ Calculated based on the data from Economic Survey of Karnataka, 2019-20

⁹ Based on website <https://www.investkarnataka.co.in/>

¹⁰ Census India, 2011: (https://censusindia.gov.in/vital_statistics/SRS_Report_2012/9_Chap_2_2012.pdf)

- The share of the primary sector in the overall economy declined at a CAGR of 3.8 percent and that of the secondary sector fell at 2.8 percent between 2011-12 and 2018-19 (to a share for primary sector of 11.1 percent in the primary sector and a share of for secondary sector of 23.6 percent, at constant prices, in 2018-19)⁸. However, high-tech industries, such as automotive, electronics, biotechnology, and IT/ITeS, have a significant presence in the state, with one of the key enablers being present in research and development (R&D) centres (about 44 percent share in India’s R&D centres¹¹).
- About 45 percent¹² of the GDP is contributed by Bengaluru and neighbouring districts, clearly highlighting the limited geographic inclusion across the state as depicted in the figure 12.
- Industrial land bank (in excess of 500 acre¹³) is available for future development, primarily in and around the districts of Ballari and Vijayapura, as depicted in the chart below.

Figure 13: Industrial land bank (data available with KIADB)



Source: Based on the data from KIADB website

¹¹ <https://www.investkarnataka.co.in/why-karnataka/>

¹² Calculated based on the Gross District Domestic data published in Economic Survey of Karnataka, 2019-20

¹³ Based on data published by KIADB

Priority focus sectors for investment facilitation

Amongst the focus sectors identified at the national level in Section 1.3 (to address the COVID-19 situation), the following sectors are mapped with the strengths of the state:

Figure 14: Strengths of Karnataka across sectors



Services



Information Technology Information Technology enabled Services (IT/ITES)

- IT/ITES contributes 25 percent to the state's GDP^{xvi}
- Highest exporter of IT/ITES, with a 40 percent share in the country's exports^{xvi}
- Fourth-largest technological cluster in the world^{xvii}
- Hosts over 5500+ IT/ITES companies, ~750 MNCs^{xvi}



Education

- Known as the "Knowledge Capital" of India
- Highest number of colleges per lakh population (53 colleges per lakh population)^{xiv}
- Bengaluru urban district has the highest number of colleges in the country (893 colleges)^{xiv}
- Over 800+ EdTech start-ups in Bangalore^{xv}



E-commerce

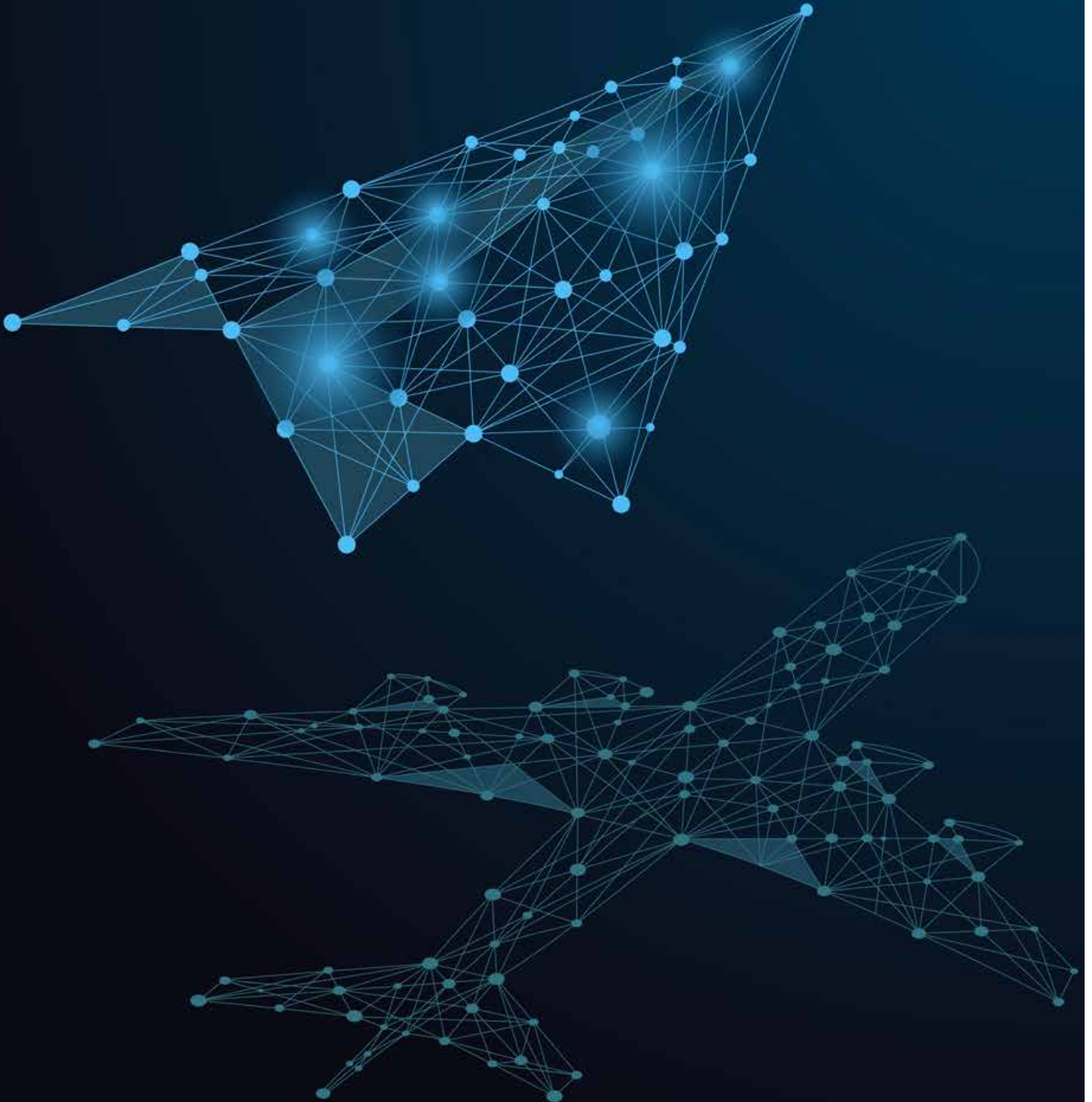
- Hosts three out of top 10 e-commerce start-ups of the country
- One of leading e-commerce hubs in the country
- E-commerce accounts for the 35 percent of the overall warehousing space leased across sectors in Bengaluru^{xviii}
- 147 percent year-on-year (YoY) increase in warehousing leasing volume in 2018 over 2017^{xviii}

02

Sources:

- Based on 'Horticulture Statistics at a Glance 2018' published by Government of India Ministry of Ministry of Agriculture & Farmers' Welfare Department of Agriculture, cooperation & Farmers' Welfare Horticulture Statistics Division
- Based on 'Agri and Food Processing' sector note prepared by Invest Karnataka
- Based on report '<http://kiadb.in/wp-content/uploads/2017/02/Electronics.pdf>'
- Based on report '<https://kum.karnataka.gov.in/KUM/PDFS/SectorProfiles/NidhiESDM.pdf>'
- Based on the content from '<https://www.investindia.gov.in/state/Karnataka>'
- Based on the report '<http://www.karnatakadht.org/pdf/Background%20Paper%20Textiles%20and%20Apparel.pdf>'
- Based on the content from '<https://www.investkarnataka.co.in/textile-apparel/>'
- Based on the content from '<https://www.investkarnataka.co.in/auto-components-electric-vehicle/>'
- Based on the report '<http://unikwan.com/projects/invest/wp-content/uploads/2019/10/Auto-auto-components-and-Electric-Vehicle.pdf>'
- Based on the content from '<https://www.investkarnataka.co.in/machine-tools/>'
- Based on the sector profile from '<http://karnatakaindustry.gov.in/en/images/sectors%20profiles/SECTOR%20PROFILE-HEAVY%20ENGINEERING%20AND%20MACHINE%20TOOLS.pdf>'
- Based on the content from '<https://www.investkarnataka.co.in/biotech-pharmaceuticals-medical-devices/>'
- Based on the content from 'https://investuttarakhand.com/themes/backend/acts/act_english1575363442.pdf'
- Based on All India Survey on Higher Education (AISHE) 2018-19 'https://mhrd.gov.in/sites/upload_files/mhrd/files/statistics-new/AISHE%20Final%20Report%202018-19.pdf'
- Based on data at <https://tracxn.com/explore/EdTech-Startups-in-Bangalore>
- Based on data from 'Economic Survey of Karnataka, 2019-20'
- Based on data from '<https://india.highcommission.gov.au/ndli/HOMspeech181119.html>'
- Based on data from the report 'India Warehousing Market Report, 2019' published by Knight Frank India

Hence, these sectors have been considered for detailed assessment, highlighting the key strengths and challenges faced (including those specific to the COVID-19 scenario), which are presented in the annexure.



Recommendations and way forward for Karnataka

Based on the findings and growth potential for the state along with feedback from the key investors in the state, both large and MSMEs, highlighted a set of key interventions required by the state government to help position it as a preferred investment destination for both domestic and global investors (some specific to a sector and some applicable across sectors). Further, there was feedback on key sector-specific issues to be addressed that fall within the realm of administrative powers of the central government. The sections below capture the key cross-sector and sector-specific recommendations to address the concerns highlighted by investors.

Cross-sector recommendations

Key interventions aimed at facilitating development of multiple sectors across the state are highlighted below:

- Initiate integrated planning of urban-industrial agglomerations with a focus on development of clusters. Key considerations would entail the following:
 - Leverage “Land pooling” provisions in the Karnataka Town and Country Planning Act 1961 to aggregate large land banks necessary for developing such integrated urban-industrial areas
 - Strengthen existing urban centres at or near the identified clusters to cater to increased demand for affordable housing, social infrastructure, and municipal services. This would need to be driven by the government with investments in effective transport connectivity between existing urban centres and new growth locations to create a conducive industrial ecosystem

Summary

- Facilitate geographically inclusive development through **integrated planning of urban-industrial agglomerations** leveraging ‘land pooling provisions’ in Karnataka Town and Country Planning Act to aggregate large banks for economically viable clusters
- Best-in-class industrial facilities through setting up of “**industrial township areas**” with creation of “**Industrial Township Authority**” empowered to i) plan for economic and social development in the designated area, and ii) develop and manage industrial infrastructure and urban amenities in the respective area.
- Incentivize **globally renowned industrial park developers** to develop and market world-class integrated parks with plug and play infrastructure in “industrial township areas”.
- **Enhance competitiveness by rationalizing industrial power tariff** by reducing power purchase costs through scaling-up low-cost renewable power sources like solar, wind etc. and reviewing tariff cross-subsidization mechanisms
- Operationalise the **container handling facility in the Mangalore port** to facilitate movement of inbound and outbound cargo, thereby reducing reliance on the ports in Chennai/Tuticorin/Cochin.
- Develop **supply of skilled workforce** to the industry through facilitating tripartite collaboration between the government, industry, and training institutes for skilling initiatives
- Strengthen institutional mechanisms associated with monitoring the **ease of doing business** interventions at the state and district level

- Develop a plan for shifting labour-intensive industries out of Bengaluru over a period of time to ensure geographically inclusive development in the state
- Set up industrial township areas: Use enabling provisions in the urban planning legislation, such as Karnataka Municipalities Act, 1964 for setting up “industrial township areas” with creation of “Industrial Township Authority” empowered to i) plan for economic and social development in the designated area, and ii) development and management of industrial infrastructure and urban amenities in the respective area.

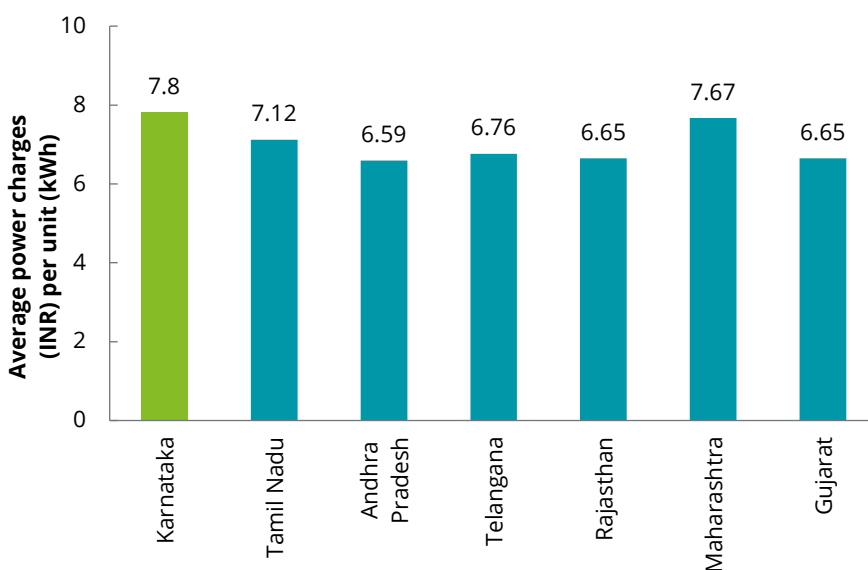
The success achieved by the Electronics City Industries Association (ELCIA) in establishing the Industrial Township Authority and offering integrated offerings related to upkeep of industrial infrastructure and provision of urban amenities should be considered for replication across industrial parks developed by KIADB to ensure world-class amenities.

- Private sector participation in developing industrial parks: Involve globally renowned industrial park developers to develop and market world-class integrated parks with plug and play infrastructure in “industrial township areas”. Consider offering incentives linked to investments grounded to such developers.

This could help replicate private-sector led industrial park development, like in case of Sri City in Andhra Pradesh and Mahindra World City in Tamil Nadu, with land pooling provision also acting as a key enabler.

- Rationalise industry power tariffs: Benchmark utility tariffs for industries in the state vis-à-vis other states to rationalise the same and address underlying issues in terms of a) reducing power purchase costs by scaling up alternate low-cost power generation, such as solar and wind, and b) rationalising the tariff cross-subsidisation to reduce tariff rates for industrial customers.

Figure 15: Comparison of average power charges across key states (for a HT Industrial Connection)



Note: Based on the tariffs for FY20 for an HT industrial connection at a voltage level of 33 kv with a contracted demand for 2,000 kVA at a load factor of 90 percent and power factor of 99 percent. Average cost is arrived at by considering a. Fixed/demand charges, b. Consumption charges accounting ToD tariff, c. Fuel adjustment charge, d. Power factor rebate, e. Rebate for EHV and are exclusive of electricity duty and other taxes levied

Source: Deloitte analysis based on data from various Discoms/Electricity Regulatory Commissions

- Container handling facility in Mangalore port: Operationalise the container handling facility in the Mangalore port to facilitate movement of inbound and outbound cargo, thereby reducing reliance on the ports in Chennai/ Tuticorin/Cochin and associated logistic costs.
- Develop supply of skilled workforce: Establish tripartite collaboration between the government, industry, and training institutes for skilling initiatives to ensure supply of industry-ready professionals in line with industry requirements. Key measures to be considered include:
 - Encourage adoption of ITIs by industries as part of CSR initiatives to undertake skilling initiatives for ensuring supply of industry-ready professionals in line with industry requirements.
 - Create centres of excellence to deliver industry-oriented training programmes to students and graduates in collaboration with private-sector companies and skill development initiatives of NSDC, etc.
 - Benchmark Karnataka Skill Development Corporation with best practices in terms of mandate, structure, role, and activities. Undertake necessary interventions to enhance, support, and coordinate initiatives for skill development.
- Interventions for ease of doing business: Strengthen institutional mechanisms associated with monitoring the ease of doing business interventions at the state and district level. The institutional mechanism may be further strengthened through the following interventions:
 - Induction of representatives from leading industry associations/ chambers of commerce as “voice of industry”
 - Adoption of real-time Management Information Systems (MIS) to accurately highlight delays, if any, caused by any of the government department along with the concerned officials through work-flow based approval hierarchy mapping
 - Benchmarking of labour laws and review of reforms undertaken in other states to attract investments could be considered for replication to attract investors.
- Targeted investor outreach: Use the Invest Karnataka forum for the targeted investor outreach for priority sectors based on market intelligence on potential investors (looking at moving investments to India or alternative investment destinations). For this purpose, strengthening coordination with Invest India for securing leads on investors looking at investing in Karnataka could also be considered.

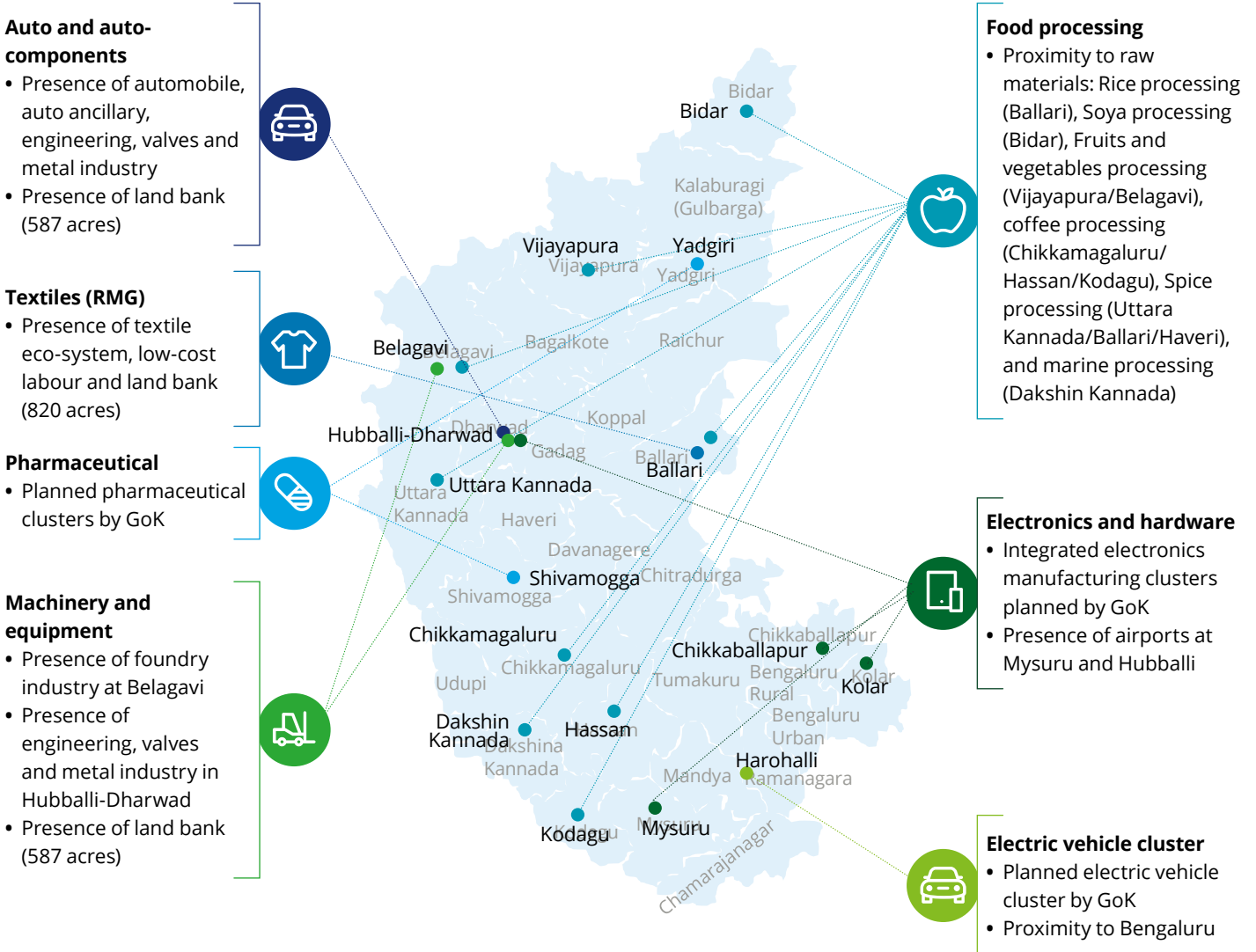
Sector-specific recommendations

Development of integrated urban-industrial clusters across the state

With concentration of a large share of economic activity in Bengaluru, the state’s socio-economic growth has been limited to Bengaluru and the surrounding districts. This results in limited development of other parts of the state. To promote geographically inclusive industrial development across Karnataka, the state should develop alternative economic hubs beyond Bengaluru.

A focused approach is needed to identify and develop product-specific integrated industrial clusters in other parts of the state for the sectors identified in this study. In this context, development of integrated urban-industrial clusters as highlighted in the figure 16 and which are detailed out subsequently should be considered:

Figure 16: Proposed integrated urban-industrial clusters



- Scaling up of the textile-readymade garment cluster could be considered for Ballari based on the following inherent advantages:
 - Cotton grown extensively in the district, along with existing ginning and spinning ecosystem
 - Existing integrated textile and apparel cluster servicing industry units across the value chain
 - Availability of land in the district
 - Presence of skilled workforce

Given the above, the Ballari district may be prioritised for developing an integrated textile park.

- Setting up food processing clusters across the state given the availability of raw material in the vicinity and presence of product specific value chains, which can be further strengthened. The

product-specific clusters that may be considered are as follows:

- Rice processing at Ballari
- Soya processing at Bidar
- Fruits and vegetables processing in Vijayapura and Belagavi
- Coffee processing in Chikkamagaluru, Hassan, and Kodagu
- Spice processing in Uttara Kannada, Ballari, and Haveri
- Marine processing in Dakshin Kannada

- Machinery and equipment cluster – This should be considered around the adjoining districts of Hubballi-Dharwad and Belagavi to ensure proximity to key value chain activities which are as follows:
 - Belagavi as the foundry hub of Karnataka would be a key supplier of inputs for the sector

– Hubballi-Dharwad has the existing ecosystem for providing finishing in terms of general and special purpose machinery

Given the presence of large land parcels in Hubballi-Dharwad, the location may be prioritised for setting up machinery finishing cluster in the near term.

- Automobile and automotive component cluster in Hubballi-Dharwad – This area already has presence of the automobile, auto ancillary, engineering, valves, and metal industries. Ensuring proximity to OEMs and auto-component suppliers is crucial for growth of the automobile industry that can be achieved through the cluster.
- Proposed electric vehicle manufacturing cluster in the Ramanagera district (in Harohalli) - The focus should be on developing the complete ecosystem with presence of OEMs supported by electric vehicle related components (such as batteries and battery materials, electric motors, and power electronics) manufacturers in the cluster.
- Pharmaceutical cluster at Shivamogga and Yadgiri - As planned by the state government, the cluster could be considered for securing the incentives

announced by the central government for setting up three large bulk drugs/ API parks under the recent scheme – “Promotion of Bulk Drug Parks for financing Common Infrastructure Facilities”. Large land parcels should be identified at either of these locations to plan for bulk drug parks with requisite common utilities and facilities.

- Integrated electronic manufacturing clusters across Chikkaballapur, Mysuru, Kolar, and Dharwad as planned by the Government of Karnataka - Given that electronic components manufacturers prefer units in close proximity to airports, suitable land parcels in these four districts should be identified. The state should explore options to secure the financial assistance available from the central government under the Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme for development of the clusters with common facilities and amenities.

Development of integrated urban-industrial clusters across the state

The following are sector-specific recommendations that touch upon interventions at the state government level:

Sector-specific recommendations



Auto and auto components

Develop an electric vehicle manufacturing hub

Conduct focussed investment promotions with e-vehicle and component (including battery) manufacturers highlighting the proposed Harohalli cluster. Review incentives offered by the state, vis-à-vis dedicated e-vehicle policies of competing states, for example, capital subsidies for large EV manufacturing industries.

Enhance operational efficiency

Reduce energy costs by focussing on increasing the share of renewable energy (such as hydel and wind) to reduce production costs and rationalise the cross-subsidisation to make tariffs attractive for industrial customers.





Machinery and equipment (including electrical)

Explore logistical competitiveness

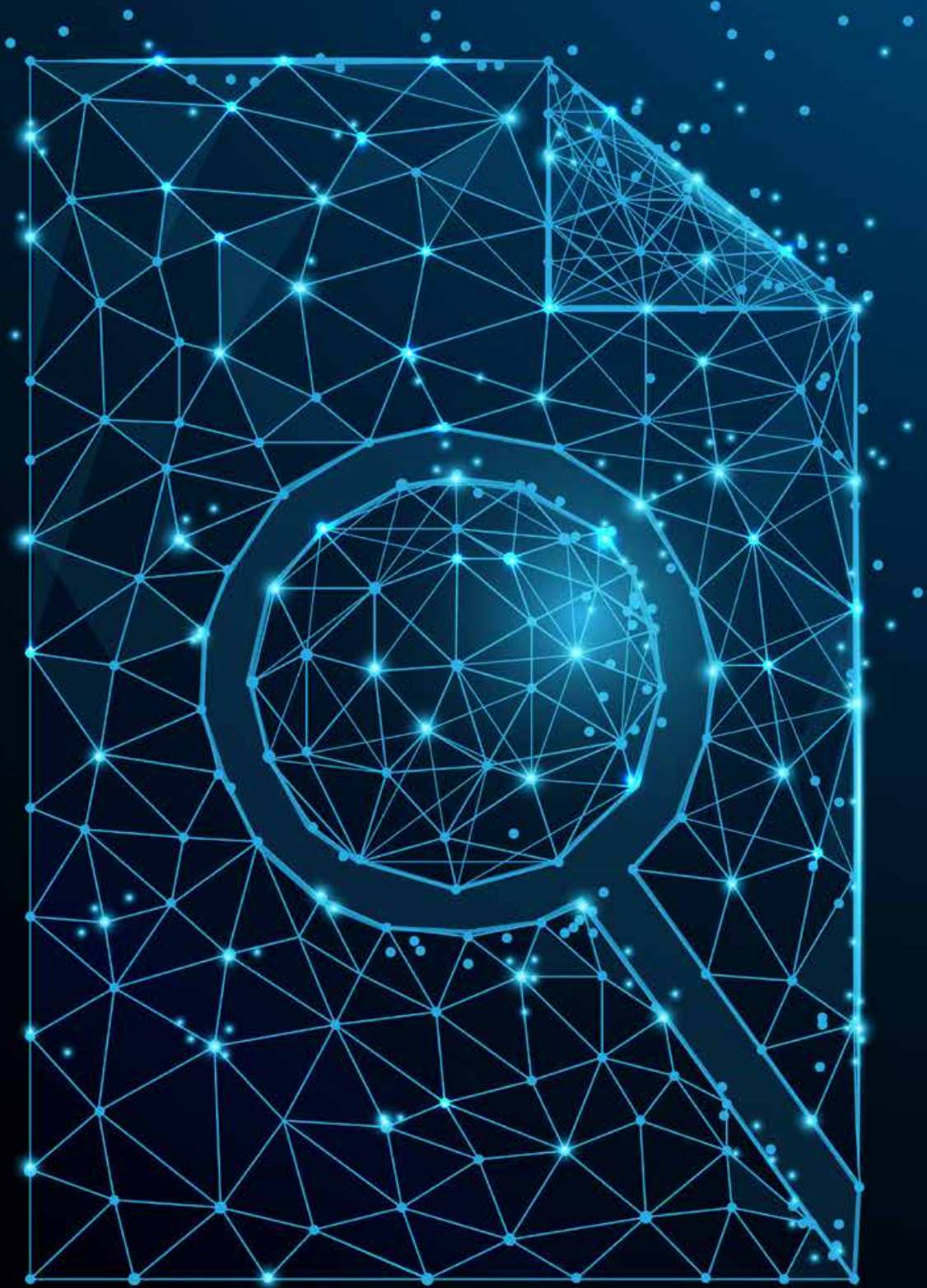
Improve road/rail connectivity for cargo movement between existing foundry clusters (at Belagavi and Shivamogga) and machine tool/engineering clusters (Bengaluru, Tumakuru, and Hubballi-Dharwad) to improve logistic cost competitiveness and availability of raw materials for the foundry sector (from Ballari).

Enhance operational efficiency

Reduce energy costs by focussing on increasing the share of renewable energy (such as solar and wind) to reduce production costs and rationalise cross-subsidisation to make tariffs attractive for industrial customers, especially applicable for the metal foundry industry, which is a key input supplier for the machine-tool sector.

 <p>Electronics and hardware</p>	<p>Prioritise cluster formation in Mysuru and Dharwad Establish electronic manufacturing clusters under the recently announced EMC 2.0 scheme. Given the presence of airports in Mysuru/Dharwad, these locations can be prioritised due to their reliance on air logistics for electronic components.</p>	<p>High-value-add manufacturing Focus on design-led, high-value-add manufacturing for non-fab elements including PCBs and electro-magnetic casing.</p>
 <p>Pharmaceuticals (including biotech)</p>	<p>Develop mega bulk drug parks Establish a mega bulk drug park under the recently announced scheme in Shivamogga/Yadgiri. Create centres of excellence with facilities such as common utilities, R&D centres, training centres, large-scale production units in the form of contract manufacturing organisations (CMOs), etc. at Shivamogga/Yadgiri.</p>	<p>Enhance operational efficiency Reduce energy costs by focussing on increasing the share of renewable energy (such as hydel and wind) to reduce production costs and rationalise the cross-subsidisation to make tariffs attractive for industrial customers.</p>
<p>Textile (readymade garments)</p>	<p>Establish integrated textile parks Establish large-scale integrated textile parks under the proposed new textile policy of the Ministry of Textile in Ballari, leveraging land availability, textile ecosystem, and access to low-cost labour for garment manufacturing (vis-à-vis Bengaluru).</p>	<p>Focus on technical textiles Drive the outreach and investment promotion to global and domestic anchor investors, backed by a clearly defined package to promote technical textile manufacturing.</p>
<p>Food processing</p>	<p>Establish integrated mega food parks Fast-track development of the proposed integrated mega food park at Mandya</p> <p>Promote crop-specific value chains Leverage the strengths of each region and promote specific value chains. For example: chilli (Byadgi), rose onion (Chickballapur), coffee (Chikkamagaluru, Hassan, Kodagu)</p> <p>Strengthen contract farming Create an enabling framework for contract farming at the state level by adopting the Model Agricultural Produce and Livestock Contract Farming and Services (Promotion and Facilitation) Act, 2018, with suitable provisions for having FPOs as contracting parties, providing options to FPOs to avoid single-buyer situations, etc.</p>	<p>Enable implementation of Agritechs Encourage new emerging areas in Agritech such as market linkage, digital agriculture, better access to inputs, FaaS, and financing to enable seamless farm-to-fork linkage.</p> <p>Enable processing infrastructure Incentivise retail chains/e-commerce companies/larger food processing companies to co-invest in processing infrastructure at the farm gate with associated services. Develop demand-driven cold chains, warehouse monitoring solutions, and market-linkage mechanisms to reduce post-harvest losses that may result in a significant increase in farmer incomes.</p>





Annexure

Automobile and automotive components

Globally, the automobile and automotive component sector has been estimated to grow at a CAGR of 3 percent, to become a US\$3.8 trillion market by 2030¹⁴. In India, the sector is valued at more than US\$130 billion, generating employment for more than 38 million people¹⁵.

Karnataka is the fourth-largest automobile producing state in the country with about 8.5 percent contribution to the national output¹⁶. Karnataka is one of the largest domestic markets with more than 17.87 million registered vehicles in the state as on 31 March 2017.¹⁷ The sector accounted for 12 percent of Karnataka's manufacturing output in 2017-18, and registered a CAGR of 27.7 percent between FY'12 and FY'18. It had an employee base of more than 1 lakh in 2017-18.¹⁸

The chart alongside highlights the key auto and auto component clusters in the state:

- Auto cluster: Bidadi, Hoskote and Bengaluru Rural, and Dharwad
- Auto component cluster: Belagavi (precision engineering and foundry cluster) and Shivamogga (foundry cluster and auto servicing hub)
- Manufacturing hubs: Narsapur, and Vemagal industrial areas in the Kolar district
- Industrial valve cluster: Hubballi-Dharwad

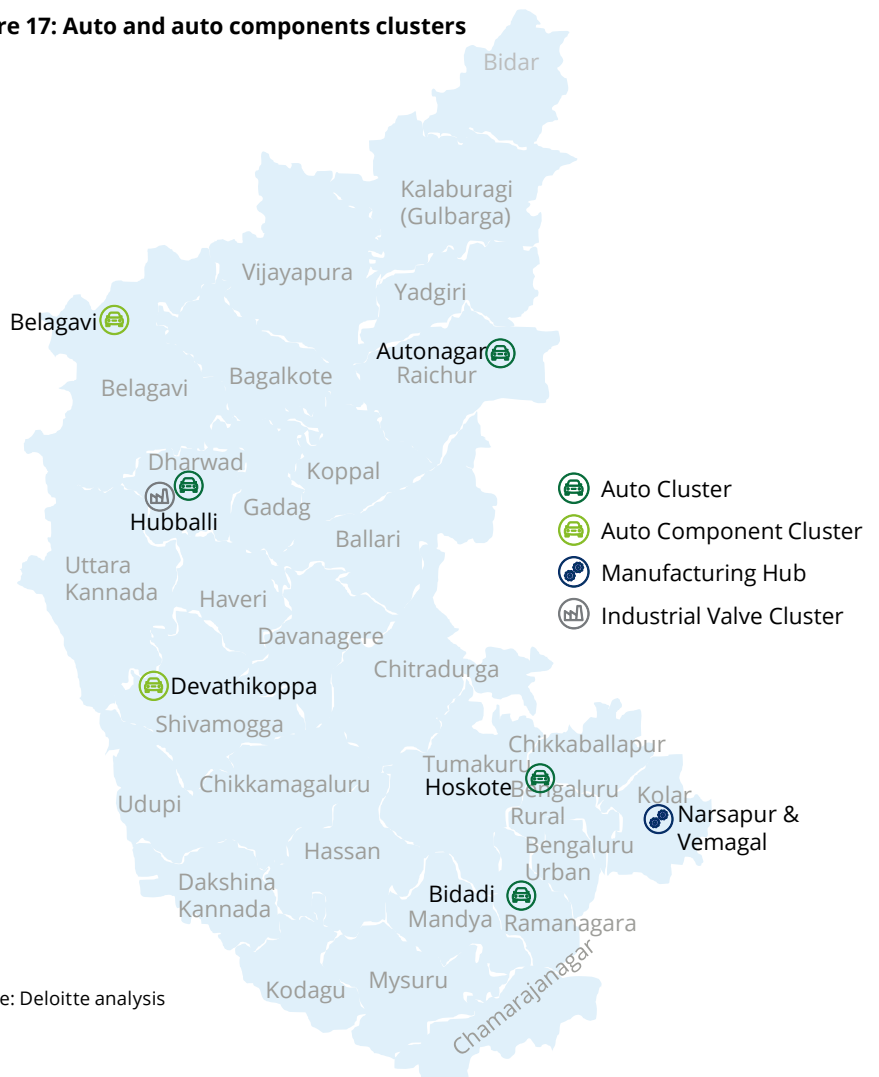
Karnataka has emerged as a hub for the automobile and automotive sector, with presence of seven major original equipment manufacturers (OEMs) and more than 50 auto component manufacturers¹⁹.

Automobile and automotive components



Source: Deloitte analysis based on trade data from International Trade Centre (ITC) and Directorate General of Commercial Intelligence and Statistics, Government of India Ministry of Commerce and Industry

Figure 17: Auto and auto components clusters



Source: Deloitte analysis

¹⁴ <https://auto.economicstimes.indiatimes.com>

¹⁵ <https://www.investindia.gov.in/>


¹⁶ <https://www.investindia.gov.in/state/karnataka>

¹⁷ Road Transport Yearbook 2016-17 published by the Ministry of Road Transport and Highways, GoI

¹⁸ Registered factory data from Annual Survey of Industries, 2017-18


¹⁹ Based on the report '<http://unikwan.com/projects/invest/wp-content/uploads/2019/10/Auto-auto-components-and-Electric-Vehicle.pdf>'

Key challenges faced by sector in Karnataka²⁰




Input linkages

- Tier 2/3 suppliers to the mother plants, which are mostly MSMEs, have been severely affected by the COVID-19 situation in terms of availability of labour, working capital, etc.; supply chain is also affected and the supplier base needs diversification (that may be a time consuming process for OEMs and tier 1 suppliers).



Industrial and logistics infrastructure

- High per unit cost of energy estimated at about INR 7.8 per kWh, which is observed to be 2-18 percent²¹ higher than other key auto hubs, such as Tamil Nadu, Maharashtra, and National Capital Region (NCR).
- Limited planning of industrial parks/facilities also affects co-location of the mother plant, along with tier 1/2/3 suppliers in geographic proximity (affects logistic costs).
- Investment is limited in operation and maintenance of government-owned industrial estates and parks.
- Delay in operationalisation of a container facility at the Mangaluru port with adequate road/rail connectivity which could help reduce logistics cost.



Industry-ready labour

- Limited partnership between industry and skilling ecosystem (ITIs/ polytechnics) is resulting in lack of industry-ready professionals (significant effort and resource deployment for facilitating industry-readiness by each unit).

Machinery and equipment (including electrical machinery)

Globally, the machinery and equipment sector has been estimated to grow at a CAGR of 5 percent to become a US\$772 billion market by 2024.²² The size of the machinery and equipment market in India is estimated at US\$18.8 billion²³.

The sector accounted for 9.5 percent of Karnataka's manufacturing output in FY'18.²⁴ The machinery and equipment sector has registered a CAGR of 5 percent

Machinery and equipment



Source: Deloitte analysis based on trade data from International Trade Centre (ITC) and Directorate General of Commercial Intelligence and Statistics, Government of India Ministry of Commerce and Industry

²⁰ Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

²¹ Deloitte analysis for a HT industrial connection based on tariffs as per Tariff Orders of different states

²² According to research report by Global Market Insights, Inc.

²³ Sub-sectors include Process plant equipment, Earth-moving and mining machinery, Printing machinery, Food processing machinery, Dies, moulds and press tools, Textile machinery, Machine tools, Plastic machinery, Metallurgical machinery.

²⁴ Registered factory data as per Annual Survey of Industries, FY'12 and FY'18

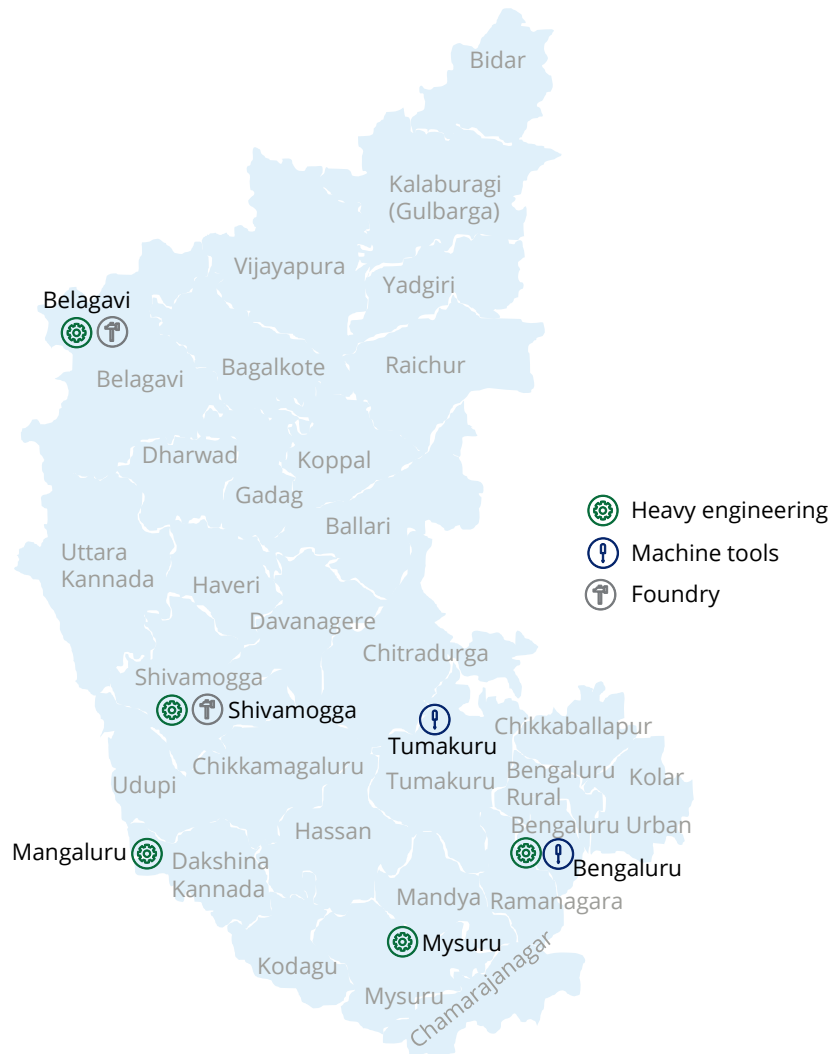
between FY'12 and FY'18.²⁴ It has employed about 104,800 people in FY'18.²⁴ The chart alongside highlights the key machinery and equipment clusters in the state:

- Tumakuru: First integrated machine tool park spread across 540 acre with a common engineering centre; training, testing, and R&D facilities
- Foundry clusters in Belagavi and Shivamogga
- Heavy engineering clusters: Heavy engineering industries are mainly concentrated near the clusters of end-users in Bengaluru, Mysuru, Mangaluru, Belagavi, and Shivamogga.

Karnataka is one of the leading machinery and equipment manufacturing states in India with about 50 percent share by output across machine tool production²⁵. The state hosts a favourable ecosystem for heavy engineering manufacturing units, including public sector units (PSUs), Multinational Corporations (MNCs), and Micro, Small and Medium Enterprises (MSMEs). In Karnataka, special purpose machinery output is second highest in the country with a 16 percent share²⁶; Bengaluru produces 60 percent of the total machine tools in the country²⁷. Karnataka is also the second-highest heavy electrical machinery producing state in the country with a 12.5 percent share²⁶.

One of the key facets of the machinery and equipment sector in the state is the fact that it produces more of special purpose machinery than general purpose machinery, highlighting presence in higher value-added part of the value chain.

Figure 18: Machinery and equipment manufacturing clusters




Source: Deloitte analysis

²⁵ Based on the content from 'https://www.investkarnataka.co.in/machine-tools/'

²⁶ Based on the sector profile from 'http://karnatakaindustry.gov.in/en/images/sectors%20profiles/SECTOR%20PROFILE-HEAVY%20ENGINEERING%20AND%20MACHINE%20TOOLS.pdf'


²⁷ Based on data from https://www.investkarnataka.co.in/machine-tools/

Key challenges faced by sector in Karnataka²⁸




Input linkages

- MSME suppliers of small parts and accessories to larger players have been severely affected by the COVID-19 situation in terms of availability of labour, working capital, etc.; supply chain is affected and the supplier base needs diversification (which may be a time consuming process).
- The foundry sector’s dependence on migrant workers is affecting availability of key inputs, such as “machine base”.



Industrial and logistics infrastructure

- Cost of energy per unit is high, with energy costs estimated at 10-15 percent of the total manufacturing cost for metal foundry units.
- Planning of industrial parks/facilities is limited that affects co-location of metal forming (needs access to low cost power and pollution control norms) and metal cutting units in geographic proximity (affects logistic costs).



Industry-ready labour

- Facilities in ITIs are not sufficient to provide requisite training to help professionals be industry-ready (significant effort and resource deployment to ensure industry-readiness by each unit).

Electronics and hardware

Globally the electronics and hardware component sector has been estimated to grow at a CAGR of 3.4 percent, to become a US\$2 trillion market by 2025.²⁹ India is one of the largest growing electronic markets in the world with a growth rate of 14 percent and a market size of more than US\$200 billion.

Electronics and hardware



Source: Deloitte analysis based on trade data from International Trade Centre (ITC) and Directorate General of Commercial Intelligence and Statistics, Government of India Ministry of Commerce and Industry

²⁸ Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

²⁹ <https://www.maiervidorno.com/india-to-be-next-big-electronics-manufacturing-hub/>

Key challenges faced by sector in Karnataka³³



Input linkages

- Given the limited value addition in India, reliance on import of semiconductor chips for the assembly of electronic products is high (this has been affected on account of the COVID-19 situation; reliance on Taiwan, Japan, Korea, and Germany).



Industrial and logistics infrastructure

- Per unit energy cost is high and estimated at about INR 7.8 per kWh; this is observed to be 2-18 percent³⁴ higher than that in other key electronic hubs, such as Tamil Nadu, Uttar Pradesh, and Maharashtra.
- There is absence of planning of industrial parks/facilities in proximity to airports, given the reliance on air logistics for exim movement.



Industry-ready labour

- Limited partnership between industry and skilling ecosystem (ITIs/ polytechnics) is resulting in lack of industry-ready professionals (significant effort and resource deployment for ensuring industry-readiness by each unit).

Food processing

Globally the food processing sector has been estimated to grow at a CAGR of 4.3 percent, to become a US\$ 4.1 trillion market by 2024.³⁵ In India, the sector's market size is more than US\$500 billion, accounting for 32 percent of the food market and contributing 11.6 percent of the total employment in the country³⁶.

The food processing sector contributed 17 percent to Karnataka's manufacturing output in 2017-18.³⁶ The sector registered a CAGR of 10.7 percent over 2012-18 and had an employee base of more than 1.2 lakh people in the state in 2017-18.³⁷ Figure 20 highlights the key food processing clusters in the state:

Food processing



Source: Deloitte analysis based on trade data from International Trade Centre (ITC) and Directorate General of Commercial Intelligence and Statistics, Government of India Ministry of Commerce and Industry

³³ Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

³⁴ Deloitte analysis for a HT industrial connection based on tariffs as per Tariff Orders of different states

³⁵ <https://www.businesswire.com/news/home/20190904005488/en/Global-Food-Processing-Market-Report-2019-Trends>

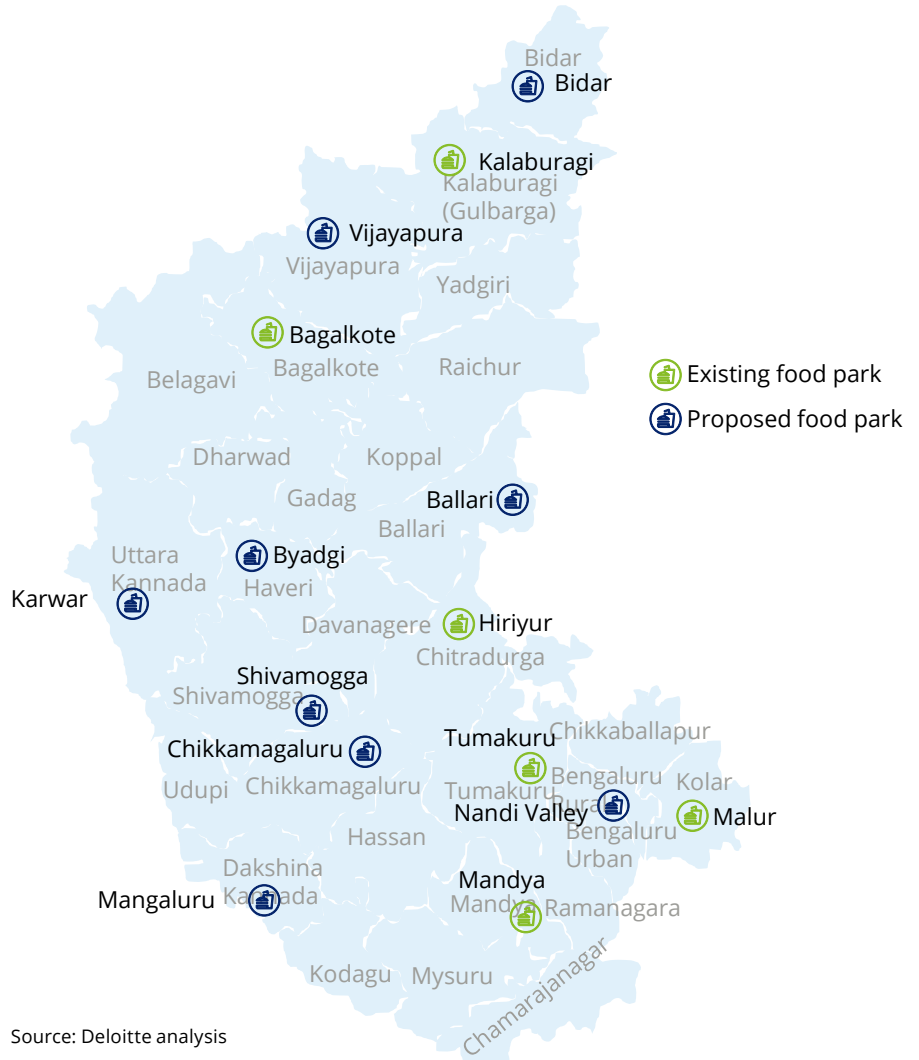
³⁶ <https://www.investindia.gov.in/sector/food-processing>

³⁷ Registered factory data from Annual Survey of Industries, 2017-18

- Existing food parks: India Food Park (Tumakuru), Favorich Mega Food Park (Mandya), Akshaya Food Park (Hiriyur), Jewargi Agro Food Park (Kalaburagi), and Green Food Park (Bagalkote)
- Proposed food parks: Vijayapura Food Park, Shivamogga Food Park, Sea food park (Mangaluru), Spice park (Byadgi and Karwar), In-land fisher park (Ballari), Wine Park (Nandi Valley), Soya Processing Park (Bidar), and Coffee Park (Chikkamagaluru)

Karnataka accounts for 70 percent of coffee production and 33 percent of silk production in India³⁸. It is also the leading producer of grapes, sapota, cashew nut, rose onion, gherkin, green chili, tamarind, sunflower, and byadgi chilli. The vast coastline of the state yields 650,000 tonnes of marine production and offers varieties such as oil sardines, Indian mackerel, threadfin beams, and squids³⁹. Karnataka is one of the leading states in horticulture crops, such as plantation crops with a 27 percent share in India's production and flower production with a 12 percent share of India's production⁴⁰. The state occupies a prominent place in the food processing sector with over 65 percent of its total geographical area under agriculture cultivation³⁸.

Figure 20: Food processing clusters



³⁸ <http://unikwan.com/projects/invest/wp-content/uploads/2019/10/Agri-and-food-processing.pdf>

³⁹ <https://www.investindia.gov.in/state/karnataka>

⁴⁰ Based on 'Horticulture Statistics at a Glance 2018' published by Government of India Ministry of Ministry of Agriculture & Farmers' Welfare Department of Agriculture, cooperation & Farmers' Welfare Horticulture Statistics Division

Key challenges faced by sector in Karnataka⁴¹



Input linkages

- Availability of key raw materials from other parts of the country is affected by the COVID-19 situation, resulting in lower output.
- Seasonal industries, such as mango and sea food that rely on labour availability, have been affected due to reduced availability of migrant labour.



Industrial and logistics infrastructure

- Inadequate supporting infrastructure limits expansion of the industry (in terms of both investment and exports) that includes the following
 - Absence of specialised and scientific storage facilities lead to product damages, and affect availability of end-product.
 - Inadequate port infrastructure and inability to handle freight efficiently increases turnaround time, thereby affecting exports.
- Investment in operation and maintenance of government-owned food parks is limited.



Industry-ready labour

Lack of skilling for high-end roles, such as quality control, R&D and regulatory experts, hampers product development and innovation in the industry. Dedicated industry-oriented training programmes are offered only by a few selected institutions, such as Central Food Technological Research Institute (CFTRI).

Pharmaceuticals (including biotech and chemicals)

Globally, the pharmaceutical sector has been estimated to grow at a CAGR of 6.0 percent to become a US\$2.1 trillion market by 2025⁴² and the biotechnology sector has been estimated to grow at a CAGR of 8.8 percent to become a US\$742 billion market.⁴³ The Indian domestic pharmaceutical market is estimated to reach US\$20.03 billion, with estimated exports of US\$19.1 billion in 2018-19.⁴⁴ The estimated value of the Indian biotechnology sector was US\$64 billion in 2019 and expected to reach US\$150 billion by 2024-25⁴⁵.

Pharmaceuticals (including chemicals)



Source: Deloitte analysis based on trade data from International Trade Centre (ITC) and Directorate General of Commercial Intelligence and Statistics, Government of India Ministry of Commerce and Industry

⁴¹ Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

⁴² Facts and Factors market research

⁴³ Polaris market research

⁴⁴ Department of Commerce, GoI

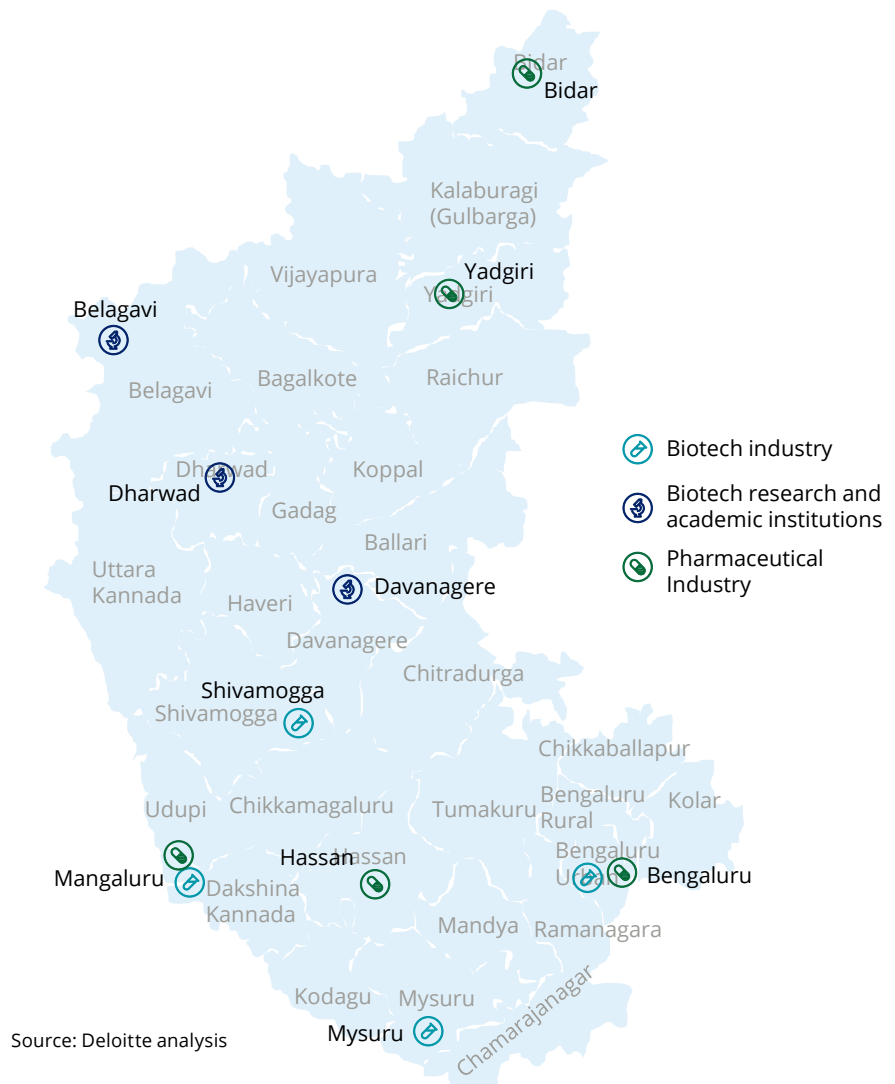
⁴⁵ Sector is divided into five major segments- bio-pharma, bio-services, bio-agri, bio-industrial, and bio-informatics

The pharmaceuticals sector (including chemicals) accounted for 4.6 percent of Karnataka’s manufacturing output in FY’18⁴⁴. The sector has registered a CAGR of 10 percent between FY’12 and FY’18, and employed about 44,675 in FY’18.⁴⁶ The chart alongside highlights the key pharmaceuticals/bio-technology clusters in the state:

- Pharmaceutical clusters/parks in Bidar, Bengaluru, Mangaluru; pharmaceutical SEZs in Yadgiri, Hassan
- Biotech clusters in Bengaluru, Mysuru, Mangaluru
- Biotech research and academic institutions at Bengaluru, Mysuru, Mangaluru, Shivamogga, Davanagere, Dharwad, and Belagavi.

Karnataka accounts for about 10 percent share in the country’s revenue from the pharmaceutical sector; it was ranked fifth in pharmaceutical exports from India⁴⁷. The state hosts more than 221 formulation units and 74 bulk drug units⁴⁸. The state is the biotech capital of India hosting 60 percent of the country’s biotech companies, and contributes more than 35 percent to biotech exports from the country⁴⁹. The state has a strong presence of biotech research and academic institutions, including Indian Institute of Science (IISc), National Centre for Biological Sciences (NCBS), and Institute of Bioinformatics and Applied Biotechnology (IBAB). Bengaluru ranks as the best place for innovative biotech start-ups in India. One of the key facets of the biotech sector is that it is the first state to have a specific biotech policy and established a bio innovation centre in Bengaluru – a state-of-the-art incubation centre catering to the biotech industry. This move highlights the creation of the necessary innovation ecosystem to drive the sector’s growth in the state.

Figure 21: Pharmaceuticals and biotech clusters



Source: Deloitte analysis

⁴⁶ Registered factory data per Annual Survey of Industries, FY’12 and FY’18

⁴⁷ Based on the content from <https://www.investkarnataka.co.in/biotech-pharmaceuticals-medical-devices/>

⁴⁸ Based on data from <http://kiadb.in/wp-content/uploads/2017/02/Pharma.pdf>

Key challenges faced by sector in Karnataka⁵⁰



Input linkages

- Lack of adequate production of APIs and intermediates locally is leading to excessive dependence on imports, particularly on China. Due to reliance of sector on imports for key inputs, companies are facing potential supply disruptions caused by the COVID-19 outbreak.



Industrial and logistics infrastructure

- Availability of quality utilities at competitive prices is a key for this sector. In Karnataka, industry ends up paying INR 15-20 per unit of power on account of investment in backup power equipment. High per unit energy cost is estimated at about INR 7.8 per kWh, which is observed to be 2-18 percent⁵¹ higher than that in other key pharmaceutical hubs in Telangana and Andhra Pradesh.
- Limited economies of scale resulting in each unit having to invest in site infrastructure and utilities, which is affecting cost competitiveness.



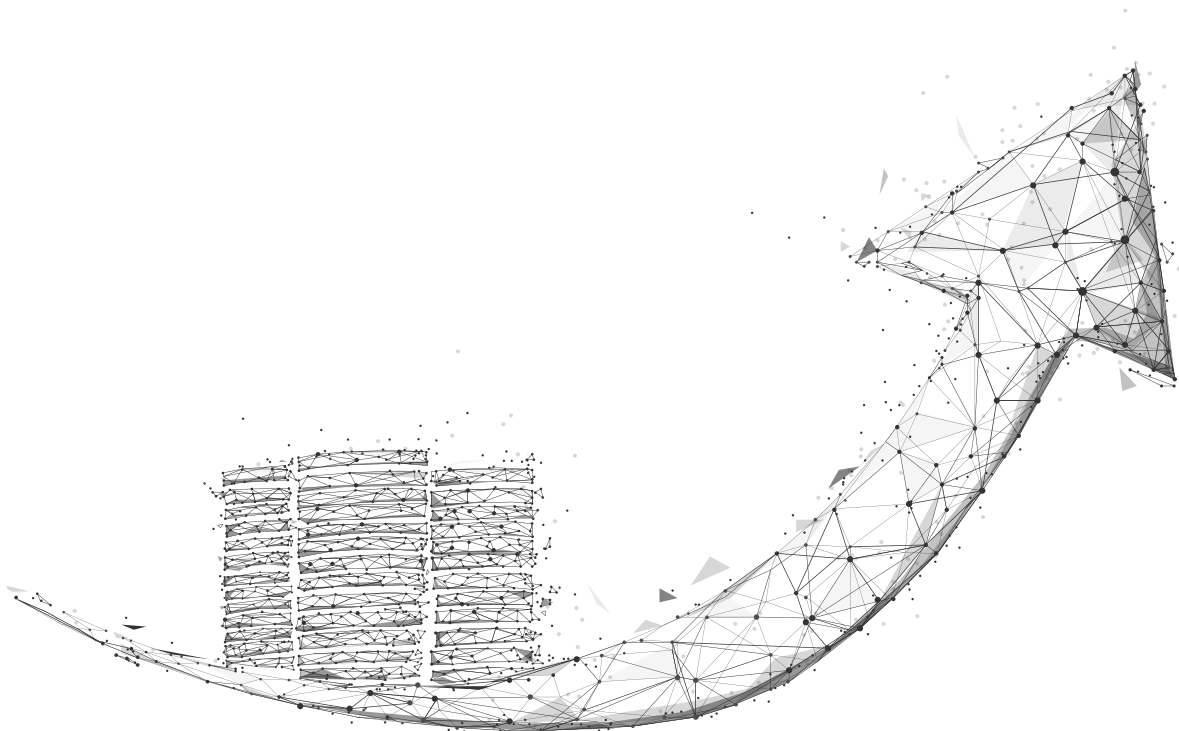
Industry-ready labour

- Availability of skilled labour with requisite skills to adhere to stringent quality and compliance requirements of the industry, is limited.



Business regulatory environment

- The business regulatory environment is a key concern as the industry faces a high burden of compliance requirements of more than 100 pieces of legislation (including central and state).



⁵⁰ Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

⁵¹ Deloitte analysis for a HT industrial connection based on tariffs as per Tariff Orders of different states

Textiles (readymade garments, RMG)

Globally, the textile sector has been estimated to grow at a CAGR of 4.4 percent, to become a US\$1.2 trillion market by 2024.⁵² The Indian market size of textile and apparel sector for FY'19 is estimated at US\$150 billion⁵³. It is the third-largest exporter of textile and apparel globally. It is also the second-largest employer in the country providing employment to more than 45 million people⁵⁴.

The sector accounted for 4 percent of Karnataka's manufacturing output in 2017-18⁵². The textile (RMG) sector has registered a CAGR of 8.1 percent between FY'12 and FY'18, and employed more than 2.8 lakh people in 2017-18.⁵⁵ The chart alongside highlights the key garment clusters in the state.

- Existing clusters: Tumarikoppa (Dharwad), Gokak Taluk (Belagavi), Amlapur (Bidar), Kolar, Bengaluru Urban (Silk City), Mandya (GM Textiles), and Tumakuru
- Proposed clusters: Denim Park (Ballari), Binary Apparel Park (Chitradurga), Ramanagara (Magadi Taluk), and Bagalkot

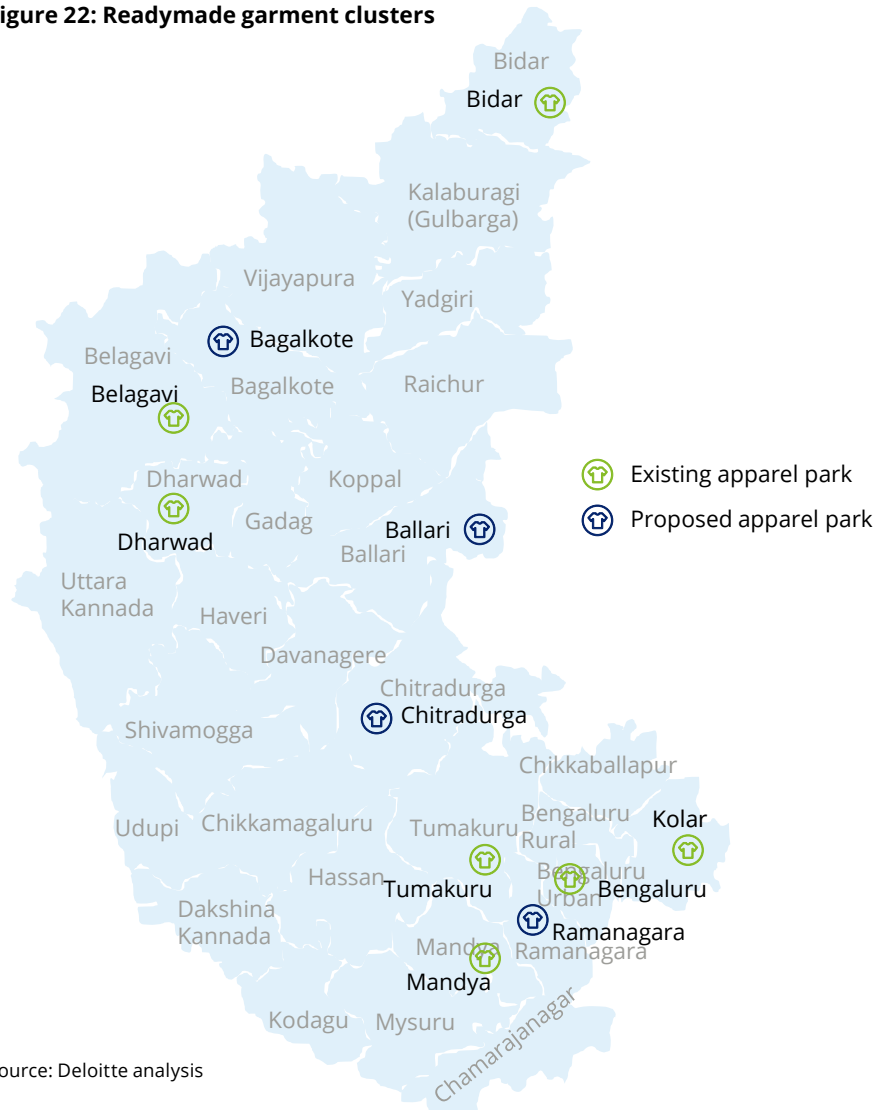
Karnataka is the garment capital of India with a 20 percent share in national garment production⁵⁶. The state accounts for 65 percent of silk production, 12 percent of wool production, and 6 percent of cotton production in the country⁵⁷. The textile sector occupies a key position in the economy of Karnataka, with integrated apparel and textile clusters and textile parks (a driving force for the industry's growth in the state). The following chart depicts the typical value chain for the textile (including RMG) sector, and highlights the segments where Karnataka has a presence.

Textiles (readymade garments)



Source: Deloitte analysis based on trade data from International Trade Centre (ITC) and Directorate General of Commercial Intelligence and Statistics, Government of India Ministry of Commerce and Industry

Figure 22: Readymade garment clusters



Source: Deloitte analysis

⁵² <https://www.mordorintelligence.com/industry-reports/global-textile-industry---growth-trends-and-forecast-2019---2024>
⁵³ Based on 2Confederation of Indian Textile Industry, Annual Report 2018-2019
⁵⁴ <https://www.investindia.gov.in/sector/textiles-apparel>
⁵⁵ Registered factory data per Annual Survey of Industries, 2017-18
⁵⁶ Based on data from <http://unikwan.com/projects/invest/wp-content/uploads/2019/10/Textile-and-Garmet-Sector.pdf>
⁵⁷ Based on data from <http://unikwan.com/projects/invest/wp-content/uploads/2019/10/TextileSectorProfile.pdf>

Key challenges faced by sector in Karnataka⁵⁸



Input linkages

- Changing pollution norms in China and Europe has led to an unprecedented rise in prices of basic raw materials, such as acetic anhydride, sodium bicarbonate, and caustic soda flakes that are imported from these countries. The price of oil used to make synthetic fabrics, such as polyester and rayon, have also increased by more than 50 percent in a year. The COVID-19 situation is further affecting prices as well as the small and medium industries that dominate the sector.



Industrial and logistics infrastructure

- Lack of integrated textile parks with co-location of key value-chain activities affects logistics cost given the need for multiple movement of intermediates to neighbouring states for specific value-addition.
- Inadequate port infrastructure (and heavy reliance on one port viz. Tuticorin Port) has led to a low level of reliability in the fulfilment of delivery deadlines, high transaction costs, and low level of direct foreign investments.
- Energy cost is high and competing state governments, such as Maharashtra, are offering subsidised power tariffs (power tariff subsidy at INR 2 per unit for power looms, cloth processing garment, and hosiery units).



Industry-ready labour

- Lack of relevant skill development programmes and state-of-the-art training institutes for workers hampers productivity, and lead to increased amount of delayed deliveries and quality rejections.

⁵⁸ Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

E-commerce and logistics

Globally e-commerce sales have been estimated to increase at a CAGR of 17.0 percent to become a US\$6.5 trillion market by 2023⁵⁹ and the global logistics market is expected to reach US\$12.3 trillion by 2022, with a CAGR of 3.5 percent.⁶⁰ India is the second-fastest growing country in retail e-commerce sales, with a growth rate of over 54 percent in the past five years. The market size of the Indian e-commerce industry is estimated to be US\$50 billion in 2018. It is expected to reach US\$200 billion by 2027⁶¹.

The logistics industry in India is presently valued at more than US\$200 billion and poised to grow at a CAGR of 10.5 percent⁶². Logistics costs in India are estimated to be 13-14 percent of gross domestic product (GDP) compared with 8-10 percent in developed countries⁶³. The Indian logistics sector is evolving rapidly due to demand-side factors, such as increasing e-commerce, emerging business models involving specialised third-party operators (3PL, 4PL, and 5PL players), technological disruptions (e-marketplace), and policy interventions. According to the 'Logistics Ease Across Different States' (LEADS) 2019 survey by the Ministry of Commerce and Industry, Karnataka is ranked seventh with an index score of 3.37. Score by indicator vis-à-vis the best state is illustrated in the figure.

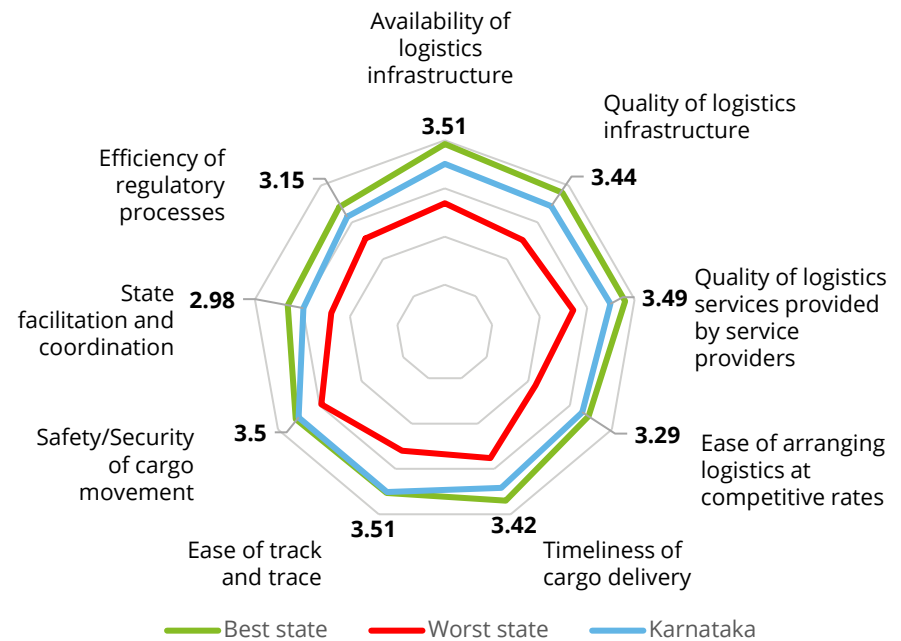
Karnataka has emerged as a hub for e-commerce companies as Bengaluru hosts several large e-commerce companies of India, including three of the top 10 e-commerce companies of the country. Figure 24 highlights the key e-commerce, related warehousing, and logistics clusters in the state.

E-commerce



Source: Share of total global retail sales from <https://www.statista.com/statistics/534123/e-commerce-share-of-retail-sales-worldwide/>; share of India's retail sales from <https://static.investindia.gov.in/s3fs-public/2020-06/Retail%20Sector%20Brochure.pdf>; Top retailers in Karnataka from <https://disfold.com/top-e-commerce-sites-india/>

Figure 23: Performance of Karnataka in LEADS-2019



Source: Deloitte analysis based on a LEADS 2019 report published by the Ministry of Commerce and Industry, GOI

⁵⁹ Based on <https://www.emarketer.com/content/global-e-commerce-2019>

⁶⁰ Based on <https://www.alliedmarketresearch.com/press-release/logistics-market.html>

⁶¹ Based on <https://www.statista.com/statistics/792047/india-e-commerce-market-size/>

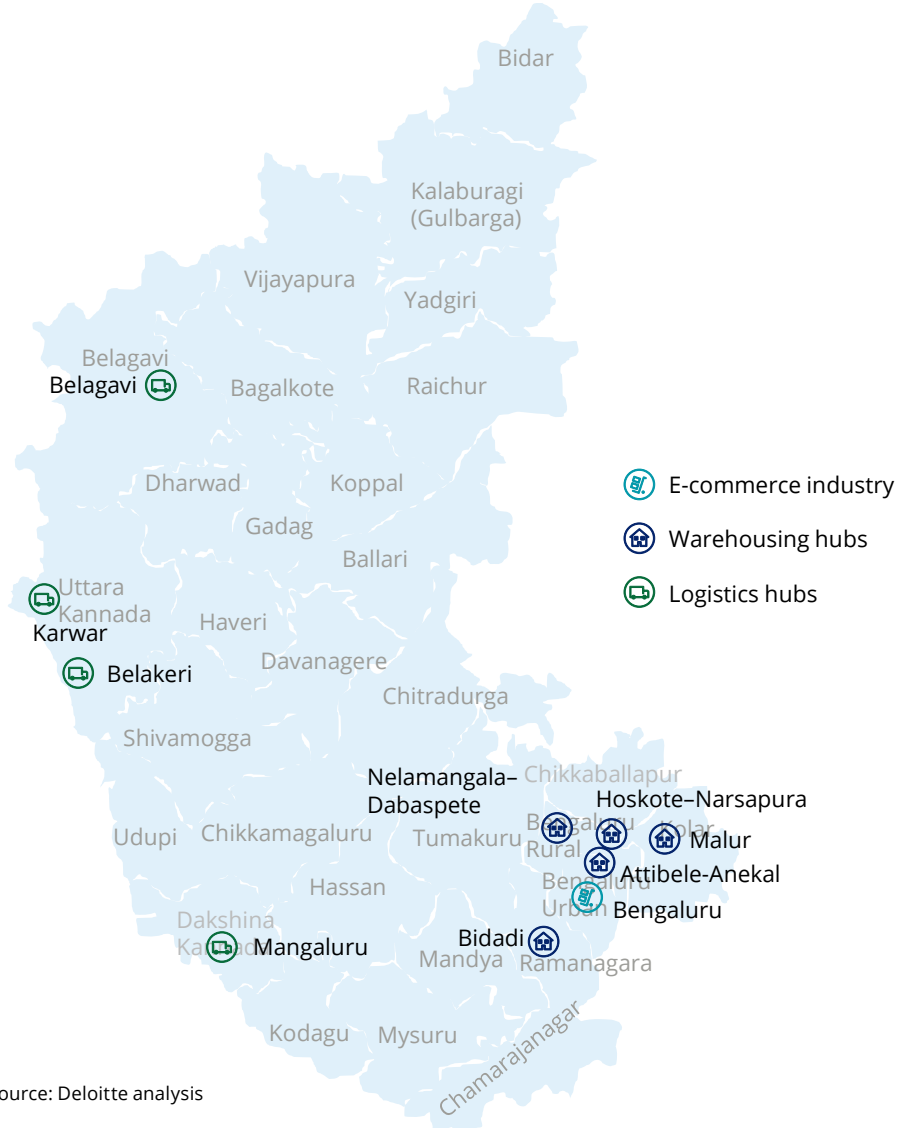
⁶² Based on LEADS 2019 report, https://commerce.gov.in/writereaddata/UploadedFile/MOC_637051086790146385_LEAD_Report.pdf

⁶³ Based on <https://economictimes.indiatimes.com/news/economy/policy/multimodal-logistics-park-policy-on-the-anvil/articleshow/66202088.cms>

- E-commerce: Bengaluru cluster hosting a multitude of e-commerce companies.
- Existing warehousing clusters: Nelamangala-Dabaspete, Hoskote-Narsapur, Attibele-Anekal with major e-commerce players, being occupiers
- Logistics facilities: Inland Container Depot (Bengaluru) through ports at Chennai and Cochin, new Mangalore port, Karwar and Belekeri ports, container freight station (Belgavi, Mangaluru, and Bengaluru), and Bengaluru International Airport

The e-commerce sector in Bengaluru accounts for 35 percent of the overall warehousing space leased across sectors in the city.⁶⁴ Bengaluru's warehousing witnessed over 6 million sq. ft. absorption in 2018, at a massive growth rate of 147 percent year-on-year surge over the previously recorded transactions in 2017⁶¹.

Figure 24: Key ecommerce, related warehousing and logistics hubs



Source: Deloitte analysis

⁶⁴ Based on data from the report 'India Warehousing Market Report, 2019' published by Knight Frank India

Key challenges faced by sector in Karnataka⁶⁵



E-commerce market place platforms

- Operations are limited during the lockdown with delivery restricted to essential goods. This has negatively affected the industry's growth.
- Lack of transparency and credibility issues around user review and rating policy of some e-commerce platforms affects sellers' ability to compete effectively.
- Platform neutrality is an issue mainly on account of a) platforms' own private-label products being in direct competition with other brands in the same product categories and b) a set of platforms' 'preferred sellers' enjoying preferential treatment.
- Platforms are allegedly exploiting their superior bargaining positions by imposing 'unfair' contract terms.



Industrial and logistics infrastructure

- The industry is facing issues related to procurement operations and transportation due to the lockdown.
- Lack of an end-to-end integrated logistics platform and poor last-mile connectivity in tier 2 and 3 cities are hindering the industry's growth.
- Significant investments in captive logistics infrastructure by e-commerce companies to cater to high-quality service delivery are driving delivery costs.

⁶⁵ Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

Information technology and information technology enabled services (IT and ITeS)

Globally the IT and ITeS sector has been estimated to grow at a CAGR of 4.4 percent, to become a US\$2 trillion market by 2024.⁶⁶ In India, the market size of the sector is more than US\$175 billion. The sector has been the largest contributor to the country's total exports, with greater than 55 percent share in the global outsourcing market.

The sector accounted for 25 percent of Karnataka's GDP in 2017-18.⁶⁷ The IT and ITeS sector registered an investment growth at a CAGR of 8.7 percent between 2010 and 2016, and employed more than 12 lakh people in 2017-18. The chart alongside highlights the key IT and ITeS clusters in the state:

- Bengaluru: Electronic City, Pritech Park, Gopalan, Vrindavan Tech Village, Global Village, and Bagmanne
- Hubballi-Dharwad: Incubation facility
- Mysuru
- Shivamogga: Karnataka State Electronics Development Corporation Limited (KEONICS)
- Mangaluru: Incubation facility

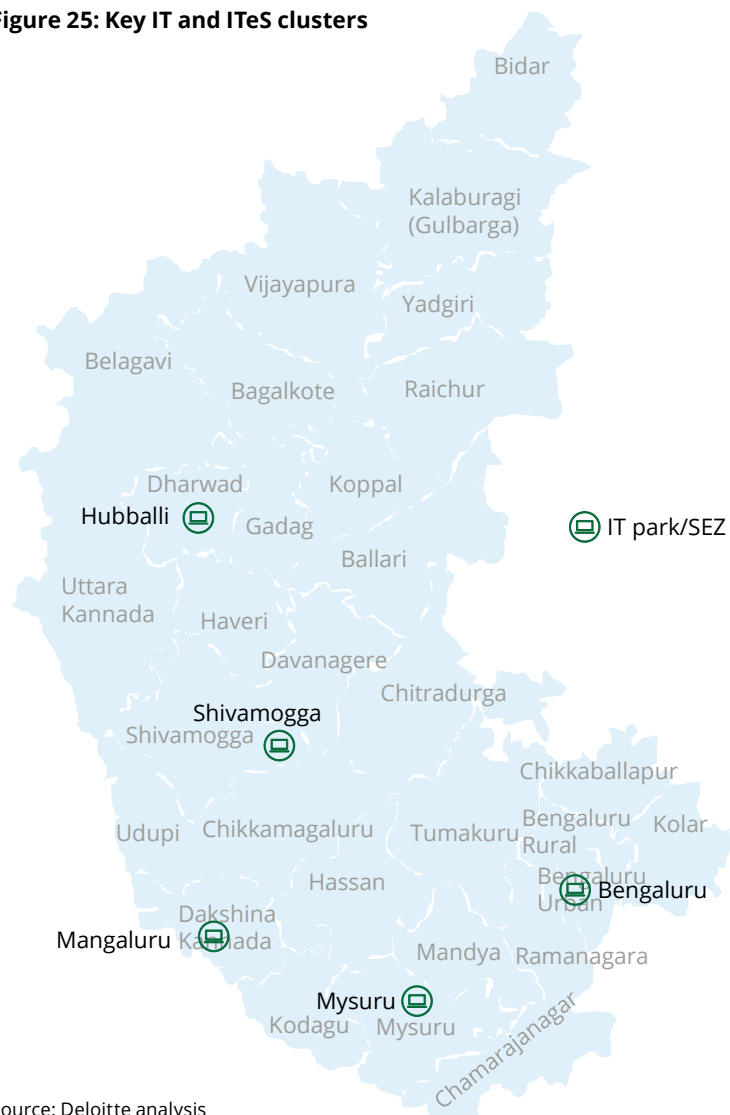
Karnataka is the IT hub of India with more than 50 IT/ITeS SEZs⁶⁸ and dedicated IT investment regions. It is the fourth-largest technological cluster in the world.⁶⁹ The state has over 3,500 IT companies contributing more than US\$32 billion in exports⁷⁰. It is the largest hub of software technology parks in the country and has the second-fastest growing start-up ecosystem in the world. Bengaluru has emerged as the IT start-up capital of India with more than 30 percent of national share⁷¹.

IT and ITeS sector



Source: Share of global services exports from https://www.icsi.edu/media/webmodules/publications/CS_CorporateSaviour_ITandITeSIndustry.pdf; share of India's service exports from <https://www.ibef.org/download/IT-ITeS-Report-July-2018.pdf>; share of Karnataka's service exports from <https://www.thehindubusinessline.com/opinion/editorial/its-right-to-unionise/article27688829.ece>

Figure 25: Key IT and ITeS clusters



Source: Deloitte analysis

⁶⁶ <https://www.ibef.org/archives/detail/b3ZlcnZpZXcmMzc2NTMmODk=>

⁶⁷ Based on data from Economic Survey of Karnataka, 2019-20

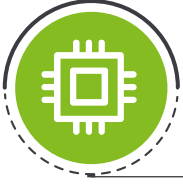
⁶⁸ Based on data from <https://pib.gov.in/PressReleasePage.aspx?PRID=1578141>

⁶⁹ Based on data from <https://india.highcommission.gov.au/ndli/HOMspeech181119.html>

⁷⁰ Based on data from <https://www.investindia.gov.in/state/karnataka>

⁷¹ Based on data from <http://ficci.in/spdocument/20885/Towards%20Making%20Bengaluru%20R&D%20Capital%20of%20India%20Report.pdf>

Key challenges faced by sector in Karnataka⁷²



Adaptability to changing technologies

- New-age exponential technologies, such as artificial intelligence, IoT, cybersecurity, blockchain, and robotic process automation (RPA), has put extreme pressure on industries to remain competitive at the global level.



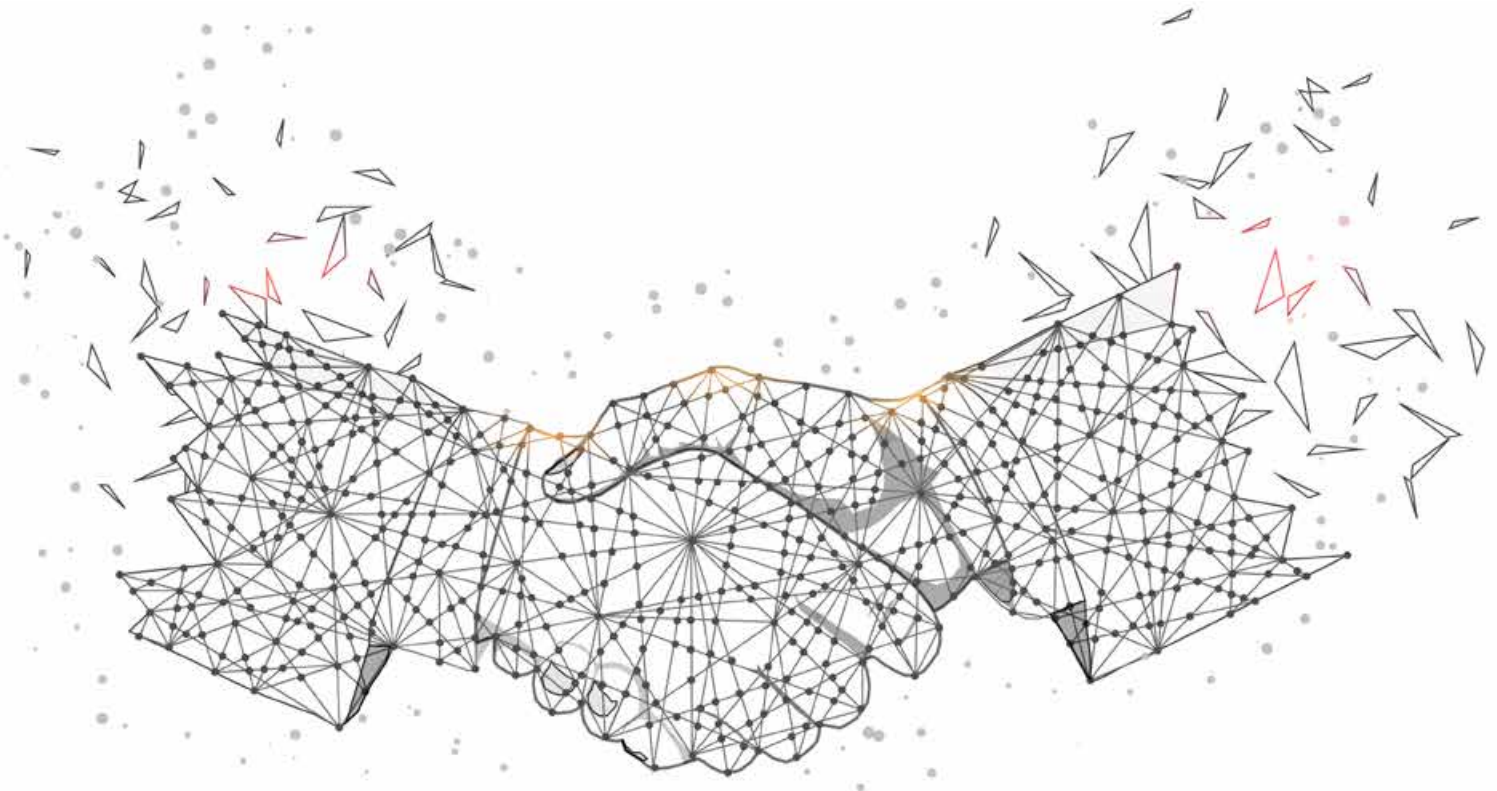
Service delivery disruption

- Travel restrictions, coupled with client confidentiality clauses and work from home advisories (due to the COVID-19 situation), is disrupting effective service delivery.
- Expected reduction in IT spending by US and European countries is expected to affect sustained growth registered by this sector.



Industry-ready labour

- Several jobs at the mid-level are becoming redundant or changing dynamically due to changing technologies. Massive reskilling in exponential technologies is required swiftly and calls for academic institutions to update their curriculum in line with evolving industry requirements.



⁷² Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

Education

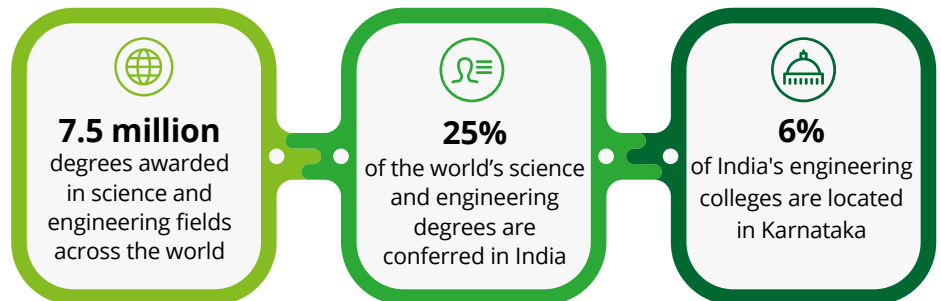
Globally expenditure on education is estimated to grow at a CAGR of 4 percent to become a US\$7.8 trillion market by 2025.⁷³ The education industry in India has registered growth of 10 percent in 2018-19. It is currently estimated at US\$ 101 billion.⁷⁴

Karnataka has emerged as one of the most popular destinations for education. It is considered a knowledge hub due to the presence of prestigious research and educational institutions across the state. The state has the highest number of colleges per lakh population (53 colleges per lakh population) with 3,670 total number of colleges in the state⁷⁵. The Bengaluru urban district is the largest education hub in the state and also tops in the country in terms of number of colleges with presence of 880 colleges⁷². There are over 240 engineering colleges and 278 diploma (polytechnic) institutes in the state⁷⁶. Also, with presence of more than 734 EdTech start-ups, Bengaluru has emerged as an EdTech hub of India.

The chart alongside highlights the key education hubs in the state:

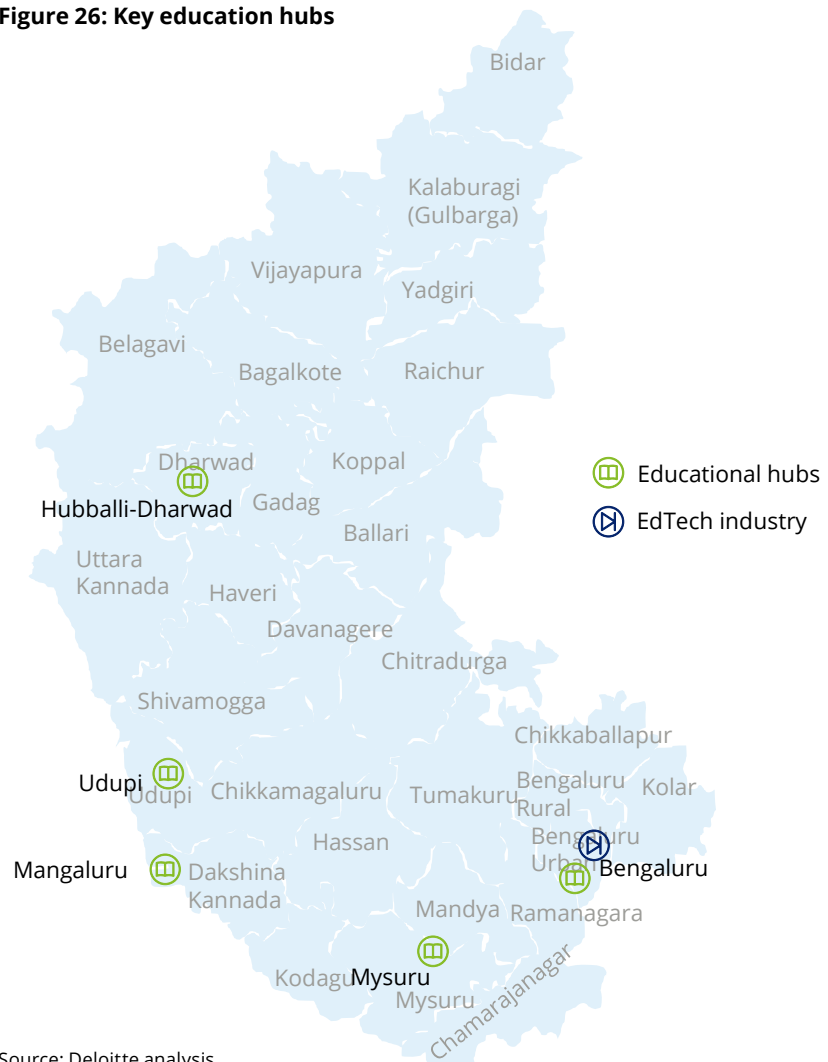
- Bengaluru: Key public institutions- Indian Institute of Science (IISc), Indian Institute of Bangalore (IIMB), Jawaharlal Nehru Centre of Advanced Scientific Research, National Law School of India University of Agriculture Sciences, etc.; private institutions include Reva University, Aziz Premji University, M.S. Ramaiah University of Applied Sciences, Rai Technological University, Christ University, etc.
- Mysuru: Visvesaraya Technological University, University of Mysore, JSS Polytechnic, Central Institute of Plastic Engineering and Technology, Central Food Technological Research Institute, etc.

Education



Source: Number of science and engineering graduates in the world and share of India from <https://www.nsf.gov/statistics/2018/nsb20181/assets/nsb20181.pdf>; Share of India's engineering colleges based on data from <https://facilities.aicte-india.org/dashboard/pages/dashboardaicte.php>

Figure 26: Key education hubs



Source: Deloitte analysis

⁷³ HoloniQ, Smart Estimates

⁷⁴ IBEF

⁷⁵ Based on All India Survey on Higher Education (AISHE) 2018-19 https://mhrd.gov.in/sites/upload_files/mhrd/files/statistics-new/AISHE%20Final%20Report%202018-19.pdf

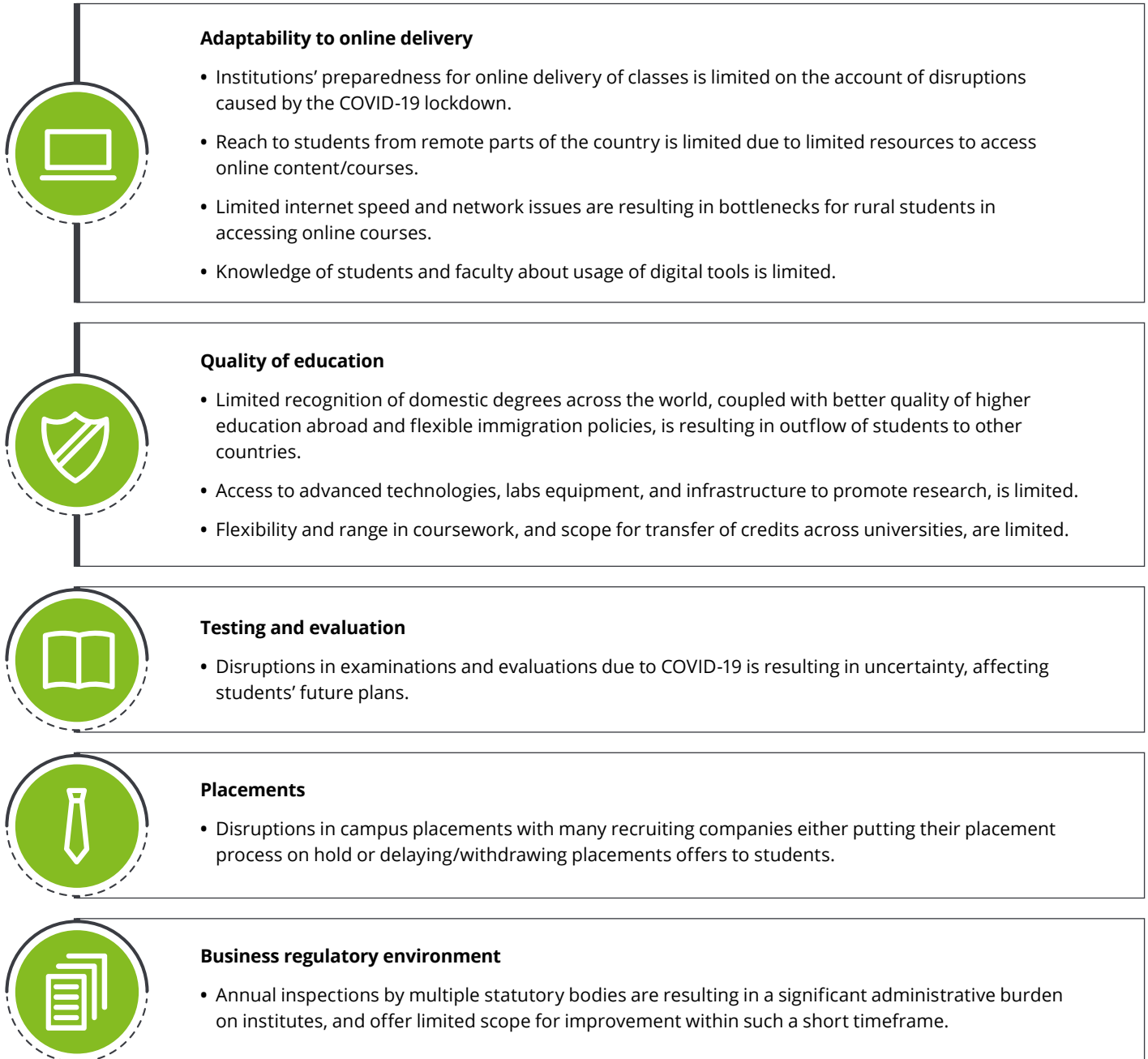
⁷⁶ Based on Economic Survey of Karnataka, 2019-20

- Mangaluru: National Institute of Technology, Mangalore University, NITTE University, Manipal College of Dental Sciences, AJ Institute of Medical Sciences, etc.
- Udupi: Manipal Academy of Higher Education, Manipal College of Health Professions, NMAM Institute of Technology, etc.
- Hubballi-Dharwad: Karnataka University, University of Agricultural Sciences, Karnataka State Law University, SDM Medical and Dental College, IIT Dharwad, IIIT Dharwad, etc.
- EdTech in Bengaluru

Karnataka is one of the most preferred destinations attracting students not only from other states but also from other countries. According to All-India Survey on Higher Education (AISHE) conducted by the Ministry of Human Resources Development, Karnataka is the most sought-after destination for higher education amongst foreign students. Since 2012-13, Karnataka's share of foreign students in India is between 20 percent and 35 percent⁷². In 2018-19, the state had 10,023 foreign student enrolments (highest in the country), with a 21 percent share in the total foreign students enrolled in India⁷².

⁷² Based on the interactions with select companies which are based in Karnataka and Deloitte analysis

Key challenges faced by sector in Karnataka⁷⁷



⁷⁷ Based on the interactions with select companies which are based in Karnataka and Deloitte analysis



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