



The U.S.-India dynamic - prospering together

Annual AMCHAM Door Knock

June 2018

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Foreword - KPMG in India

The annual AMCHAM India Door Knock in Washington D.C. is an occasion for leaders of U.S. businesses in India to meet with policy makers in Washington. Before my move back to India after decades in the U.S., I served in the U.S. Administration for three years. There, as Assistant Secretary of Commerce for Global Markets, mine was one of those doors on which AMCHAM knocked. I was always pleased to meet with AMCHAM delegations from around the world; I found in AMCHAM India a deep desire to raise the game in the U.S.-India economic relationship.

In my time in Commerce, I saw that India was clearly an area with the highest upside in terms of market potential. I must say that my 16 months in India have confirmed that observation. India is opportunity-rich. I have not seen such demand, such attractive markets, since my dot com days in Silicon Valley.

Consumer demand is rising. Infrastructure spend is increasing. The focus on Ease of Doing Business is resulting in tangible progress. The new Insolvency and Bankruptcy Code is a very significant reform. GST is underway creating a common market in India for the first time.

There is energy around entrepreneurship. There are 5000 tech startups, making India the second most attractive entrepreneurship area after Silicon Valley. Many state governments are promoting entrepreneurship, applying carefully targeted strategies.

The India opportunity cannot be ignored. Its economy is now the world's third-largest⁰¹, in terms of purchasing power parity. In nominal dollar terms, it is the size of the economy of the U.K., an advanced industrial economy. The U.S.-India bilateral relationship is on a positive trend. Bilateral trade grew by over 10 percent in 2017 to reach USD126 billion⁰², making India America's ninth largest trading partner.

But that's not good enough. India accounts for far too little of America's trade. China's trade with the U.S. is six times larger than India's. Another example is South Korea – whose bilateral trade relationship with the U.S. in terms of volume is twice that between India and the U.S., while its GDP is 40 percent smaller than India's. Indeed, India ought to be America's fourth largest trading partner.

India, for its own growth, needs to increase the proportion of trade as a component of its GDP. The country cannot grow at the rates it needs to achieve without growing trade. And the U.S. has to become a significant part of that growth.

The AMCHAM delegation's visit to Washington will undoubtedly play its part in moving the U.S.-India engagement in a positive direction. KPMG is proud to work with AMCHAM in this endeavour as its knowledge partner and to present this report on the bilateral economic relationship including key opportunities and challenges faced by U.S. companies operating in India.

Arun M. Kumar

Chairman and CEO

KPMG in India

01. India Overtakes Japan as World's Third Largest Economy' World Bank

02. India U.S. trade touched USD126 billion in 2017; The Hindu

Foreword - AMCHAM India

The economic partnership has been the driver of the U.S.-India relationship. While U.S. companies have been operating in India since 1902, the partnership came to fruition in the 1990s with the opening up of the Indian economy. Currently, more than 1,000 American companies synergize their core competencies to enhance their global businesses. The comprehensive government to government engagement created the U.S.-India Trade Policy Forum and U.S.-India Commercial Dialogue which met in October 2017 and the upcoming U.S.-India 2+2 Dialogue later this year, seeking closer collaboration on common interests. Industry participation across the spectrum of aerospace, defence, civil aviation, infrastructure, energy, education, agriculture, etc. created the framework for significant growth in the partnership.

India is emerging as the fastest growing economy and an important economic partner for the U.S. With the government's emphasis on technology and innovation, digitization, manufacturing, Smart Cities, infrastructure, energy, agriculture and food processing, there

exists tremendous potential for enhancing the economic partnership. Both countries face common challenges of terrorism and cyber security in digital economies, hence sharing of technologies and innovations are vital to further strengthening the bilateral relationship.

AMCHAM India, and KPMG in India as its knowledge partner, have highlighted the overview of the U.S.-India economic partnership and some of the key issues and concerns of U.S. companies in India.

We look forward to identifying additional issues to be raised at the appropriate government platforms in both countries.

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India: Reform, transform, perform



India is not just a 1.2 billion plus marketplace but is being increasingly recognised as a driver for global growth and conduit of regional stability. Indians today are more assertive and global in their outlook, be it in government or industry. The country's economy is expected to continue to drive growth, not just in the Asia Pacific region, but at a global level, proving itself more resilient than ever.

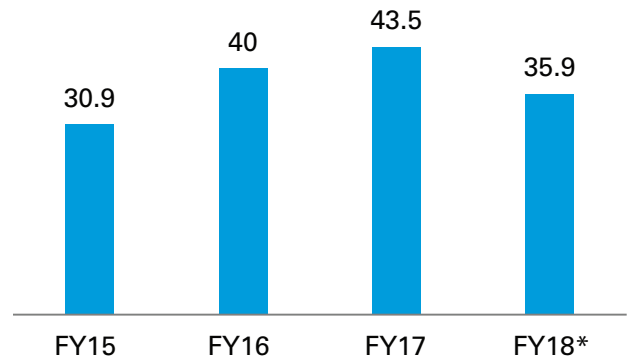
Comprehensive fiscal, monetary and international policies along with the implementation of several domestic reforms have strengthened the Indian economy significantly. Unprecedented reforms such as demonetisation, the introduction of Goods and Services Tax (GST) and the Insolvency and Bankruptcy Code (IBC) have raised the bar for reforms further.

The government's policy on overseas investments has evolved with time, thereby reflecting a positive change in the mind set of Indian companies. Increasingly Indian companies are looking to invest in foreign markets in a bid to increase market share, reduce costs, acquire talent / technology as well as establish a global footprint.

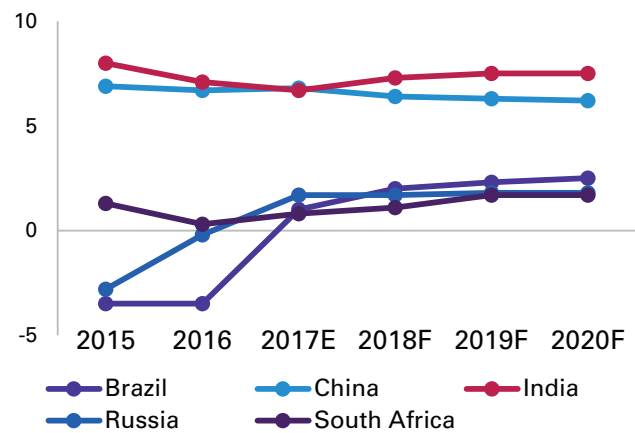
The rebound in growth lately has put the economy back on track and one can expect that the country is set for a strong recovery, post the initial reforms related disruption sparked by GST and demonetisation. With election year on the anvil, the government is working towards sustaining this growth momentum, by taking steps towards reviving private investment, infrastructure spending and improving the business climate. As the country's growth continues to drive consumption, there is an increasing focus on structural change with respect to technology adoption, financial inclusion and digital connectivity to improve India's global competitiveness.



FDI inflows (USD billion)⁰¹



Real GDP growth (per cent): BRICS nations⁰²



01. Fact sheet on Foreign Direct Investment (FDI) from April, 2000 to December 2017, DIPP, Last accessed on 22 May 2018; *FY18 Data is from April 2017 to December 2017
 02. Global Economic Prospects, World Bank Flagship Report, January 2018

Mega trends shaping India's growth story^{01,02,03}



Rapid urbanisation



- Rise in smaller urban clusters-driving the urbanisation story
- North East to become India's gateway to East Asia & ASEAN

Increased focus on infrastructure development



- Smart Cities Mission directly benefited 95 million across 90 cities
- 175 GW of renewable energy targeted to be generated by 2022

Growing consumerism



- One of the leading retail investment destinations in the world
- Domestic air traffic passengers crossed the 100 million mark

Digitally connected



- Internet users to reach 500 million by June 2018
- More than 100,000 smart display screens across 2175 railway stations planned for deployment through the Railway Display Network project launched by Indian Railways

Formalised economy to maintain global competitiveness



- Improved ranking in global index of talent competitiveness
- Insolvency and Bankruptcy Code (IBC) along with bank recapitalisation expected to spur growth

Financial inclusivity



- 80 per cent of Indian adults today have bank accounts. The Digital Initiative has helped improve the reach of formal financial services to geographically remote regions
- Proposed health cover for 500 million Indians as part of the National Health Protection Scheme

India's growth story continues to progress and evolve. The visible outcomes of the structural reforms are currently at a nascent stage and the positive changes in key metrics of the Indian economy will be visible over a period of time. The government needs to act quickly to mitigate ongoing risks around the restrained ability of the public sector banks to support lending, the risk of monetary tightening, tariff wars, and the negative

impact of higher crude oil prices on purchasing power of consumers and corporate earnings. There needs to be a focussed effort by the government to address the ongoing labour market rigidities in order to create more jobs. This will ensure the country's rich demographic dividend is effectively leveraged to further drive the country's consumption story in times to come.

01. Indian Railways to become the largest DOOH network in the world, Business Wire India, 01 June 2018
02. India Soars Higher, KPMG, 2017

03. Voluntary National Review Report on the Implementation of Sustainable Development Goals, 2017, Last Accessed on 01 June 2018

U.S.-India bilateral relationship



Overview^{01,02,03,04,05,06,07,08,09}

Today, India and the U.S. exemplify a global strategic collaboration. Both countries have over the years engaged in an effort to increasingly consolidate this strong and strategic partnership in key sectors such as aerospace and defence, banking, financial services, insurance, chemicals, dedicated freight corridors, energy and infrastructure.

The re-invigorated government to government exchanges, increasing recognition of the role of the

Indian American diaspora and gradual convergence of strategic interest on regional and global issues have stepped up the momentum of bilateral cooperation between both countries. With the growing presence of the U.S. companies operating in India along with an increasing footprint of Indian companies in the U.S. the private sector, including small and medium enterprises, is expected to play a pivotal role in defining the future of this bilateral relationship.

India is the 9th largest trading partner of the U.S.

The U.S. is India's largest trading partner

Indian visitors spent nearly USD13 billion in the U.S., making it the sixth largest market for U.S. travel and tourism

About 5 per cent of the unicorns in the U.S. are headed by Indian origin founders

2.4 million Indian residents in the U.S., second largest diaspora, with a median income of USD107,000

Investment by Indian companies in the U.S. at USD18 billion






R&D spending stands at USD 588 million

About 0.19 million Indian students in the U.S. An increase of 12 per cent over last year – One of the highest in the world



01. 12% increase in Indian students studying in the U.S in 2017, US Embassy & Consulate in India, June 2018
02. Office of the U.S. trade representative, accessed on 22 May 2018
03. India's Top Trading Partners, World's Top Exports, 4 May 2018
04. America's Top Trading Partners, World's Top Exports, 28 April 2018
05. Indian students in US dwarf America's FDI in India, spend whopping \$6.54 bn, Financial Express, 14 November 2017
06. Mauritius largest source of FDI in India, says RBI, The Hindu Business Line, 19 January 2018
07. Then and now: The role Indians play in America's billion-dollar startup ecosystem, Quartz India, 17 August 2017
08. Indian companies created 1,13,423 jobs in U.S: CII study, The Hindu, 15 November 2017
09. Possible for India to be in top 50 on ease of biz index: FM, The Economic indicators, 27 January 2018

U.S.-India ties^{10,11,12,13,14,15}

 <p>Target to increase bilateral trade in goods & services to USD500 billion by 2025</p>	 <p>Deepen collaboration on defence co-development and co-production</p>	 <p>U.S. funding for technical specialty services to support the Smart City initiative in India</p>	 <p>Four pillars for strategic cooperation on energy:</p> <ol style="list-style-type: none"> 1. Oil and gas 2. Power and energy efficiency 3. Renewable energy and sustainable growth; 4. Coal 	 <p>Collaboration on deploying cutting edge U.S technologies to meet India's growing infrastructure needs</p>
<p>The Trade Policy Forum (TPF) enables U.S. and India to engage on a wide range of policy issues impacting bilateral trade and investment including Intellectual Property (IP), manufacturing, services, and agriculture.</p>	<p>Signed critical agreements such as the Logistics Exchange Memorandum of Agreement and Defence Technology Trade Initiative.</p>	<p>Signed MOU to develop three Smart Cities in Allahabad, Ajmer and Visakhapatnam.</p>	<p>Over USD30 billion contracts signed by Indian companies for U.S.-produced LNG.</p>	<p>Established transportation partnership for co-operation on the transport elements of Smart Cities, intelligent transportation systems, multi-modal planning, livability, safety, and infrastructure financing.</p>

In summary, there is a need to build an economic relationship that can help in creating jobs and opportunities for people in both countries. Expediting the pace of infrastructure development and giving the much needed attention on cybersecurity can help unlock massive commercial opportunities for India and at the same time foster greater collaboration with American companies. Co-operation at a subnational level is increasingly being viewed as a critical factor for economic growth with regions and cities becoming individual markets with specific solution requirements. State-state and city-city collaboration is clearly the way forward.

While the U.S. acknowledges that its relationship with India is one of the most important bilateral relationships in the world, market access, high tariff and protection

of intellectual property still remain concern areas expressed by U.S companies operating in India. These discretionary policies are seen to have impacted growth and collaboration in key sectors such as medical devices, pharma, information technology and media and entertainment. The need of the hour for both U.S and India is to manage trade difference efficiently and push forward cooperation in economic and strategic areas where there are overlapping interests.¹⁶

India and U.S have come a long way and today the bilateral relationship is more broad-based and multi-sectoral. If this relationship continues to grow in the right direction, both countries can collectively play an important role in defining the economic relationship of the 21st century.

10. Indo-US bilateral trade can touch USD500 bn by 2025, The Times of India, 28September 2015

11. U.S.-India Commercial, Trade, and Economic Cooperation, U.S. Department of State, 22 September 2015

12. India, US sign military logistics pact, The Hindu, 18 October 2016

13. US, India sign pact for developing 3 Smart Cities in country, The Times of India, 25 January 2015

14. India, US committed to achieving full potential of nuclear cooperation, The Economic Times, 27 June 2017

15. Brief on India-U.S. Relations, Consulate General of India, Accessed on 4 June 2018

16. KPMG in India analysis, 2018

Sector outlook and challenges

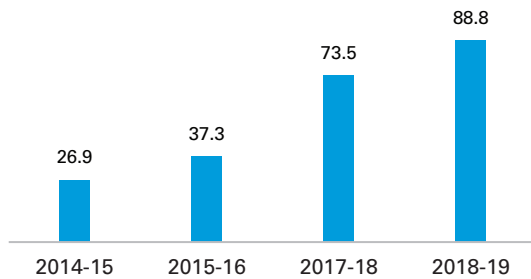


Transportation, logistics and infrastructure



Sector overview

Budget allocations for infrastructure creation and upgrade (USD billion)⁰¹



- USD22 billion towards rail and USD18.0 billion towards road infrastructure allocated for 2018-19
- USD30.3 billion allocated in 2018 for the development of 99 Smart Cities across India⁰²
- USD0.61 billion earmarked for modernisation of old airports, creating minor airports and helipads, in the current year⁰³

Roads

- USD118 million worth of highways projects would commence in 2018, under the Bharatmala programme⁰⁴
- Newer models to increase public private partnerships (PPP) - Hybrid Annuity Model (HAM) and Toll operate Transfer (ToT). Innovative financing such as the Infrastructure Investment Trusts are also gaining momentum

Railways

- The Indian Railways is expected to execute projects worth USD127.8 billion by 2030 to expand and build rail infrastructure⁰⁵

Smart Cities⁰⁶

- USD7.5 billion to be invested over five years in 99 cities – each Smart City will get USD15.6 million each
- 99 winning proposals till date – USD31.4 billion total investment in roads, ICT, water, waste management, education, health, transportation, social infrastructure, etc.

Smart City Mission dashboard

Round #	Winning Proposals	Total Urban Population Impacted
Round 1	20	37,308,257
Fast Track	13	9,456,915
Round 2	27	25,506,844
Round 3	30	23,683,030
Round 4	9	3,531,794

Ports

- The Sagarmala port-development programme would lead to an increase in cargo traffic at Indian ports to close to 2500 MMTPA by 2025, against the current capacity of 1500 MMTPA⁰⁷
- A dedicated company with an authorised capital of USD150 million has been set up to identify projects and assist special purpose vehicles with project implementation

Logistics

- Logistics expenditure at USD309 billion, (13-14 per cent of GDP) - higher than the global average of 8 per cent⁰⁸
- The e-commerce specific logistics market is expected to reach USD2.2 billion by 2020⁰⁹

01. Union Budget 2018: Infrastructure gets Rs 5.97 lakh crore boost, 02 February 2018; Budget 2015: Infrastructure investment to be raised by Rs70,000 crore, Livemint, 01 March 2015

02. Rs 2.04 lakh crore to be allocated for 99 cities under Smart City programme, BusinessLine, February 2018

03. Budget 2018: Why India needs huge funds for infrastructure investment, Financial Express, 06 February 2018

04. What is Bharatmala project? PM Narendra Modi's most ambitious highway development plan, Financial Express, 26 October 2017

05. India soars higher, KPMG, 2018

06. SMARTNET, Ministry of Housing and Urban Affairs, Last accessed on 31 May 2018

07. Govt weighs plan to acquire stressed private port assets, Livemint, 23 May 2018

08. India Warehousing Report, Knight Frank, 2018

09. Fulfilled! India's e-commerce retail logistics growth story, KPMG, 2016 in Appendix to SA 570(Revised).

The U.S.-India dynamic¹⁰

Both the countries in 2017 and the first quarter of 2018, have entered into several multi-lateral agreements to develop infrastructural projects in the Indo-Pacific region

U.S. investors are exploring avenues to enter Indian logistics and warehousing market by collaborating with local land owners or developers¹¹

U.S. companies continue to mine opportunities across the value-chain in the 'Smart Cities Mission', such as smart buildings, public security, health, networking, ICT and waste management

U.S.-India collaboration is expected to bring in synergies in areas such as project planning, infrastructure development, feasibility studies and capacity building

U.S.-based PE investors invested in the development of a logistics facility in November 2017 through the launch of a USD550 million fund¹²

United States Trade and Development Agency (USTDA) in March 2018 hosted an Indian Government delegation for Smart Cities Reverse Trade Mission – aimed at sharing U.S. technological know-how and best practices to facilitate smart infrastructure

A U.S. aircraft manufacturer has quadrupled its sourcing from India to over USD1 billion during the past two years and also formed a joint venture with an Indian company in the state of Telangana

The U.S. Trade and Development Agency (USTDA) is working with the state of Maharashtra to promote value-based procurement¹³

In October 2017, a U.S. conglomerate partnered with Gujarat-based Municipal Corporation and Police for implementing Smart City command-and-control and city-wide surveillance system

A U.S.-based high-speed rail service company (developing a revolutionary train service) may make India its first market ahead of the Middle East, Northern Europe and the U.S.



Smart City 4.0 being launched in India to accelerate technologies and create fundable start-ups for developing Smart Cities¹⁴

10. All currency conversion are at USD1 = INR67.235

11. Morgan Stanley, Allianz to enter Indian logistics, Business Standard, 21 December 2017

12. It's raining funds in logistics, Business Standard, 2 November 2017

13. USTDA Partners with the State of Maharashtra, India to Promote Value-Based Procurement, USTDA, 25 April 2018

14. Smart Cities Mission gets a Berkeley facelift, Sunday Guardian, 14 October 2017

Opportunities and challenges

Opportunities



Government impetus

Infrastructure status to logistics, greater authority to the National Highway Authority of India (NHAI), GST implementation, FDI relaxations in select infrastructure sectors, are some of the recent steps seen to reduce policy implementation and investment bottlenecks

Newer PPP frameworks

To revive the declining PPP investments in the sector, the government has launched newer partnership models including toll-operate-transfer and hybrid-annuity models¹⁵

Tech opportunities arising from Smart Cities

The Smart Cities Mission in India is expected to offer IT opportunities of around USD25 million per city. IoT and M2M technologies are expected to be prime areas of investments¹⁶

Smart health

The Indian government is committed to delivering 100 "Smart Cities" and the healthcare component of these represent a great opportunity for U.S. healthcare players

Enhancing public transport infrastructure

Metro rails and electric buses have rapidly gained acceptance in India. With eight metro rail networks operational, another fifteen projects are being planned^{17,18}

Rail modernisation

Modernisation plans that are currently being evaluated include revamping the entire signalling systems, electrification of network, expansion of WiFi and installation of escalators at busy stations^{19,20}

Ports and waterways

The Sagarmala project will modernise existing ports and develop new ones for better cargo and freight movement. In January, the government announced a USD798.5 million project to develop the National Waterway-1²¹

Make in India

Expansion of manufacturing activities as part of the government's "Make in India" initiative to drive output in different sectors will, in turn, create demand for warehouses and logistics support

Challenges



Regulatory hurdles

Challenges in terms of permits for construction, access to electricity and licences, land acquisition issues and environmental compliance continue to impact sector dynamics

Industry structure

The Indian warehousing and logistics market is unorganised and highly fragmented, resulting in high logistics costs

E-way bill

GST's implementation will depend on the success of the e-way bill. The verification of e-way bill and relevant documentation can lead to delays

Delays in project completion

Infrastructure projects continue to face time overruns, owing to several inherent factors such as delayed clearance, land acquisition issues and fund constraints²²

Readiness gaps to be smart

Majority of Indian cities are expected to grapple with the challenges of inadequate municipal support infrastructure, unfitting basic civic amenities and a rising population while designing and implementing the Smart City plan²³

Inadequate regulatory framework for Smart Cities

The current regulatory framework for Smart Cities in India does not have adequate provisions for protecting the big data that will result from Smart City implementation²⁴

15. NHAI signs first TOT agreement with Australia's Macquarie, The Economic Times, 27 April 2018
16. Indian Smart Cities: A Pool of IT Opportunities, Enterprise IT World, 01 March 2017
17. How metro rail networks are spreading across India, livemint, 16 July 2017
18. Electric buses: An opportunity to transform public transport in India, Forbes India, 14 February 2018
19. Indian Railways, French firm tie up for high-speed rail corridors development, Zee Business, 16 May 2018
20. Indian Railways back to the drawing board on many key modernisation plans after Modi rider, Economic Times, April 13, 2018
21. Govt approves Rs 5,369-cr waterway project on NW-1, The Hindu Business Line, 03 January 2018
22. Project delays, cost overruns continue to plague infra sector, Business Standard, 19 August 2017
23. Choosing Smart Cities easy, implementing change will be the challenge, Hindustan Times, 13 March 2017
24. Demystifying the current state of India's ambitious Smart City Mission, Digit, 31 January 2018

Cybersecurity

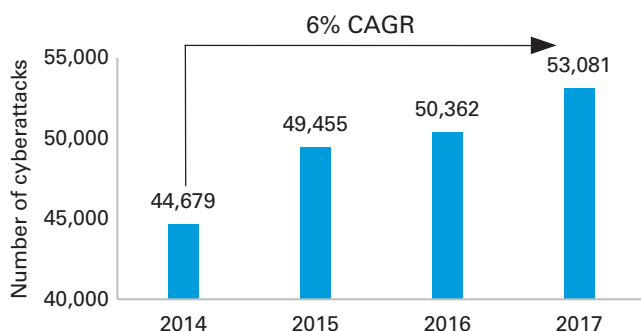


Sector overview

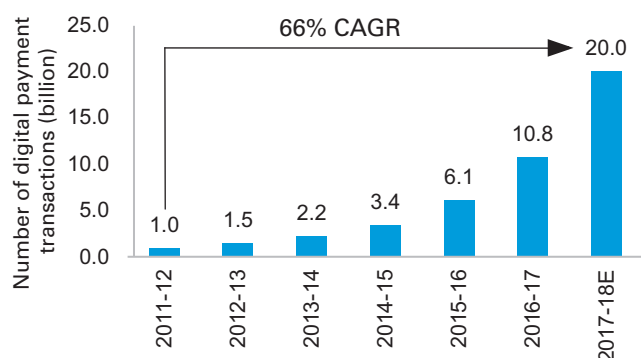
Cybersecurity is gaining importance at the back of increased cyberattacks. Estimates suggest that Indian companies have lost USD500,000 to cyberattacks over the last 18 months.⁰¹

Increased smartphone penetration and mobile data consumption have accelerated digital adoption, thus driving the need for increased cybersecurity investments.

Cyberattacks in India on the rise⁰²



Digital payment transactions rising exponentially (billion)⁰³



Increasing internet penetration poses higher risk of cyberattacks^{04,05}

Government of India (GoI) expenditure on cybersecurity

GoI has mandated all ministries to earmark 10 per cent of their Information Technology (IT) budgets for cybersecurity⁰⁶

Focus on initiatives to increase awareness on cybersecurity

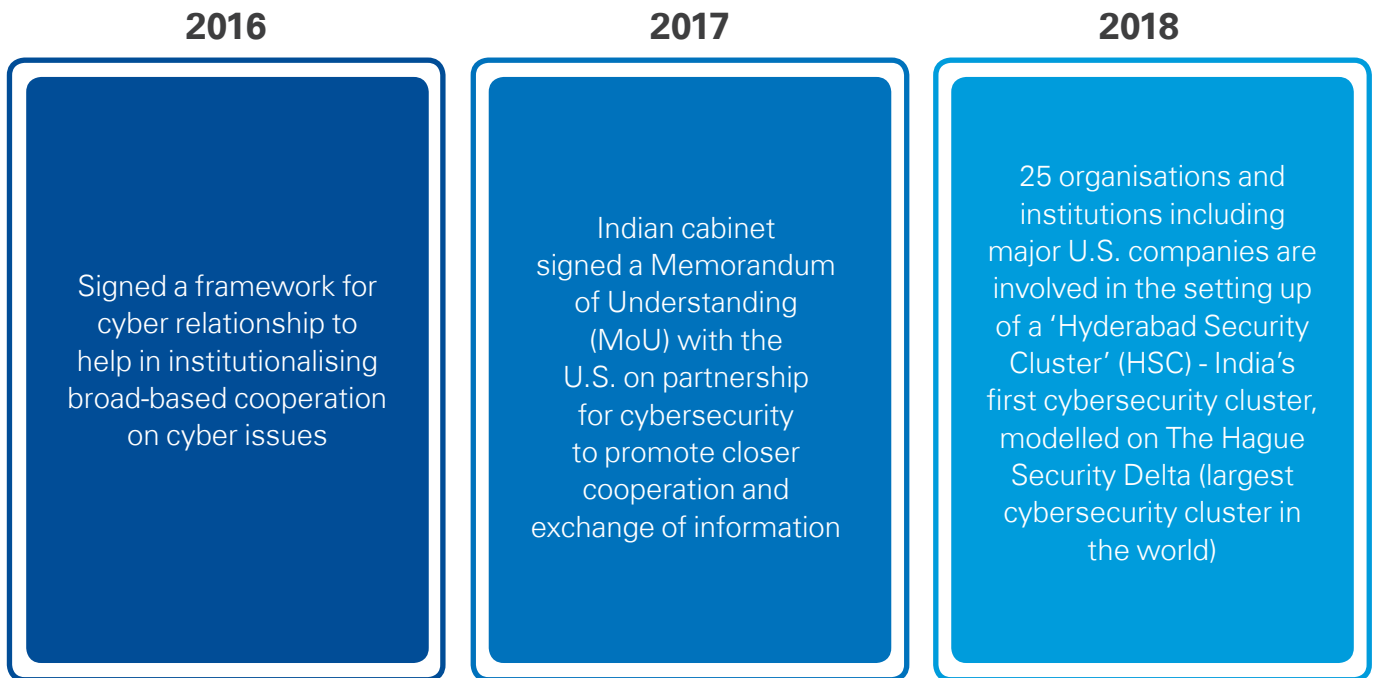
GoI has planned various initiatives to increase awareness on cybersecurity as part of its National Cyber Security Policy⁰⁷

Create 1 million jobs in the cyber industry in terms of services and products

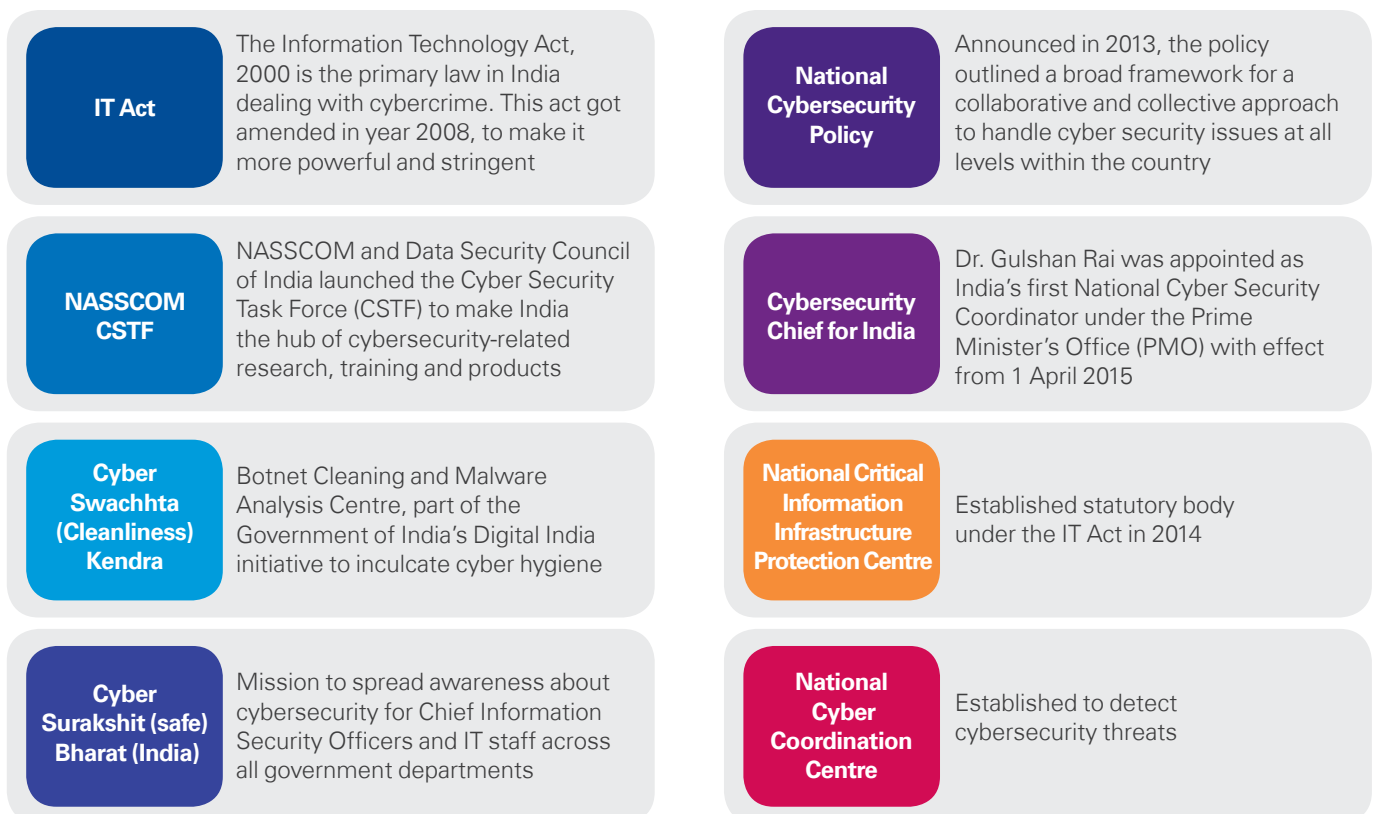
01. Indian companies lost \$500,000 to cyber-attacks in 1.5 years, The Economic Times, 21 February 2018
 02. Over 53,000 cyber security incidents observed in 2017, Business Line, 9 February 2018
 03. Annual Report 2017-18, Ministry of Electronics and Information Technology, Accessed on 15 May 2018
 04. IAMAI and Kantar IMRB: Mobile Internet in India 2017, IAMAI, 20 February 2018

05. eMarketer report: US Digital Users, eMarketer, 7 March 2018
 06. MEITY: Ministries must spend 10% of IT budget on Cybersecurity, The Economic Times, 02 September 2017
 07. National Cyber Security Policy, MEITY, Accessed on 15 May 2018

The U.S.-India dynamic^{08,09,10}



Government initiatives^{11,12}



08. India-US to sign framework for cyber relations, Indian Express, 8 June 2016

09. Cabinet approves Indo-US MoU on partnership for Cyber Security, Economic Times, 23 March 2017

10. India's first cyber security cluster to come up in Hyderabad, Times of India, 25 March 2018

11. Indian Government initiatives to tackle cybersecurity issues, Ministry of Communication & Information Technology, Accessed on 04 June 2017

12. MEITY launches Cyber Surakshit Bharat to strengthen Cybersecurity, Business Standard, 20 January 2018

Opportunities and challenges

Opportunities



Rapid digitisation

Increasing e-commerce penetration, interest in cloud adoption by government agencies and digital wallets are expected to drive robust demand for cybersecurity investment. It also presents opportunities for innovative products and services¹³

Association with established players

Opportunities for established U.S. players, as companies prefer to associate their cybersecurity solutions with established large companies. Investment opportunity in Indian cybersecurity start-ups is also expected to provide opportunities for U.S. operators to deploy technology and resources¹⁴

Federal and state level partnerships

Significant opportunity for U.S. companies to collaborate with central and state governments as cybersecurity remains a top priority for Govt. For example, a state government in collaboration with an Indian IT company has launched its own cybersecurity operations centre to monitor security requirements of its websites¹⁵

Defence collaborations

Cybersecurity is expected to play a pivotal role in strengthening bilateral defence cooperation

Challenges



Budgetary allocation

The current budgetary allocation for cybersecurity in India not in line with the policy priorities

Preferential market access

National security concerns could result in preferential market access in favour of Indian companies and to the detriment of U.S. companies. This also inhibits optimal provisioning of cloud computing hindered by artificial restraints on cross border data flow

Absence of standard structure

Lack of adequate cybersecurity standards and a comprehensive framework has resulted in a weaker cybersecurity ecosystem in the country. An additional burden on foreign companies has been imposed by mandating local testing¹⁶

Lack of skilled resources

Shortage of world class certified cybersecurity professionals^{17,18}

Lack of coordination between key agencies

Low level of coordination between regulatory bodies such as the National Technical Research Organization (NTRO) and the Ministry of Communications and Information Technology¹⁷

13. Information security spending in India to grow 12% to \$1.5 billion: Gartner, The Economic Times, 29 August 2017
14. India's Cyber Security Startups Are Gaining Traction, Thanks To Demonetization, Forbes, 2 February 17
15. Tech Mahindra sets up "Cyber Security Operations Centre in AP, Business Standard, 23 April 2018
16. India third most vulnerable country to cyber threats, The Hindu, 5 April 2018
17. Cyber Security Landscape in India: Innovation Norway, Accessed on 15 May 2018
18. Cyber security: 1 million cyber security professionals needed by 2020, The Economic Times, 25 August 2015



Energy and natural resources



Sector overview

Four pillars for India's energy future



The 3-D's of the energy sector impacting India

3-D's

Decarbonisation

The shift away from fossil fuels to cleaner energy sources reduces carbon emissions and improves air quality

Decentralisation

Moving away from a centralised grid towards distributed generation

Digitalisation

Use of technology to ensure consistent and secure power supply as the grid becomes more complex

The Indian energy sector is likely to offer investment opportunities worth USD300 billion in the next 10 years⁰². Oil will continue to have the dominant share in the energy mix of the country with a growing dependency on gas. Refining capacity is being augmented to meet the growing demand for petroleum fuels and petrochemicals, which play a significant role in sustaining GDP.



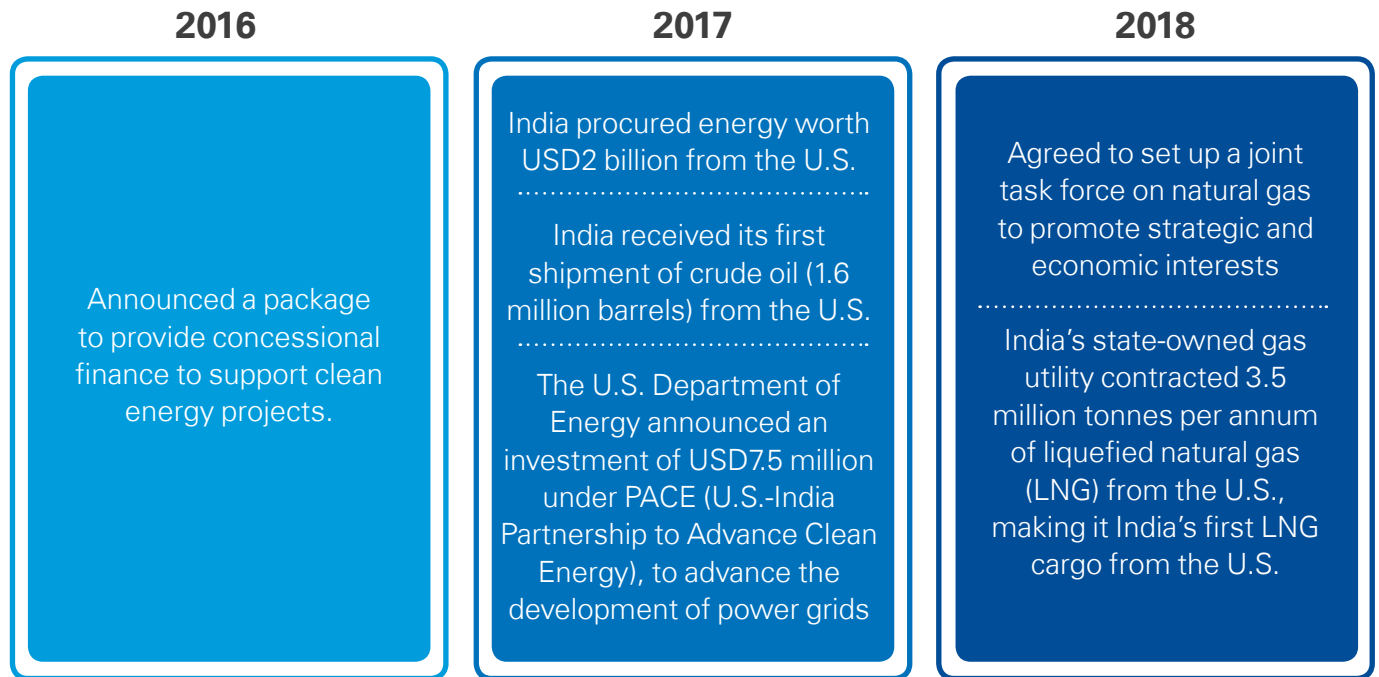
01. Key Economic Indicators, Office of the Economic Adviser, April 2018

02. India energy sector to offer \$300 bn opportunities in 10 yrs, The Times of India, 10 October 2017

The U.S.-India dynamic⁰³

The energy co-operation dynamic between countries have been evolving over the last few years. U.S. continues to collaborate across the broad range of energy segment, be it traditional energy sources like

oil, or LNG or through other sources like coal and renewable energy. There exists tremendous potential in civil nuclear, infrastructure, efficiency and technologies such as energy storage and smart grids.



Opportunities and challenges

Opportunities



Smart infrastructure

India is expected to invest USD45 billion in smart grid infrastructure in the next 10 years⁰⁴. A joint five-year project was announced wherein the U.S. plans to spend USD7.5 million to advance the development of India's power grid⁰⁵

Electric vehicles

India's plan to become a 100 per cent electric vehicle nation by 2030⁰⁵ is expected to create a significant opportunity for battery manufacturers, and could enable U.S. players to join the power distribution infrastructure for vehicles.

Challenges



Operational bottlenecks in renewable energy segment

In 2017, new investments in clean energy dropped by 20 per cent as a result of a number of cancelled auctions and renegotiated power contracts⁰⁶. Further, poor bids and cost overruns due to delays in procurement of necessary land, permits, and mismanagement of funds led to projects failures

Withdrawal of government incentives

While the government intends to create a market-run power sector through withdrawal of tax breaks, the removal of LNG subsidies and generation-based incentives has not gone down well with the industry.

03. First ever shipment of crude oil to India arrives at Paradip Port, timesofIndia, assessed 01 June 2018
04. India to Invest \$44.9 Billion in Smart Grid Infrastructure, T&D World, 01 March 2017

05. US announces \$75 million to advance India's power grid, The Economic Times, 21 June 2017
06. Overcoming Operational Bottlenecks Will Be Critical for Growth in India's Renewable Energy Sector, The Energy Collective, 15 March 2018

Opportunities



Petrochemicals

With changing consumer behaviours and government incentives, demand for petrochemicals is expected to reach 83 MMT by 2030 from the current 40 MMT⁰⁶. Technologies from the U.S. could help India bridge the gap faster

Bharat stage VI emission standards

India plans to adopt BS-VI emission norms by 2020⁰⁷, providing an opportunity for U.S. companies to support Indian refiners in upgradation programmes

Shale gas extraction

India, with 96 trillion cubic feet of recoverable shale gas⁰⁸, provides enormous opportunities for U.S. companies

Energy storage

Increase in renewable energy generation⁰⁹ and the issue of regular power outages in India provide a significant opportunity in the area of electrical energy storage

Digital Technologies

Artificial intelligence, Machine to Machine (M2M) technologies and Internet of Things (IoT) solutions across the energy value-chain could garner investment opportunities. In February 2018, an Indian company launched an IoT enabled Artificial Intelligence (AI) platform to remotely monitor energy assets in real time for enhanced operations

Clean carbon

The U.S. plans to promote the use of clean coal technology against the backdrop of the respective countries' leaders working together on 'clean coal' technologies

Electricification

USD2.4 billion programme (Pradhan Mantri Sahaj Bijli Har Ghar Yojana) for universal household electrification in the country is expected to open up opportunities across power generation and distribution, including solar energy¹⁰

Challenges



Payment delays by Discoms

India's renewable energy programme has gained significant prominence amongst a number of foreign investors. However, delay in payments by discoms to power producers could impact investor sentiments

Shortfall of transmission infrastructure

The shortage of gas transmission infrastructure is restricting the flow of gas to the demand centres, thereby leading to low utilisation of the existing gas storage infrastructure

Regulatory strengthening

Aspects such as the frequency and adequacy of tariff revisions, financial and operating autonomy of regulators, and selection process needs to be re-evaluated. Regulatory authorities need better methodologies and processes for examination of capex, demand forecasting and power purchase planning



06. CHT Bulletin, August 2017-February 2018

07. Bharat Stage-VI in 3 years: Race over speed bumps, The Indian Express, 27 February 2017

08. ONGC Plans to Drill 17 Exploration Wells in India's Shale Oil, Gas Blocks, Rig Zone, 26 April 2016

09. India's green energy generation grew 22 per cent in April-December current fiscal, The Economic Times, 27 February 2018

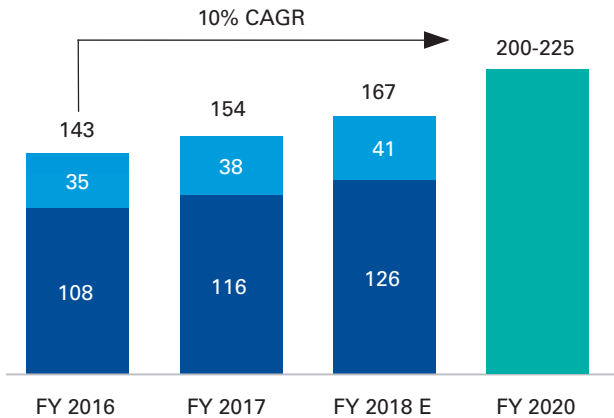
10. Electricity to all: India racing to connect thousands of villages with power, The Economic Times, 01 January 2018

Information communication and technology



Sector overview⁰¹

Indian technology industry is expected to reach USD200-225 billion by 2020⁰²



~7.9 per cent IT contribution to India's GDP

USD1 trillion digital economy by 2023, backed by government initiatives⁰³

55 per cent share in the global sourcing market

75 per cent share in global digital talent



Technology start-ups

Third largest start-up ecosystem
5,200 tech start-ups with 1,000+ added in 2017
USD40 billion+ valuation

Expanding GIC (global in-house centres) base

1,140+ global centres
40 GICs added in 2017, one-fourth of total global additions

Key 2018 themes⁰⁴

Changing industry landscape due to digitisation and disruptive technologies, the industry is re-inventing itself to become "Digital Solutions Partner" for enterprises in India and across the globe with a focus on key themes for 2018.



01. Catalyzing the Ecosystem for A Trillion Dollar Digital Economy, NASSCOM, 20 February 2018
02. India to be \$1 trillion digital economy in 5 years, The Economic Times, 19 February 2018

03. Indian start-ups have potential to be world-class organisations: Nasscom, BusinessLine, 28 May 2018
04. The IT-BPM Sector in India 2018, NASSCOM, February 2018

The U.S.-India dynamic

~60 per cent⁰⁴

of India's IT exports are to the U.S.

~12,000

locals to be hired in the U.S. by two Indian IT firms, which plan to set up five technology and innovation hubs in the U.S.⁰⁵

10,000

of U.S.' H1B visas are issued to Indian IT companies – 15 per cent of total visas issued annually⁰⁶

Six of the top 10 companies that use the visa programme are Indian outsourcing firms



04. Indian IT industry's software exports to grow at 7-8 percent in 2017-18: NASSCOM, Firstpost, 22 June 2017
05. Visa issues can't be complete showstopper for IT industry: NASSCOM, Livemint, 29 March 2018

06. It's important to separate sentiment from facts on H1B visa: Nasscom, ETtech, 27 May 2018

Opportunities



Digital transformation of industry

Gol is focussing on technology initiatives and programs such as Digital India and spending on many digital initiatives such as Aadhaar, e-governance to promote digital inclusion and provide employment. This presents U.S. technology companies with tremendous opportunities to promote high-tech products and services in India⁰⁷

Industry 4.0

Adoption of Industry 4.0 provides massive opportunities for U.S. firms to integrate IoT, cloud computing, big data analytics, additive manufacturing, Augmented Reality, robotics, cyber-security and machine-to-machine (M2M) communication across industries⁰⁸

Rise in IT spending in the banking and securities industry

Increasing IT spend⁰⁹ and adoption of technologies such as AI and blockchain in Indian banking and securities industry provides opportunity for U.S. firms to leverage their technology expertise

Enhancing Indian education ecosystem

ICT deployment in approximately 1 million schools and 18,000 higher educational institutions, along with online coaching and electronic classroom content, offers massive opportunities for U.S. firms¹⁰

Implementation of GST

U.S. companies are likely to benefit from increased technology spend by small and medium businesses in India aided by GST implementation¹¹

Growing Indian healthcare IT

The Indian healthcare IT market, valued at USD1 billion, is projected to grow about 1.5 times by 2020, driven by the privatisation of healthcare and patient-driven healthcare

National cybersecurity policy

Increased sensitivities around data protection, cyber security and customer confidentiality to strengthen IT infrastructure in the country

Increasing social media

Rising internet penetration and usage of social media platforms enable firms to market their products to a wider customer base, which in turn presents great opportunities for U.S. technology firms to leverage their technological expertise

Challenges



Hurdles to ease of doing business in India

Various policies around data protection and privacy, compliance requirements, multiple certifications and retesting, lack of global harmonisation add to the list of barriers that hinders ease of doing business

Increased tariffs

India has raised tariffs on certain high-tech ICT products from zero to between 10 and 20 per cent in 2017 leading to strong concerns from U.S. firms¹³

Data localisation challenges

Restrictive policies mandating data localisation and limiting data flows across borders pose a big challenge to U.S. based companies operating in India¹⁴

Updating government regulations

Inadequately updated regulations such as private and public telephony setups, restrictions on the usage of Voice over IP (VoIP) and newer technologies such as SIP Trunks and restrictive Remote Access (RA) policy, creating hindrances in the ease of doing business for MNCs

Protectionism in the U.S.

Lower corporate taxes from 35 to 21 per cent and base-erosion and anti-abuse tax (BEAT) introduced by the U.S. government should drive re-evaluation of global strategies for U.S. MNCs¹⁵

U.S. Visa policy

Stricter visa policy likely to dampen the ability of U.S. companies to leverage Indian professionals and their expertises¹⁶

Regional geo political climate

Potential sanctions by the U.S. on many countries are expected to impact U.S. companies operating in India

Weak data privacy laws

Several data privacy incidents such as using users' data without permission underline an urgent need for stronger data privacy laws

07. India to be \$1 trillion digital economy in 5 years, The Economic Times, 19 February 2018

08. India's Readiness for Industry 4.0, CII, Accessed on 18 May 2018

09. IT spending by Indian banks to reach \$9 bn in 2017, Business Standard, 13 November 2017

10. Indian ICT revenue to touch US\$ 225 billion by 2020: study, Business Standard, 2 January 2018

11. GST will provide opportunities in domestic market: NASSCOM, NASSCOM, 7 July 2017

12. Twitter India reports 17% increase in revenue for FY17, The Economic Times, 7 December 2017

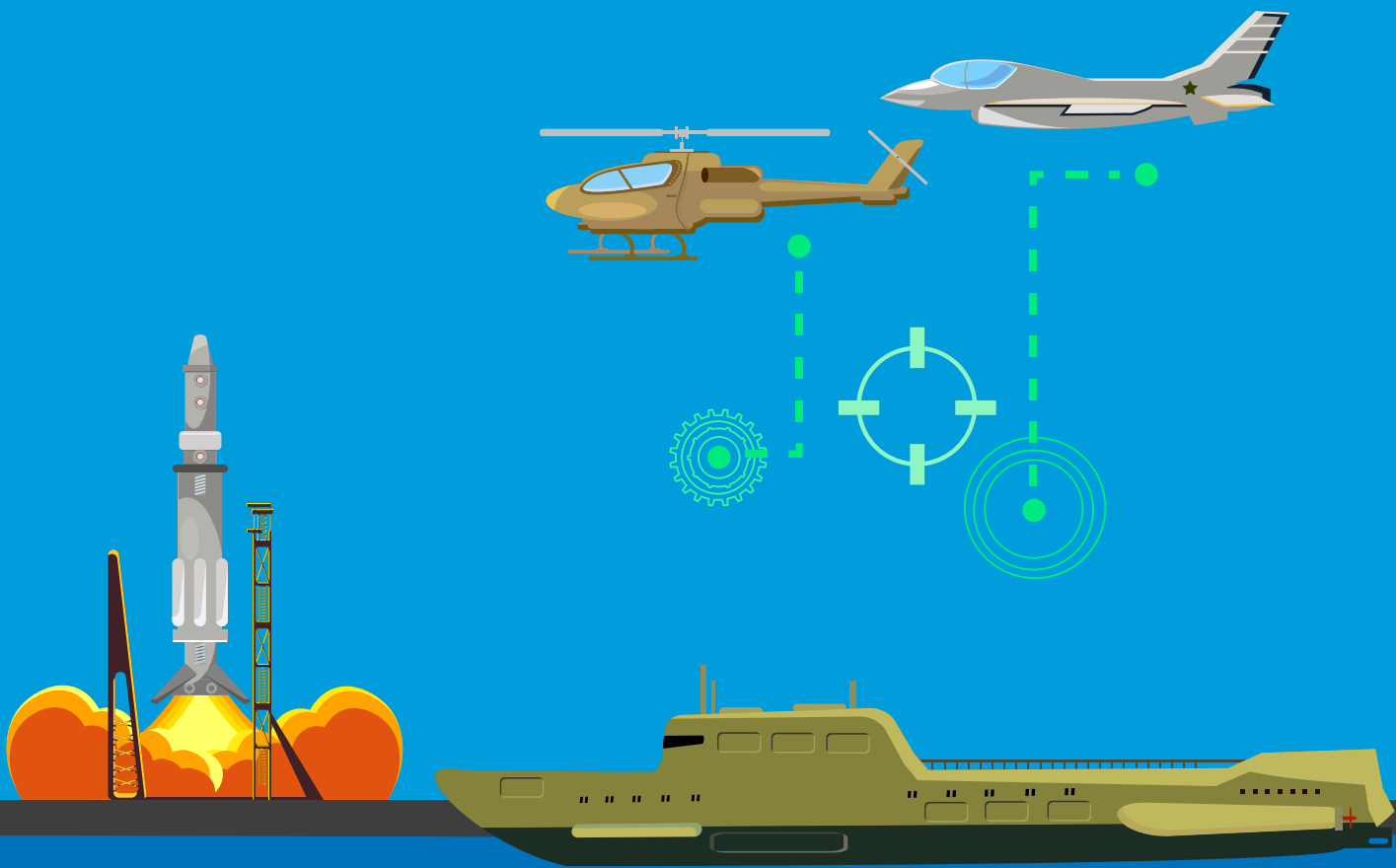
13. Trade Deficit with India Decreased in 2017; Concerned over Trade Barriers: US, The Wire, 5 April 2018

14. RBI note on data localisation raises hackles in the US, The Economic Times, 30 April 2018

15. Donald Trump's protectionist taxes to hurt tech sector in India and US, Business Standard, 16 March 2018

16. Donald Trump govt further tightens US H-1B visa norms, Livemint, 24 February 2018

Aerospace and defence



Sector overview^{01,02,03,04,05,06,07,08,09,10,11}

Defence budget is **1.58 per cent** of GDP

India has the third largest army with **1,300,000+** people

Biggest defence importer accounting for **13 per cent** of global defence trade

Nine Defence public sector undertakings

41 Ordnance factories accounting for **50 per cent** of domestic defence market share

9th largest civil aviation market in the world and potential to become **3rd** largest by 2020

464 airports - aim to operationalise additional **250** airports by 2020

Air traffic to grow to **421** million in 2020, 17.2 per cent CAGR (2016-20)

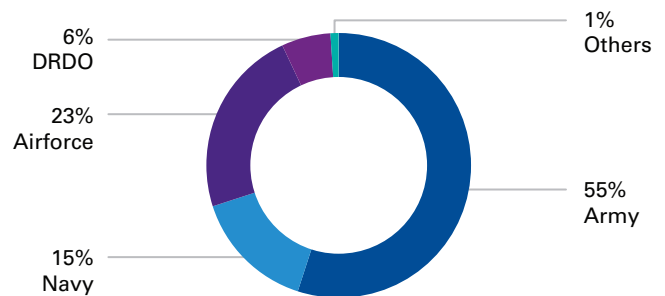
Market size for India's aerospace and defence sector is projected to reach **USD70 billion** from **USD1.7 billion** in the next 10-12 years

The Ministry of Defence intends to spend **USD250 billion** over the next decade on capital acquisition

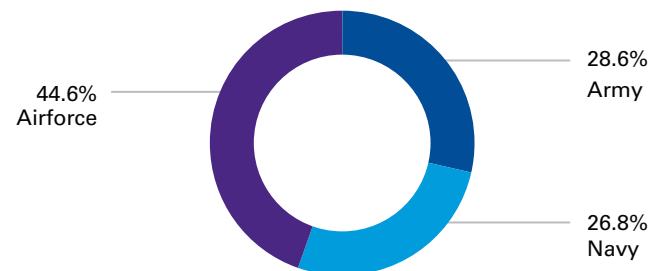
Currently, India imports 60 per cent of its military hardware and intends to increase its indigenous content to 70 per cent in the next five years.

Top suppliers to India	Arms imports into India in 2017 (USD Mn)	Market share %
Russia	1,893	56.7%
Israel	715	21.4%
France	446	13.4%
United States	252	7.5%
United Kingdom	11	0.3%
Others	22	0.7%
Total	3,339	100%

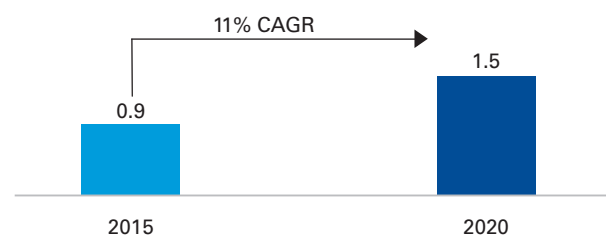
Share of defence service (FY 2018-19 budget)



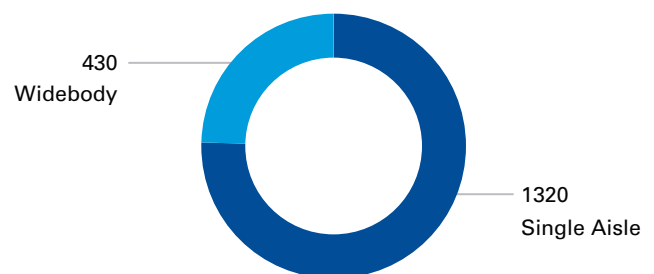
Share of defence modernisation budget (FY 2018-19 budget)



MRO Market Size in USD billion (2015-2020)



Commercial aircraft fleet demand (2017-2036)



Demand for new aircraft - 1,750 planes
Market opportunity - USD255 billion

01. Trends in World Military Expenditure, SIPRI Factsheet, May 2018
02. The Indian Defence Industry, Nishith Desai Associates, January 2018
03. Airbus sees demand for 1,750 new aircrafts in India in next 20 years, Business Line, 09 March 2018
04. India-U.S. Trade-a formidable economic force, KPMG, June 2016
05. Aerospace and Defence sector profile, Govt of Gujarat, January 2017
06. India's Defence Budget 2017-2018: An Analysis, IDSA Issue Briefs, February 2017
07. Defence Budget up by 6 per cent to Rs 2.74 lakh crore in 2017-18 from Rs 2.58 lakh crore last year, Economic Times, 02 February, 2017
08. Budget 2018: Arun Jaitley increases defence budget by 781 per cent, experts term hike in allocation 'inadequate', FirstPost, 01 February 2018
09. Union Budget 2018: Share of Defence Budget in GDP Lowest Since China War, News18, 01 February 2018
10. Aerospace Industry In India- Opportunities and Challenges, MEDC, January 2018
11. Defence Budget 2018-19: The imperative of controlling manpower cost, IDSA, February 2018

The U.S.-India dynamic

Recognition of India as a “Major Defence Partner”¹²

Recognising India as a major defence partner by the U.S is indicative of India’s elevated status in U.S. export considerations.

The U.S. has assisted India in securing entry in the Missile Technology Control Regime (MTCR) and assured full support for membership to the Nuclear Supplier Group (NSG).

India and the U.S. have signed critical defence agreements which includes Logistics Exchange Memorandum of Agreement (LEMAO) and Defence Technology Trade Initiative (DTTI). LEMAO provides access to supplies, spare parts and services from each other’s land facilities, airports and ports while DTTI ensures expanding defence trade and collaboration on defence technologies.

Building the defence manufacturing ecosystem through strategic partnerships^{13,14}

The U.S. India Defence Technology and Partnership Act is expected to lead to greater industry collaboration on defence co-production and co-development and will facilitate the export of goods and technologies for projects, programmes and joint ventures.

U.S. companies are seeking opportunities for private partnerships in India’s defence market by leveraging the cost arbitrage in component design and manufacture in India¹⁵

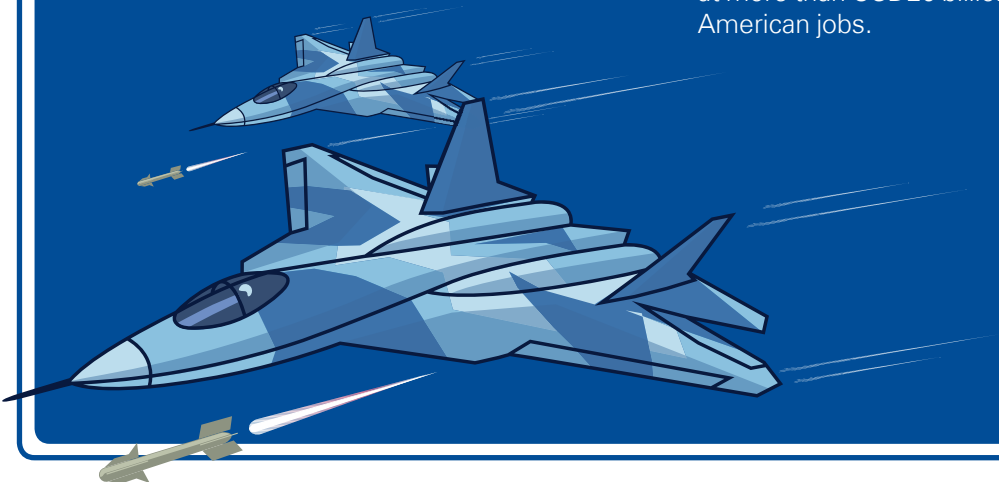
The U.S. approved the sale of state-of-the-art Guardian 22 drones to India. The transfer of Guardian UAV technology is aimed at furthering mutual security interests to protect the Indian Ocean¹⁶.

World’s largest U.S.-based aerospace company and leading manufacturer of commercial jetliners and defence, space and security systems has partnered with private players in India to manufacture the F/A-18 Super Hornet. The company is pursuing the joint development with two Indian firms for future technologies.

In a separate agreement, the world’s largest U.S.-based Defence player has partnered with a leading Indian conglomerate to jointly develop and manufacture the F-16 Block 70 in India for the Indian armed forces. It also intends to meet the export demand for the fighter.

Leading U.S.-based OEMs have included Indian private entities as tier-I suppliers in part of their global supply chain especially for structural components such as Aero structures, fuselage and empennage. In some instances, the Indian players are the exclusive suppliers for a particular part in the global supply chain.

In 2017, a major Indian airline company announced the order of 100 new aircrafts from a leading U.S. company, bringing its order to 205 aircrafts valued at more than USD20 billion creating 130,000 American jobs.



12. Removing barriers to U.S.-India defence trade, January 2018

13. Revitalising Defence Industrial Ecosystem Through Strategic Partnerships, Ministry of Defence, Accessed Date: May 2018

14. US recognizes India as 'Major Defence Partner', The Economic Times, 04 June 2016

15. Unlocking the Potential, The Indian Aerospace and Defence Sector, KPMG/CII, Accessed date :May 2018

16. 'US approves sale of 22 Guardian drones to India', The Hindu, 23 June 2017

Opportunities



Strategic partnership model

Emerging private players in the sector are keen on manufacturing in India and are likely to collaborate with U.S. players to help develop a defence industrial base in India

Modernisation of armed forces

Expected to lead to the purchase of weapons by India and also result in collaboration between Indian and U.S. players

Regional connectivity

Need for building the aviation infrastructure, owing to increasing passenger traffic. The plan to double the number of airports in the next five years provides huge public private partnership (PPP) opportunity for U.S. companies in airport development and modernisation¹⁷

Ease of doing business and liberalised FDI norms

The 'Make in India' initiative and liberalised FDI norms are fostering business prospects. Further, liberalisation of licensing process could increase the scope for joint manufacturing and export potential for Aerospace components¹⁸

Special Economic Zones

Several states in India have started offering tax concessions in Aerospace clusters or SEZs to encourage global OEMs to establish aircraft assembly plants in India along with its ancillaries¹⁸

Opportunity in electronic components

As the consumption of electronics in India's Aerospace and Defence industry is expected to grow substantially, the U.S., with its technical expertise can play a crucial role to meet this demand¹⁷

R&D centres^{18,19}

Owing to availability of qualified engineers and scientists at relatively lower costs, India is emerging as a key destination for global defence companies for R&D, especially for raw material development

Opportunities in MRO (maintenance, repair and overhaul)

As 90 per cent of India's MRO work is presently being done outside India, there exists great opportunity for U.S. firms to set up MRO facilities in India²⁰

Challenges



FDI cap

Restricted to 49 per cent under the automatic route and FDI beyond 49 per cent is only permitted through government approval. The ongoing issues with 'Transfer of Technology' (ToT) and IP protection in setting up defence manufacturing entities, act as a hindrance to foreign players. Recently the Ministry of Defence, Govt has indicated that it is in favour of increasing the FDI cap from 49 per cent to 74 per cent through the automatic route²²

Unrealistic proposal submission timelines

Mismatch between DPP's stringent proposal submission timeline (90 days) and the time required for licensing review by the U.S. government for submitting proposals makes it difficult for U.S. vendors to meet the DPP criteria²¹

Concerns around certain clauses of the strategic business model

Lack of clarity on clauses around foreign companies being jointly responsible for the quality of the platforms provided to the military and control over sensitive technology is a concern for foreign companies exploring public and private defence partnerships²²

Security issues

Lack of mechanism or government framework to ensure protection of classified and defence technologies from private players and joint ventures raises concerns around transfer of critical technology²¹

Offset policy

Mandatory offset requirement of 30 per cent of defence procurement with foreign players, flexibility given to OEMs to modify partners, lack of offset multipliers in FDI and technology transfer are impediments for U.S. players¹⁸

Outdated infrastructure

Infrastructure that could support streamlined manufacturing in India needs to be upgraded urgently

Defence export policy

Lack of clear government policy on defence export, essential in creating a global manufacturing base in India, is a concern for both Indian and global players¹⁸

Taxation Policies

GST exemption or lower taxes on major procurements of defence industry including MRO services, eliminating retroactive taxation for past claims and reduction in VAT for Aviation Turbine Fuel will encourage global participation in the industry

17. Aerospace Industry In India- Opportunities and Challenges, MEDC, January 2018

18. India as an Aerospace Hub-Opportunities, Challenges and Way forward, CII, May 2017

19. Unlocking defence R&D in India - Do we have the skill?, FirstPost 08 April 2016

20. Indian MRO an untapped gold mine, The STAT trade times, 07 February 2018

21. Removing barriers to U.S.-India defence trade, January 2018

Agriculture and food processing



The U.S.-India dynamic⁰⁷

2.4x

Agriculture trade growth between 2006 and 2016

Large-scale programmes initiated between USAID and Government of India to improve food and nutritional security:

Feed the Future India Triangular Training Program

.....

Agriculture Innovation Partnership Program

Partners in Innovation & Technology:

.....

Soil management

.....

Satellite farming

.....

Crop yield predictions

.....

Remote sensing

.....

Soil quality assays



07. U.S.-India Bilateral Trade and Investment, Office of the United States Trade Representative, Accessed on 15 May 2018

Opportunities and challenges

Opportunities



FDI liberalisation

100 per cent FDI allowed for trading of processed food products, manufactured or produced in India. This, combined with a potential consideration on permitting companies to sell their non-food products is expected to make investments commercially more viable⁰⁸

Organic food

Increasing support for organic farming from many state governments is expected to strengthen technology collaborations between Indian and U.S. firms⁰⁹

Food wastage

Opportunity for U.S.-India technology collaborations in harvesting technologies and cold chain infrastructure are expected to address India's ~5-16 per cent annual wastage of fruits and vegetables

Progressive solutions

Various public-private partnerships are being formed at state level to empower farmers with technology-oriented solutions to promote digital farming practices across the country¹⁰

AgriTech

U.S. firms can leverage their technological expertise for cost optimisation and effective supply chain management to address the USD200 billion potential opportunity in the agricultural technology industry in India¹¹

Farm to fork

Indian government's e-NAM platform plans to add agri-mandis (agriculture super markets), enhance transparent trading and further develop the ecosystem. This is expected to provide opportunities for integrators and other produce handling companies to procure through the e-platform directly from farmers¹²

Modernisation of infrastructure

Development of primary agricultural markets has become a priority for both the central and state governments. USD300 million has been allocated in the current budget to this effect¹³

Agri insurance

This sector is expected to encourage private sector participation as more agri tech penetration happens

The agriculture and food supply chain infrastructure ecosystem

This segment is expected to undergo a transformation and is anticipated to shift from distribution centres to production and consumption centres

Challenges



Pertinent differences on policies

Several pending issues such as subsidies and IPR remain unaddressed, which may create roadblocks for U.S. firms planning to enter the Indian agriculture market¹⁴

Protectionist import policies

India's import policies, such as high tariffs, custom duty and sanitary and phytosanitary (SPS) measures restricting entry of specific U.S. products, act as an impediment towards realising the full potential of free trade

Patent issues for biotech crops

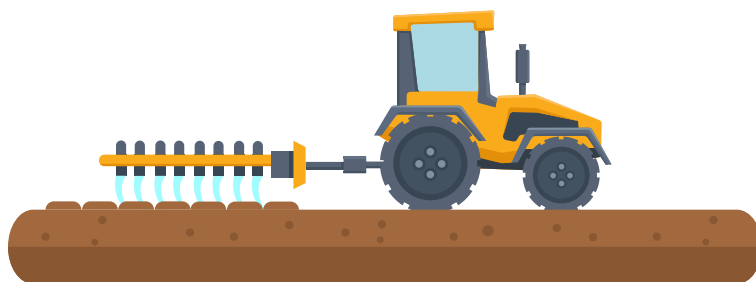
The Indian policy for preventing global firms from claiming patents on their genetically modified (GM) seeds in India make U.S. firms wary about investing in India as they apprehend losing patents on their expensive technologies¹⁵ and R&D efforts

Lack of import regulations for plants and plant materials

Despite some improvements in import procedures and regulatory processes, the system in India remains ill-equipped to handle the challenges associated with plant protection and biosafety¹⁶

Agriculture IP issues

In May 2016, under the national IP policy, agricultural issues were brought into mainstream IP. However, despite being IP intensive, these issues are kept within the purview of the Ministry of Agriculture and not DIP, P unlike in the case of copyrights



08. FDI in retail: Still room for more clarity and liberalization, Financial Express, 22 February 2018
09. Facilitating investment in organic food business in India through right policies, Forbes India, 9 August 2017
10. Karnataka govt inks MoU to use Artificial Intelligence for digital agriculture, The Indian Express, 27 October 2017
11. Partnering with Indian Startups – New Opportunities for Foreign Investors, India Briefing, 04 January 2018
12. Electronic trade among local mandis via e-NAM in the works, The Economic Times, 23 April 2018
13. Modi government plans mega expansion for rural infrastructure, Economic Times, 1 June 2018
14. U.S., India avoid contentious issues in agriculture talks, The Hindu, 04 November 2017
15. GMO news related to India, GMO-Free Europe, 07 May 2018
16. Importing plants into India: processes and challenges, Obhan & Associates, Accessed on 15 May 2018

Financial services



Sector overview^{01,02,03,04,05,06,07,08,09,10,11,12,13}

India's banking sector has the potential to be the fifth largest banking industry in the world by **2020** and third largest by **2025**

India ranks **fourth** in the population of millionaires in the Asia Pacific region; 2,19,000 ultra-rich individuals, with a combined wealth of USD877 billion offer huge potential in the wealth management industry

The Indian fintech software market is set to double to **USD2.4** billion by 2020

P2P space expected to grow to USD4-5 billion by 2021

50 Million SMEs not served by formal banking channel

The recent financial inclusion schemes have resulted in **80 per cent** of Indian adults having bank accounts against 53 per cent in **2014**

Banking sector credit: **USD1.28 trillion**, banking sector credit grew by 10.8 per cent and 5.1 per cent in FY18 and FY17, respectively

India leads the world in mobile banking usage, digital payments to reach **USD1 trillion by 2023**. Banks and digital wallets to **target 30 billion** digital payments in FY 2018-19

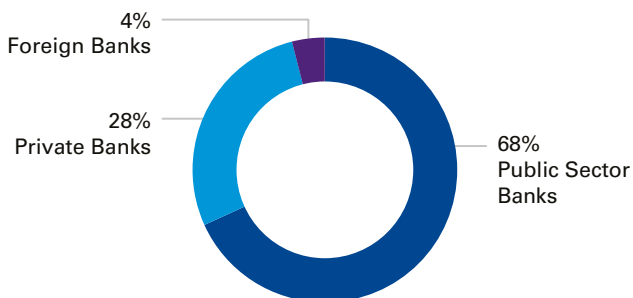
Indian fintech industry received **USD3.01 billion** in funding in 2017

Insurance penetration in India: 3.4 per cent
Likely to cross 5 per cent by 2020

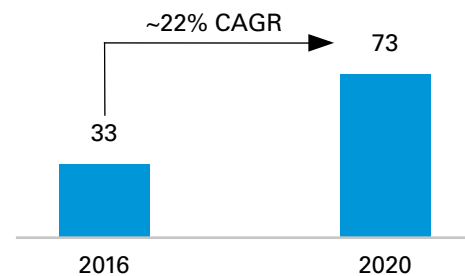
Total insurable population expected to reach **750 million** in 2020, with average life expectancy to reach **74 years**

Life insurance will account for **35 per cent** in 2020 of total household savings as against **26 per cent** in 2009-10

Market share in total advances(%) (2017)



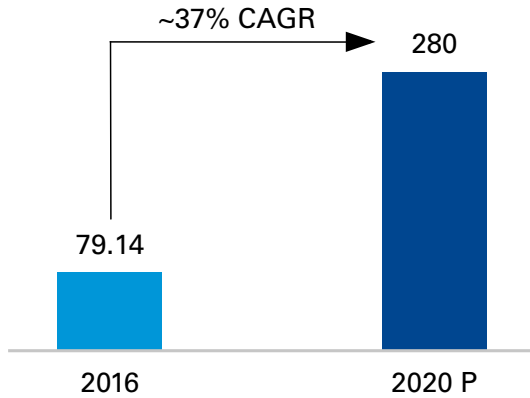
Fintech transactions in India (USD billion)



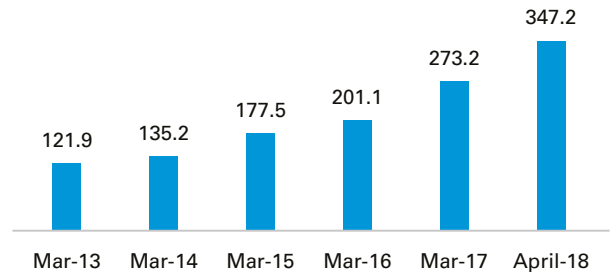
- Internet users in India expected to reach 500 million by June: IAMAI, The Economic Times, 20 February 2018
- Bank credit grows at 10.32%, deposits at 6.66%: The Economics Times, 12 April 2018
- Number of Adult Indians with Bank Accounts rises to 80%: The Economic Times, 12 April 2018
- India – Financial Services: export.gov, August 2018
- Indian Mutual Fund industry's Avg. Assets Under Management (AAUM) stood at ₹ 23.21 Lakh Crore (INR 23.21 Trillion): AMFI India, April 2018
- AMFI sees mutual fund industry's AUMs growing 5-fold to Rs 94 trillion by 2025: Money Control, 04 April 2018
- To grow, Indian insurance companies need IPOs, Livemint, 09 Oct 2017

- Insurance penetration in India has risen to 3.49%, Economic Survey says, The Times of India, 29 January 2018
- Global mobile banking usage grows; India takes the lead: thepaypers.com, 25 April 2018
- Indian digital payments to reach \$1 trillion by 2023: Credit Suisse: Business Standard, 15 February 2018
- Separate targets for institutions: Govt eyes 30 billion digital payments in FY 2018-19: Economic Times, 25 April 2018
- 10 years of banking sector: Pvt sector gains at cost of public sector banks, Business Standard, 23 March 2018
- Credit growth plunges to over 60-year low of 5.1% in FY17, Business Line, 16 April 2017

**Insurance sector-market size
(in USD billion)**



**Mutual fund segments AUM (USD billion): 23.2% CAGR
AUM expected to increase to USD1.3 trillion by 2025**



The U.S.-India dynamic

The Indian banking sector has witnessed limited investment activity from U.S. players as a result of the stringent regulations. Most large U.S. banks have Global In-house Centres (GICs) to support global functions.



In the asset management and insurance space, U.S. firms have been active, through investment in Indian units and joint ventures. With a low insurance penetration and an AUM-GDP ratio of roughly 10 per cent compared to 55 per cent globally¹⁴, India offers a massive investment opportunity for U.S. firms in the near future



'Inclusive Cashless Partnership-Catalyst' between the U.S. Agency for International Development (USAID) and India's Ministry of Finance is designed to scale digital payments systems in India for small merchants and low income consumers.



14. India Fares Poorly in Mutual Fund Penetration, equitymaster, 24 October 2017

Opportunities and challenges

Opportunities



RBI reforms for resolution of stressed assets¹⁵

The implementation of Insolvency and Bankruptcy Code (IBC), recapitalisation of public sector banks and setting up of National Company Law Tribunal for resolution of NPAs address banking sector challenges and enhance credit growth

The JAM trinity¹⁶

Jan-Dhan, Aadhaar and Mobile trinity have immense potential for the entire BFSI space. It goes much beyond the primary intent of financial inclusion-bringing the unbanked population to the banking ecosystem to applications in digital account opening, digital signatures, authentication etc. The RBI's proposed data protection framework will provide further confidence in the system

New investments and other developments in the Insurance sector

The insurance sector has lately seen a lot of activity due to government actions. The Pradhan Mantri Fasal Bima Yojana (PMFBY – Prime Minister Crop Insurance Scheme) covered 50.9 million farmers in India in 2016-17. The Bombay Stock Exchange (BSE) set up a joint venture with a U.S multinational to build a new insurance distribution network in the country. Further business models are evolving with adoption of digital technologies. For example, the health insurance companies are looking at using a number of data points generated by the personal fitness trackers to introduce gamification in the claims process^{17,18}

Intensive Growth in the Mutual Funds sector

Indian Mutual Funds sector has seen a massive growth driven by increasing financial literacy, government impetus on investments in capital markets, etc. The AUM growth is driven by equity funds versus debt funds. A large number of middle and lower middle class investors are preferring to invest instead of depositing all their savings in banks. This has driven demand for customized investment solutions¹⁹

Challenges



Adoption of digital solutions by customers

While the banks are adopting a number of digital solutions and customer facing interfaces, adoption of the same by customers is limited, owing to limited trust on technology for financial uses as well as limited digital literacy. Pricing such as MDR (Merchant Discount Rate) capping remains a challenge. To promote digital transaction pricing needs to be relooked at

Regulatory framework

While there has been a lot of focus on the Digital India initiative, the regulatory frameworks surrounding Financial Services (FS) are largely playing catch-up. Clarity on regulations vis-à-vis new age technologies such as Blockchain as well as use of customer data is imperative for successful implementation

Intensification of competition and reducing margins

With the entry of new age players, the competition in FS markets has intensified particularly in the asset management space where per transaction brokerage and distribution charges have been falling with newer pricing models introduced by new players. Conventional players have to evolve and reposition themselves to preserve their revenue streams and ward off competition

Cybersecurity and data privacy

As digital technologies invade FS operations, there is a looming threat of cybersecurity attacks as well as data privacy which needs to be addressed

Removal of exports as part of Priority Sector Lending

The priority sector lending guidelines have reduced emphasis on export credit in which foreign banks have a competitive advantage due to their overseas network

15. Report on trend and progress of banking in India 2016-2017, RBI, Accessed Date, May 2018

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Opportunities



Technology as a key driver for customer experience

Financial Services players are looking at technology solutions such as Chatbots, AI-based interfaces and analytics based recommendation engines to provide a superior customer experience to an increasingly mobile and digitally savvy generation of Indians

Riding the cloud

Cost efficient, scalable cloud applications are gaining adoption which offers a major opportunity to collaborate in the Infrastructure As a Service (IAAS) space. U.S. firms can set up innovation centres focused on developing cloud and mobile technology platforms and advanced data analytics

License on tap

As many as 23 new banking licenses were granted in 2014-15²⁰. RBI has also been active in delineating policies for payment banks. Additionally, the on-tap licenses refers to the fact that RBI now is permanently open for applications for new banks

Government support to FinTech²¹

RBI's circular on inter-regulatory working group on FinTech and digital banking will be the basis for the much-awaited regulatory guidance in the Fintech space

Initiatives to increase demand²²

The National Health Protection Scheme, 'affordable housing' scheme and Moto Insurance Service Provider guidelines introduced by IRDAI are expected to support demand in the medium term

Challenges

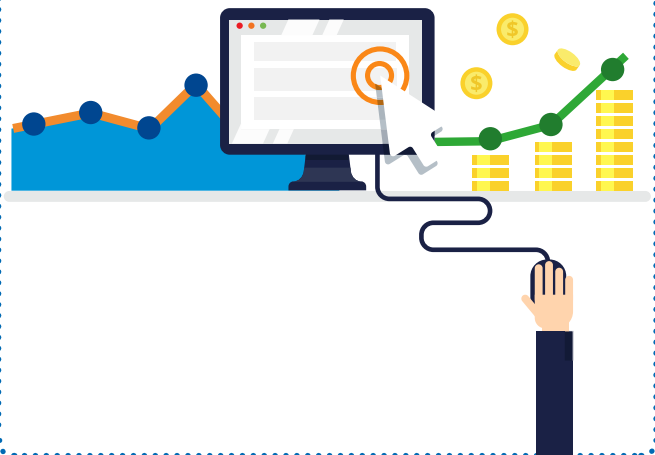


Taxation policies²³

There is expectation from the banking community that the government will exercise flexibility on the imposition of taxes on imputed services. Further, government is expected to consider exempting GST for digital payments to incentivise digital payments

Motor Vehicles Amendment Bill 2016

The bill which proposes reforms in motor insurance with regards to timelines and settlement of claims is still pending in Rajya Sabha²⁴ and is likely to significantly reform the general insurance space in India



20. 23 new banking licences granted, Business Standard, 18 September 2015

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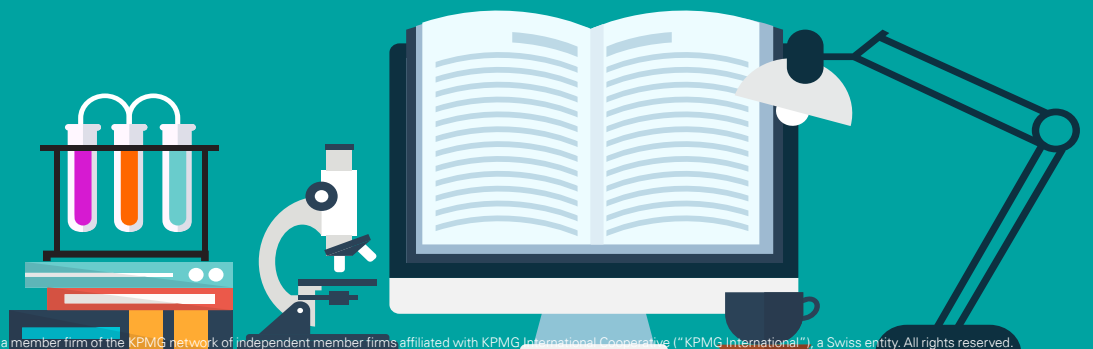
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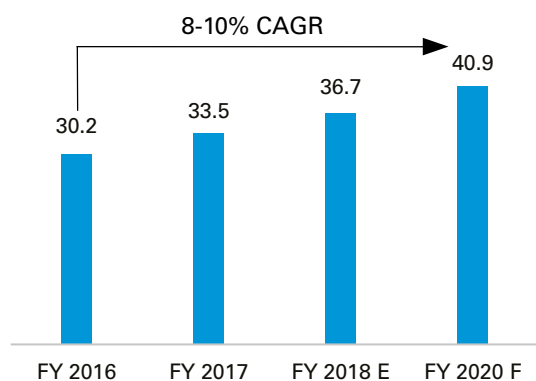


Pharmaceuticals

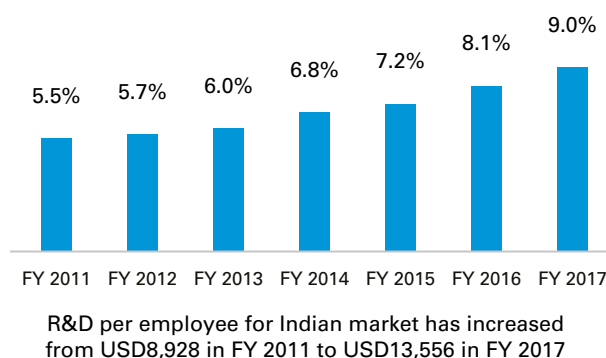


Sector overview⁰¹

Market size of the Indian pharmaceutical industry including exports (USD billion)⁰²



R&D (as % of sales) for Indian pharmaceutical companies⁰³



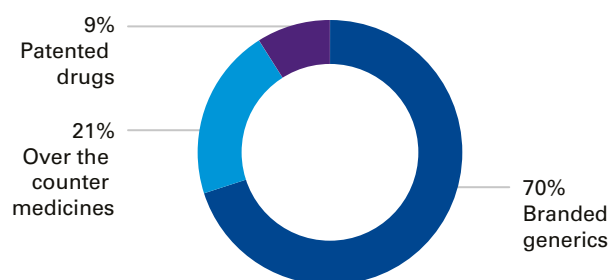
1.5 per cent and 20 per cent

Share in global pharmaceutical industry by value and volume, respectively

~15,000⁰⁵

Players in the Indian pharmaceutical market including 300-400 players in the organised sector

India pharmaceutical industry composition⁰⁴



The U.S.-India dynamic

40 per cent

of generics consumed in the U.S. are from India

31 per cent

of India's total pharma export in 2017-18 went to North America⁰⁶

19.3 per cent

U.S. revenue growth for Indian firms during FY 2012-2017

India has the second-highest number of USFDA approved facilities⁰⁷

Indian pharmaceutical companies received more than 300 approvals in 2017 to launch generic drugs in the U.S. All-time high of 43 per cent of all global filings, up from 40 per cent in 2016⁰⁸

1. Pharmaceuticals Sector Analysis Report, Equitymaster, 26 March 2018
 2. India Pharmaceuticals & Healthcare Report, Q3 2018, BMI research accessed via ISI Emerging market database, May 2018
 3. Indian Pharmaceuticals sector outlook, CRISIL, March 2018
 4. India pharma exports to touch \$20bn by 2020: ASSOCHAM, IIFL, 25 December 2017

5. Industry overview, CRISIL, March 2018 accessed via CRISIL research database, May 2018
 6. 'Smart turnaround' in exports: Pharmexcil, The Hindu, May 2018
 7. Trends & Opportunities for Indian Pharma, FICCI, February 2018
 8. Indian pharma cos get record 300 USFDA generic drug nods in 2017, The Times of India, 25 January 2018

Opportunities and challenges

Opportunities



Improving quality standards

Investment in automation, staff training and collaboration with regulators have led to improved quality standards providing additional comfort to U.S. firms to leverage the low-cost manufacturing and strong chemistry skills in India⁰⁹

Higher investment avenues

India allowed FDI up to 74 per cent in brownfield pharmaceutical and 100 per cent in greenfield pharmaceutical projects under the automatic route. This is leading to higher cross-border M&A opportunities for U.S. firms¹⁰

Rising R&D investments

The country's evolving epidemiological profile with growing cardiovascular and other chronic diseases, make it a strong prospect to become a global R&D and manufacturing hub in pharmaceuticals¹¹

Market enablers

Increased healthcare demand driven by rising per capita income, improved health awareness, rise in non-communicable diseases (NCD) burden and increasing health insurance in India aided by the National Health Mission (NHM) programme¹²

Demand for generics in the U.S.

There has been an increasing demand for generics in the U.S. to reduce the overall healthcare cost. Furthermore, over the past 10 years, the U.S. has been India's largest pharmaceutical export partner, with one-thirds of the total exports

Increasing focus on providing digital solutions

Digital revolution with programmes such as Digital India and Make in India offer significant scope for U.S. firms in integrating technology across healthcare¹³

Challenges



Price control regime

The coverage of molecules under National List of Essential Medicine (NLEM) for price control has increased. A total of 376 molecules (14.9 per cent of total molecules) are under NLEM-2015 and price ceiling is applicable on 849 formulations¹⁴

Weak IPR protection

Indian IPR regime does not offer foreign entities (for innovative products), similar protection as may be available in certain other countries, restricting the establishment of R&D centres

Patent issues

The U.S. firms are concerned that India may allow domestic companies to launch cheaper medicines under the clause of "compulsory licensing" under the Patents Act¹⁵

Likely tightening of the FDI policy

The Indian government plans to incorporate conditions such as continuation of manufacturing of essential medicines, expenditure on R&D and technology transfer to seek FDI approvals¹⁶

Potential cap on trade margins

The government is planning to cap trade margins charged by drug stockists and chemists to bring down drug prices¹⁷

Data integrity

Global regulators found data integrity issues in the Indian pharmaceutical industry during inspections, mandating the need for a stronger data privacy law¹⁸

Regulatory hurdles

Multiplicity of regulatory bodies and limited capacity within the regulatory system delays drug approval process

9. Warning letters to Indian pharma companies from US FDA declining, Business Standard, 22 February 2018
 10. Foreign direct investment in Indian pharma sector causing concern, The Pharma Letter, 19 April 2018
 11. India's pharmaceutical research problem, Livemint, 15 September 2017
 12. Cabinet approves Modicare with budgetary support of Rs 160bn for 2 years, Business Standard, 22 March 2018
 14. Government has fixed Ceiling Prices of 849 medicines, including 2 coronary stents, till November 2017: Shri Mansukh L. Mandaviya, Press Information Bureau, Government of India, 15 December 2017

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 17. NITI Aayog backs cap on pharma trade margins, Livemint, 17 April 2018
 18. What is data integrity in Pharmaceutical industry?, IIFL, 6 March 2018

Opportunities



Focus on speciality drugs

Indian pharma companies are focusing on complex generics, biosimilars and speciality products to drive the next wave of growth. They are collaborating with new age innovative companies for product development and launches

Increasing focus on providing digital solutions

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Challenges



Market access barriers

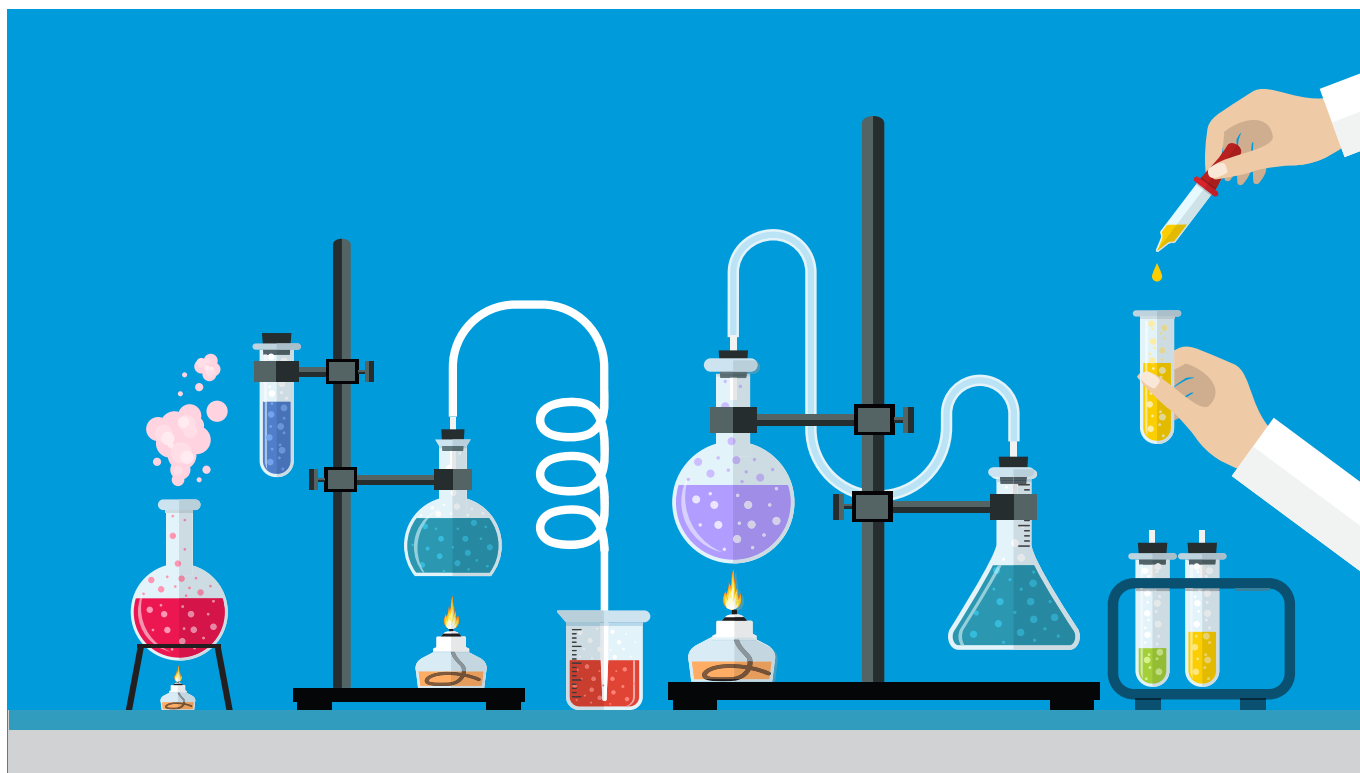
Although the draft pharmaceutical policy, unveiled in 2017, requires patented drugs to be exempted from price controls by the National Pharmaceutical Pricing Authority, it continues to include compulsory licences. This has led to U.S. companies remaining sceptical about launching innovative products in India

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13. Digital healthcare in India - on the cusp of a revolution, Healthworld – from The Economic Times, 4 July 2017

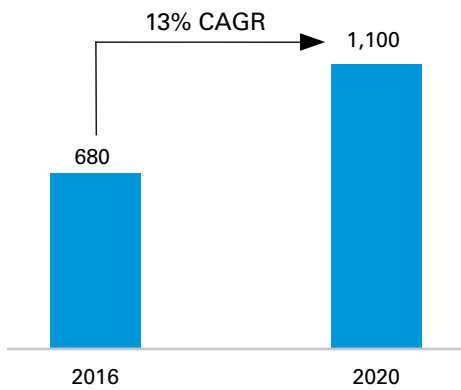
Retail



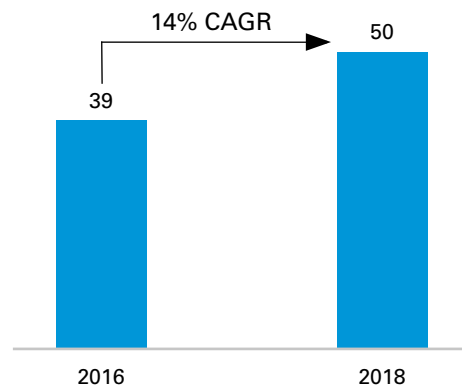
Sector overview^{01,02}

Strong economic growth, increased consumer spending, increasing internet and smartphone penetration and favourable government policies have supported strong retail investment in India. The sector is expected to grow rapidly at the back of increasing demand particularly from the rural economy driven by the e-commerce penetration.

India's retail market (USD billion)⁰³



India's e-commerce market (USD billion)⁰⁴



India is expected to become the second-largest e-commerce market by 2034⁰⁵

USD6.6 billion projected mobile wallet market by 2020⁰⁶

In 2018 India's e-commerce industry witnessed the largest ever M&A investment made in the sector globally



1. IAMA and Kantar IMRB: Mobile Internet in India 2017, IMAI, 20 February, 2018
2. India set to have 530 million smartphone users in 2018: Study, Indian Express, 16 October 2017
3. India's retail market to touch US \$1.1 trillion by 2020: study, ASSOCHAM, 15 November 2017
4. E-commerce market may cross \$50 billion mark in 2018, Business Line, 25 December 2017

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6. India Mobile Wallet Market to Reach US\$ 6.6 Billion by 2020, TechSci Research, Accessed on 21 May 2018

The U.S.-India dynamic⁰⁷

A leading U.S. retailer entered the Indian retail market in 2009 by opening its first wholesale store in Amritsar through a JV with an Indian company



In 2018, the retailer entered the Indian e-commerce market through an acquisition which is the largest e-commerce deal witnessed globally

For a major U.S. e-commerce operator, India is the fastest growing market for its premium membership



- It offers 11 million products under its premium membership in India
- Premium membership accounts for 40 per cent of total orders.

Over 50 global mid-size retailers, including several from U.S., are planning to enter India



- Collectively plan to open around 3,000 stores by investing USD 300-500 million
- Food and beverage, apparel and lifestyle are some of the major interest areas

Several U.S. food companies have announced major investments in India



- A chocolate and confectionery firm is planning to invest USD50 million over the next five years
- A major cereal company is expected to invest USD70-80 million till 2023.



7. Over 50 global retailers to enter India in 6 months, likely to open about 3,000 stores, Economic Times, 19 June 2017

Opportunities and challenges

Opportunities



One of the most attractive retail markets

Growing young population, rising disposable income and growing consumption demand have added to the investment attractiveness in the sector

Improved access to rural markets

Increased connectivity, internet penetration and improved infrastructure enable retailers to enter the fast-growing rural market^{08,09}

Underpenetrated mono brand stores

Mono brand store market remains relatively underpenetrated at only 6 per cent, presenting a significant opportunity for global players¹⁰

Relaxed FDI norms

Government approved 100 per cent FDI in single-brand retail trade (SBRT) under the automatic route in January 2018 and also announced the relaxation of local sourcing norms for five years to benefit foreign operators¹¹

Initiatives to support retail infrastructure

Reforms such as GST, and the granting of industry status to the logistics and supply chain sector have increased efficiency and improved financing for the sector. This could present massive opportunities for U.S. firms, both in retail and supply chain sectors¹²

New technology

Indian retailers are leveraging technology to enhance in-store experience and customer interface. This offers significant opportunities to U.S. technology companies to explore partnerships¹³

E-commerce policy framework to address various issues

The government has initiated the process to develop a national policy on e-commerce to address various issues such as taxation, infrastructure, investment data protection and technology transfer¹⁴

Challenges



Ambiguity in FDI for SBRT continues

The lack of clarity around the meaning of “state-of-the-art” and “cutting-edge technology” for local sourcing norms continue to deter foreign operators¹⁵

Lack of industry status for retail and uniform country-level policy

The retail sector in India is yet to be granted industry status. If granted, it could provide easier access to finance and attract investments. Furthermore, a complex regulatory environment and absence of uniform country-level policy pose challenges to foreign operators¹⁶

FDI in multi-brand segment remains restricted

The multi-brand segment is still not accessible to many investors, due to existing FDI restriction of up to 51 per cent under the approval route. Furthermore, local sourcing and investment in backend infrastructure and state level approval creates unfavourable investment environment for foreign investors

Largely unorganised

The Indian retail industry has primarily been dominated by the unorganised segment. During FY'16¹⁷, the unorganised retail accounted for about 90 per cent of the total retail revenue



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16. Walmart India CEO Krish Iyer demands 'industry' status for retail sector, says it can create millions of jobs, Firstpost, 16 May 2018
17. Indian retail industry – Structure and prospects, CARE Ratings, 01 June 2018

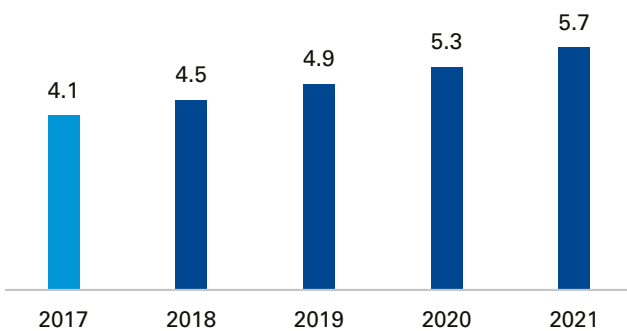
Medical devices



Sector overview^{01,02,03,04,05,06}

The Indian medical devices industry is the **fourth-largest** industry in Asia, with the potential of becoming the **fifth-largest** industry worldwide by 2030

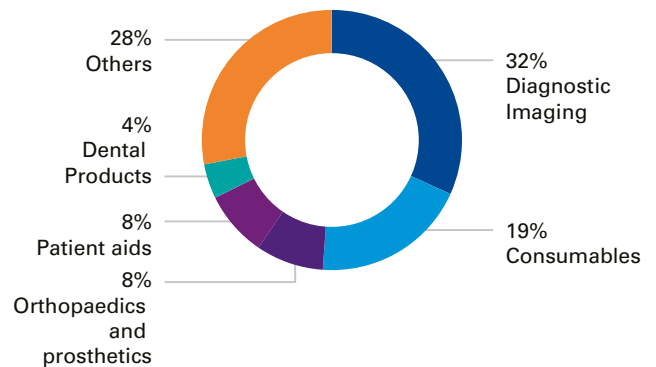
Indian medical devices market size (USD billion)



Highly fragmented industry

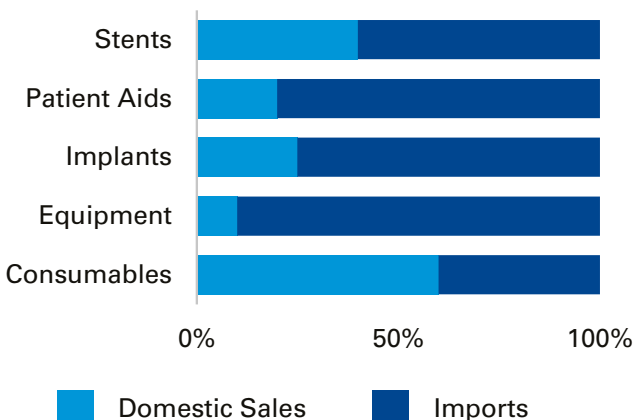
750–800 medical device manufacturers, with average turnover of USD7.09 million to USD7.87 million (2015)

Medical device market in India by product- (2017)



FDI inflows were **USD1.6 billion** for medical devices from April 2000 to December 2017

Indian market is dominated by imports, with the U.S. comprising 80% of the total imports



Orthopaedics/Prosthetics and Patient Aids

would be the two fastest-growing verticals by 2020, projected to grow at a CAGR of 9.6% and 8.8% during 2015-2020

Diagnostic imaging, dental products, consumables are expected to grow at a CAGR of 7.1%, 7.4%, and 7.1%, respectively, over 2015-2020

Key Growth Drivers

Population above the age of 60 is expected to increase to 200 million by 2025

Per capita income is expected to rise to USD3,500 by 2020

Government healthcare spend would be raised to 2.5% of GDP by 2020

Medical devices industry is classified as a priority sector under Make in India

Medical tourism is expected to grow at a CAGR of 22-25 per cent and increase to USD8 billion by 2020

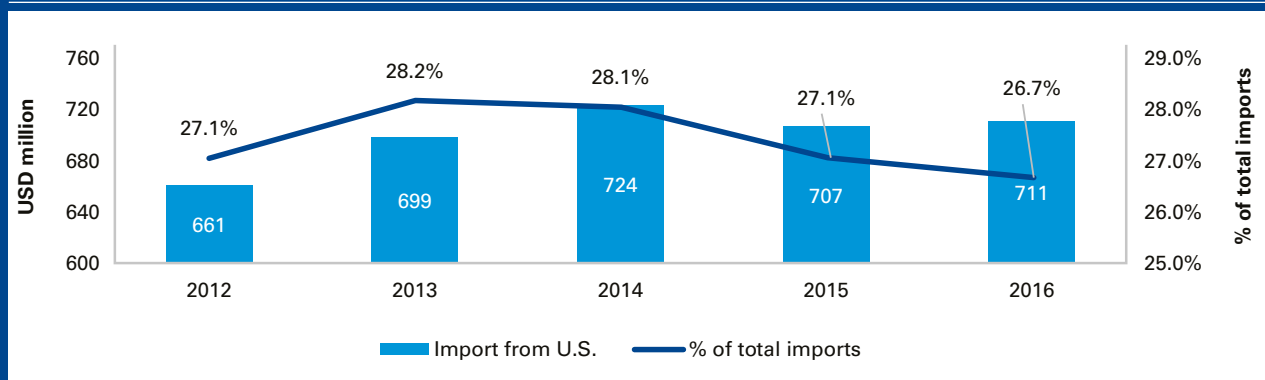
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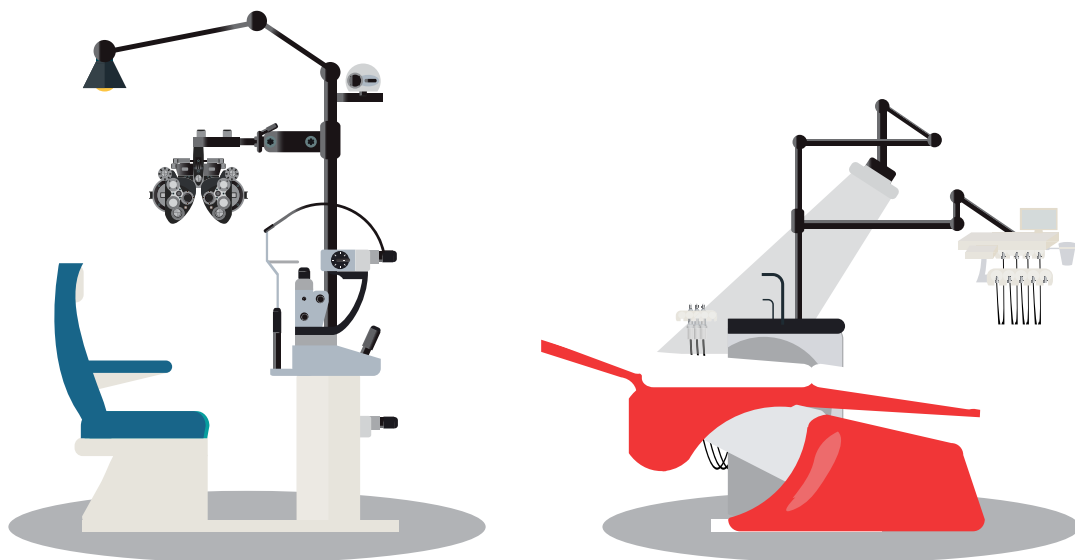
The U.S.-India dynamic

- The total U.S. exports to India increased by 18.8 per cent in 2017 to USD25.7 billion from USD21.7 billion in 2016⁰⁷
- Optical and medical instruments emerged as one of the top export categories accounting for USD1.4 billion in 2017⁰⁸
- U.S. is the dominant medical device supplier to India in most product areas⁰⁹

Medical devices import from U.S.



- Industry bodies have expressed their commitment to work with the government to develop an ecosystem to incentivise investment in the medical technology sector (MedTech)¹⁰
- A leading American healthcare conglomerate, with its R&D facility in Bengaluru, has reiterated its commitment towards Make in India by strengthening its India capabilities¹¹



7. Trade deficit with India decreased in 2017; concerned over trade barriers: US, The Economic Times, 5 April 2018

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11. GE Healthcare Strengthens "Make In India" Capability For Accessible, Affordable Healthcare, Healthcare Executive, 02 April 2015

Opportunities and challenges

Opportunities



New Medical Devices Rule, 2017¹²

Came into force from January 2018, has given the medical devices and in-vitro diagnostic devices (IVD) industry a distinctive regulatory identity by delinking devices from drugs. The time-bound disposal of applications and single-window online application portal should further ease the process of doing business in India

National Health Protection Scheme (NHPS)¹³

Announced as part of Budget 2018, NHPS is expected to enrol 500 million individuals, upgrade/create 160 tertiary care centres and create 150,000 new primary health centres to increase demand for medical equipment and diagnostic companies. It is likely to open newer growth avenues for U.S. firms to strengthen country's healthcare ecosystem

Government initiative to support investments in the sector¹⁴

To incentivise global and domestic manufacturers, the government is allowing 100 per cent FDI under the automatic route, modifying duty structures for select medical devices, setting up MedTech parks in three states and testing labs in two states

Technology innovations

Supported by the government, start-ups are focusing on frugal engineering to address affordability and access issues. Challenges such as availability of equipment and laboratories along with expert advice from medical and technology domain are met by collaborating with global players

Opportunities in R&D¹⁵

Make in India's focus on increasing medical device R&D efforts within India has led to global medical device companies investing in R&D, design and development of low-cost products through innovation, localisation and training in India

Challenges



Price Caps^{16,17}

The price caps on medical devices such as coronary stents and orthopaedic knee implants have deterred foreign investment in India's healthcare sector. The potential expansion of price controls to other medical devices such as CT scan equipment, MRI equipment, defibrillators, dialysis machine, PET equipment and X-Ray machines could restrict innovation, R&D spending and development of new technology

Procurement guidelines for medical devices^{18,19}

The Department of Pharmaceuticals has proposed that domestically sourced components will need to contribute 25-50% of the cost of medical devices procured by the government

Trade margins²⁰

Industry feels the 'landed cost' method of calculating trade margins is considered discriminatory and does not factor in a foreign firm's expenses or superior technology for doing business in India

Lack of emphasis on quality under the NHPS

The NHPS does not emphasise on quality or differential treatment packages. Moreover, the lack of infrastructure in rural areas and the low premium set aside are key deterrents for NHPS

IP Protection²¹

Due to weak IP law enforcement, global players are facing challenges to invest in manufacturing innovative products in India

Lack of quality control mechanism

Lack of eco-system and infrastructure to conduct the level of quality testing similar to CE/FDA locally

Cost arbitrage²²

A relatively low tax is levied on imported medical goods as compared with the tax levied on domestic manufacturing. The investors may re-evaluate the comparative advantage of manufacturing in India

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14. Medical Devices Rules, 2017 Notified by India's Health Ministry, India Briefing, 15 February 2017

15. MedTech in India: The next medical device manufacturing destination?, Decision Resources Group, 18 January 2017

16. More Price Caps on Medical Products in India, Pacific Bridge Medical, 01 February 2018

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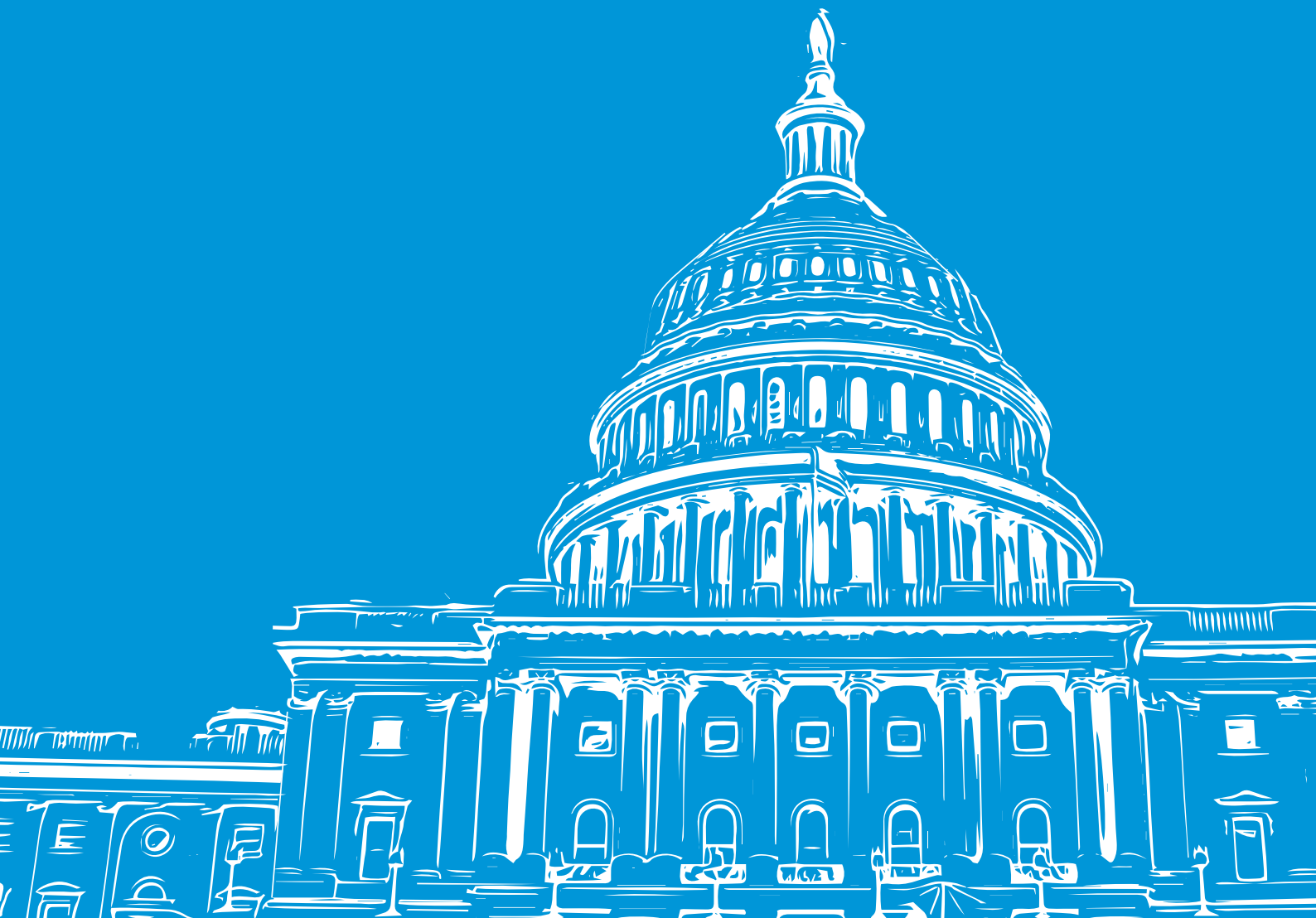
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