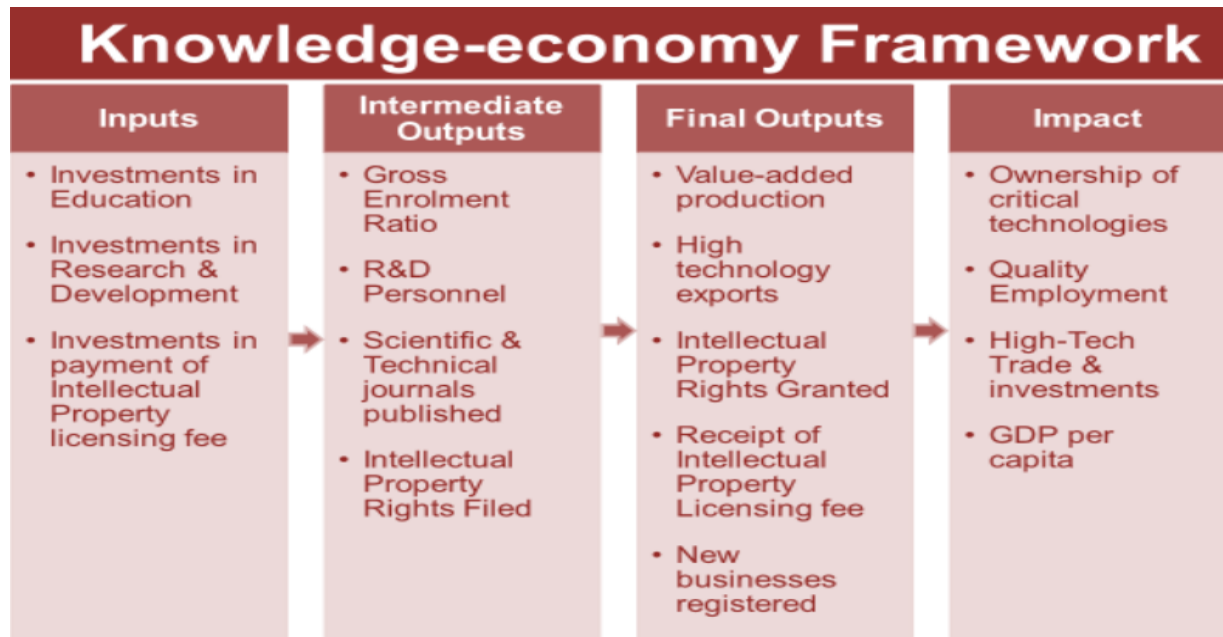




1. Goal

- To accelerate India’s journey to knowledge-driven economy by effectively realizing economic benefits in terms of value added manufacturing, high technology exports and ownership of critical technologies from the investments made in knowledge ecosystem through public private partnerships and stronger global collaborations

2. Knowledge Economy Framework



3. Where India stands vis-à-vis BRICS nation and some Asian nations like Indonesia, Israel, Malaysia, Philippines and Thailand?

a) Input Parameters

- India’s investment in Education (3.32% of GDP) is lowest among BRICS nations and just above Indonesia and Philippines
- India’s Gross Expenditure in R&D (1% of GDP) is lowest among BRICS and less than Malaysia
- India’s Business Expenditure in R&D (1/3rd of total expenditure) is the lowest among all countries except for Russia
- India’s expenditure in R&D in educational institutes is the lowest (4% of Government expenditure)
- India ranks 3rd among BRICS and other Asian countries on spending (USD 4 billion a year) on usage of other’s IPRs

b) Intermediate Output Parameters

- India’s Gross Enrolment Ratio (25%) lowest among BRICS and other nations except for South Africa
- India’s R&D Personnel per thousand employed (0.59) lowest except for Philippines

- India's Scientific & Technical journals (20,000 a year) around 1/4th of China's.
- Indian resident's filings of patents (10,000), industrial design (5,000) & Trademarks are (1,75,000) - 2%, 0.8% and 12% those of China's

c) Final Output Parameters

- India's Value-added manufacturing (6% of GDP) of just above Brazil and South Africa among BRICS and other 4 Asian nations
- India's High technology exports is lowest (7% of total manufactured exports) except for South Africa
- Indian residents grant of patents (700), industrial design (1,400) & Trademarks (20,000) are 0.5%, 1% & 5% those of China's
- India's receipt of IP Licensing fee (325 million USD) - lowest among BRICS
- India's New business registration in a year (75,000) lowest among BRICS

d) Impact Parameters

- India's ownership of critical technologies is very low
- Indian students' employability & employment is low
- Low level of High-Tech Trade & investments
- India's GDP per capita lowest among all BRICS and other Asian nations

4. Hence, there is a need to look at these aspects in a holistic manner, improve them, measure them and align them for economic benefit of the country with the following goals by 2022, India@75



5. Proposed Initiatives

- a) Yearly State-indexing on Knowledge-Economy Competitiveness (*India Innovation Index*)
- b) National level fund for triggering knowledge economy competitiveness

6. Yearly State-indexing on Knowledge-Economy Competitiveness

- A framework is to be developed to objectively measure states' knowledge-economy competitiveness every year. In this connection a list of indicators proposed to be included in the India Innovation Index has been prepared and can be seen at Annexure 1
- States will be encouraged to take necessary steps to improve the parameters of knowledge-economy competitiveness
- Top states will be projected to the world as a destination of knowledge-intensive investments like research parks, universities, Design centres, R&D units and high-end manufacturing

7. National level fund for triggering knowledge economy competitiveness amongst the States through grants and aids to states

- Launch a 10,000 cr. PPP Knowledge-Economy Fund during the period from 2017 to 2022 to start the knowledge economy initiative for boosting innovation capacity of states. This fund will flow from R&D cess
- This Fund will be a single point platform for industry to co-invest in whole value chain of R&D, technology development, technology acquisition, IP filing, contract research, and technology commercialization. Indian industry and start-ups will be eligible to participate in this program with a minimum of 50% investments to avail maximum of 40% government support in the form of conditional grant and equity

8. Program Management

- NITI Aayog and CII will jointly host this initiative
- A PMU will be set up in NITI Aayog to steer the initiative under the guidance of CEO
- A steering group under the chairmanship of CEO, NITI Aayog will be constituted to provide overall guidance to the initiative
- A group of experts headed by Consultant (Industry) and with support from CII and other international stakeholders will prepare the road map for taking forward the initiative
- A budget of Rs. 1 crore will be initially earmarked for this initiative to support CII in undertaking workshops and preparation of reports on state level innovation rankings

Proposed List of Indicators for State Level Indexing

| S.No. | I3 Model Pillar | Indicator |
|-----------|-----------------|---|
| | 1 | Institutions |
| | 1.1 | Business environment |
| 1 | 1.1.1 | <i>Ease of Doing Business</i> |
| | 2 | Human capital & research |
| | 2.1 | Education |
| 2 | 2.1.1 | <i>State Expenditure on education, % GDP</i> |
| 3 | 2.1.2 | <i>Pupil-teacher ratio, secondary</i> |
| | 2.2 | Tertiary education |
| 4 | 2.2.1 | <i>Graduates in science & engineering, %</i> |
| | 2.3 | Research & development (R&D) |
| 5 | 2.3.1 | <i>Researchers, FTE/mn pop.</i> |
| 6 | 2.3.2 | <i>State Government Expenditure on R&D, % GDP</i> |
| 7 | 2.3.3 | <i>QS university ranking, average score top 3</i> |
| 8 | 2.3.4 | <i>University Ranking</i> |
| | 3 | Infrastructure |
| | 3.1 | Information & communication technologies (ICTs) |
| 9 | 3.1.1 | <i>ICT Index (as per ITU methodology)</i> |
| | 3.2 | General infrastructure |
| 10 | 3.2.1 | <i>Electricity output, kWh/cap</i> |
| 11 | 3.2.2 | <i>Gross capital formation, % GDP</i> |
| | 3.3 | Ecological sustainability |
| 12 | 3.3.1 | <i>Environmental performance</i> |
| | 4 | Market sophistication |
| | 4.1 | Credit |
| 13 | 4.1.1 | <i>Ease of Access to Finance</i> |
| 14 | 4.1.2 | <i>Domestic credit to private sector, % GDP</i> |
| | 4.2 | Investment |
| 15 | 4.2.1 | <i>Market capitalization, % GDP</i> |
| 16 | 4.2.2 | <i>Total value of stocks traded, % GDP</i> |
| | 5 | Business Sophistication |
| | 5.1 | Knowledge workers |
| 17 | 5.1.1 | <i>Knowledge-intensive employment, %</i> |
| 18 | 5.1.2 | <i>Firms offering formal training, % firms</i> |
| 19 | 5.1.3 | <i>GERD financed by business, %</i> |
| 20 | 5.1.4 | <i>Women Scientists, % total S&T employees</i> |
| | 5.2 | Innovation linkages |
| 21 | 5.2.1 | <i>MNC investment in R&D Hubs</i> |
| 22 | 5.2.2 | <i>State of cluster development</i> |
| | 5.3 | Knowledge absorption |
| 23 | 5.3.1 | <i>FDI net inflows, % GDP</i> |
| | 6 | Knowledge & technology outputs |
| | 6.1 | Knowledge creation |
| 24 | 6.1.1 | <i>Scientific & technical articles/GDP</i> |
| | 6.2 | Knowledge impact |
| 25 | 6.2.1 | <i>High- & medium-high-tech manufactures, %</i> |
| 26 | 6.2.2 | <i>No. of Start-ups registered in last 1 year</i> |
| | 6.3 | Knowledge diffusion |
| 27 | 6.3.1 | <i>Comm., computer & info. services exp., % total trade</i> |
| | 7 | Creative outputs |
| | 7.1 | Creative goods & services |
| 28 | 7.1.1 | <i>Feature films/mn pop. 15-69</i> |
| 29 | 7.1.2 | <i>Ent. & media output/th pop. 15-69</i> |
| 30 | 7.1.3 | <i>Printing & publishing output manufactures, %</i> |
| 31 | 7.1.4 | <i>Creative goods exports, % total trade</i> |
| | 7.2 | Online creativity |
| 32 | 7.2.1 | <i>Digital Payments, % of total payments</i> |