



Government of Karnataka

ELECTRONICS SYSTEM DESIGN AND MANUFACTURING



**INVEST
KARNATAKA
2016**

GLOBAL INVESTORS MEET

February 3-5, 2016
Bangalore Palace, Bengaluru



Foreword



Shri S.R. Patil

**Honorable Minister for Planning and
Statistics, Information Technology,
Biotechnology, and Science & Technology,
Government of Karnataka**

“

The State Government's vision is to contribute atleast 20% of the country's total ESDM exports of USD 80 billion, generate 2.4 lakh new jobs, and file 5,000 patents by 2020. The objective is to make Karnataka the preferred investment destination in the electronic manufacturing sectors of Communication, Defense, Automotive, and Consumer products among others. The focus will be on building an ecosystem fostering entrepreneurship and clusters.

”

Foreword

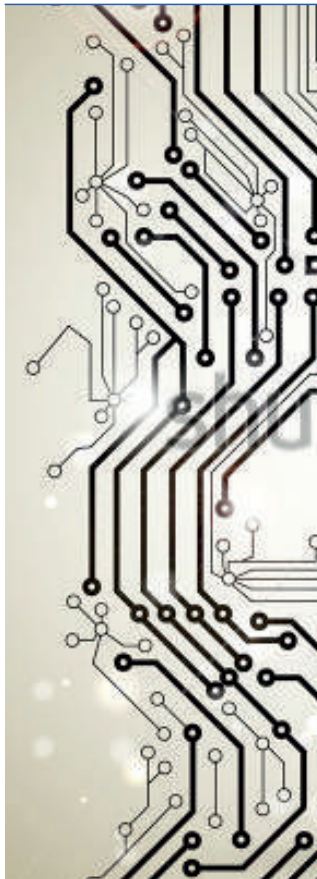


Ms. V. Manjula

Principal Secretary, Department of
Information Technology, Biotechnology,
and Science & Technology, Government
of Karnataka

“
*With the edge that the State enjoys
in IT sector, we are confident that the
Electronics manufacturing sector
will flourish. The ESDM Policy will
build on the chip design and
embedded software capabilities
which State already enjoys. Skilling
initiatives of the State will ensure that
there are skilled human resource
available for the Electronics
manufacturing sector.*”

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- 4** Government and Policy Support
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Highlights

1

Karnataka's Unique Advantage

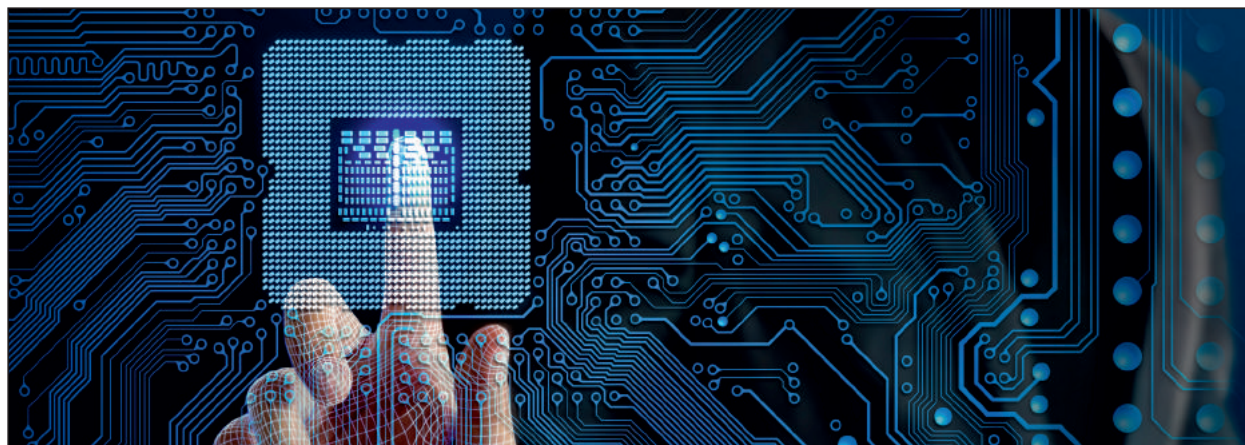
- 4th Largest contributor to Electronic Industrial Output in the country and recorded a growth rate of 18% CAGR (2008-13)
- Presence of 85 chip designing companies
- 3000 personnel to be trained every year in ESDM sector
- First state to roll out initiatives for innovation centres, skilling centres and dedicated ESDM clusters

Government Initiatives and Policy Support

- Karnataka Electronic System Design and Manufacturing(ESDM)Policyannouncedin2013
- Policy provides measures for investments, ease of doing business,venture capital, R&D and capital subsidies, Special package for Mega Projects
- Encouraging startup ecosystem, patentgrants and incentives for exportmarkets,Preferential Market Access (PMA) and Post performance Incentives and subsidies

Investment Opportunities

- Consumerelectronics, medicalelectronics, semiconductors, communication hardware and networking components
- Four Electronic clusters on the anvil



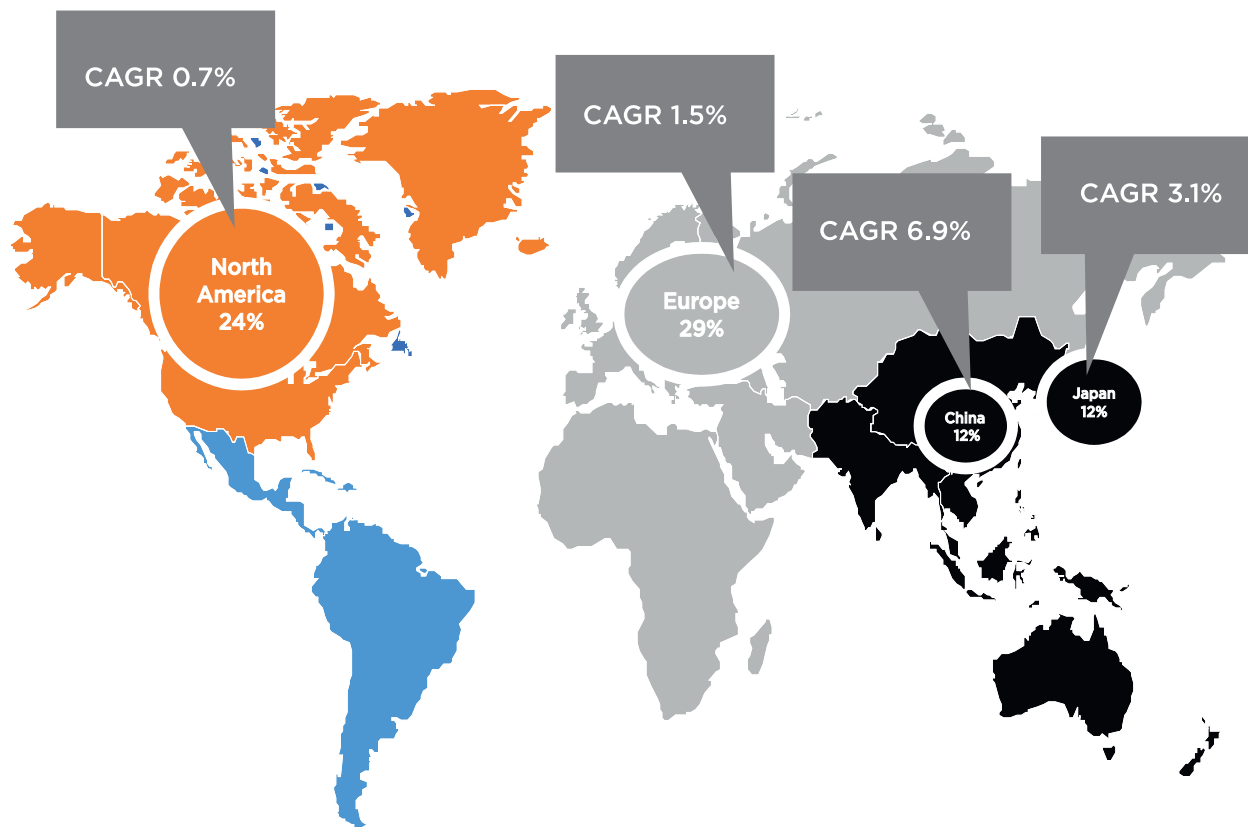
Sector Snapshot

2



Electronics is the fastest growing manufacturing sector in the world, driven by demand for new age consumer electronics

Electronics Market by Region, 2013



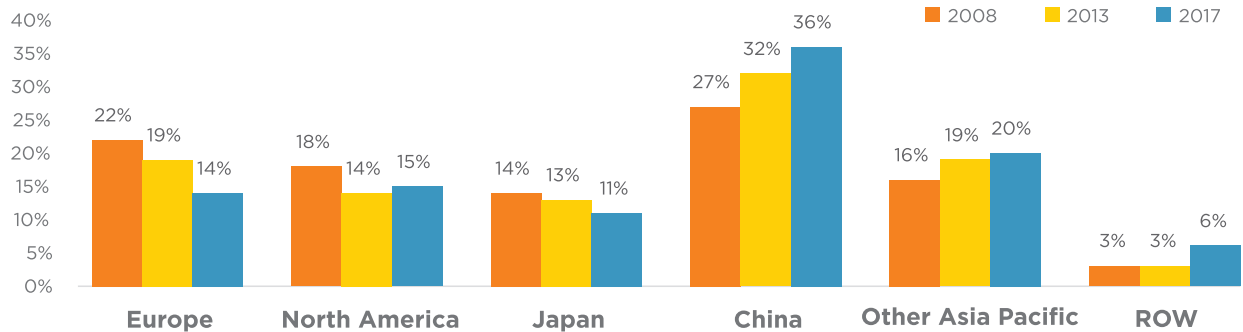
Other Asia Pacific Region 13%, CAGR 7.1%
Rest of the world 10%, CAGR 4.2%

**Global market is expected to reach
USD 2.4 Tn by 2020 from 1.75 Tn in 2013**

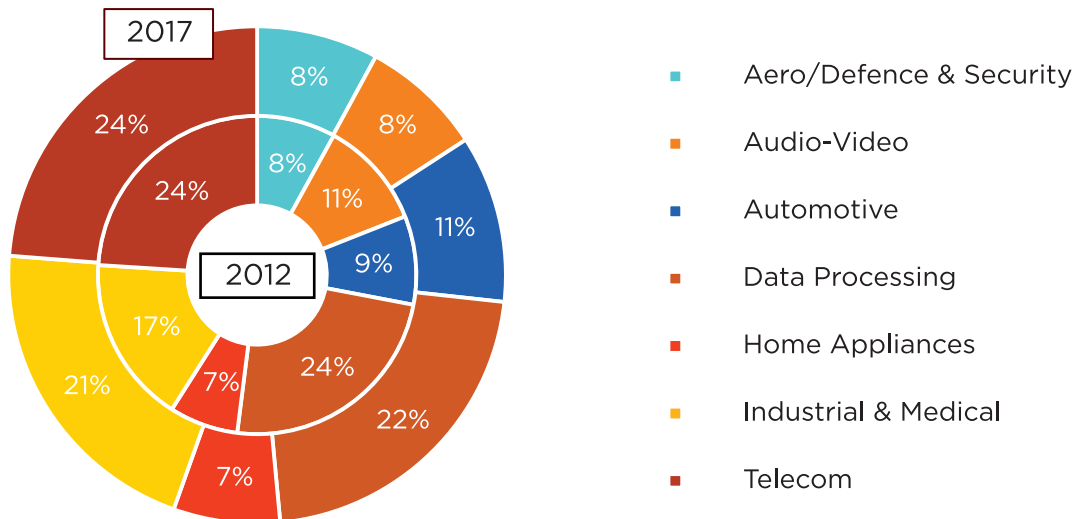
Source: World Electronic Industries 2008-2013-Decision

Share of Asia-Pacific Region in manufacturing of Electronic products is growing due to low cost of production and high consumer demand

Electronic Industry production by region, percentage



Electronic production trends by sector, percentage

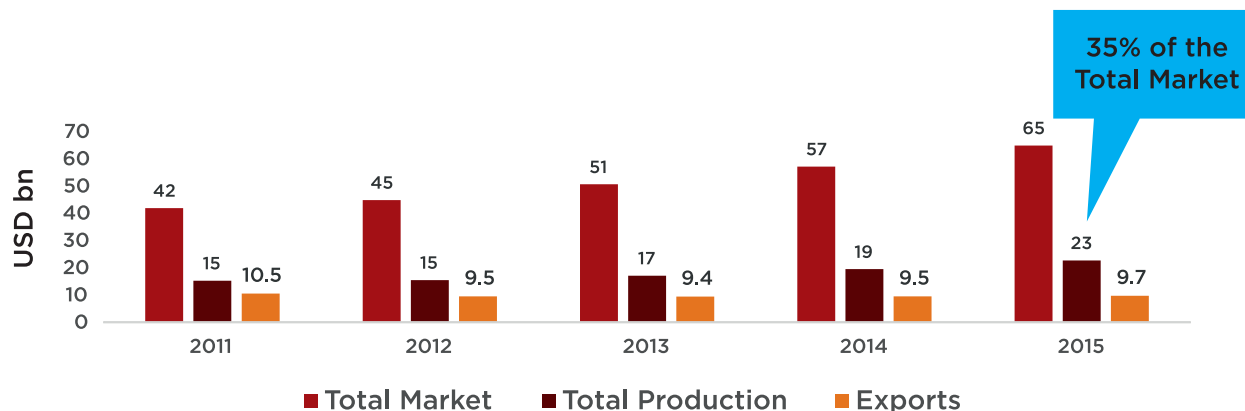


- Manufacturing of electronic goods have increased in Asia-Pacific Region
- The production has shifted from developed countries (Europe, North America, Japan) to Asia-Pacific countries

Source: World Electronic Industries 2012 -2017 & 2008-2013, Decision

Electronics sector in India is experiencing strong growth; providing a lucrative opportunity for investments

Indian Electronics Market, USD bn



Total Market refers to the domestic electronics consumption in India which includes all locally manufactured and locally consumed products as well as imports

- India Electronics market grew at CAGR of 12% between 2011-15
- 65 percent of the current demand for electronic products is met by imports

'Make in India' initiative focusing on reducing reliance on imports

"India will exceed 200 million smartphone users, topping the US as the world's second largest smartphone market by 2016" - (eMarketer)

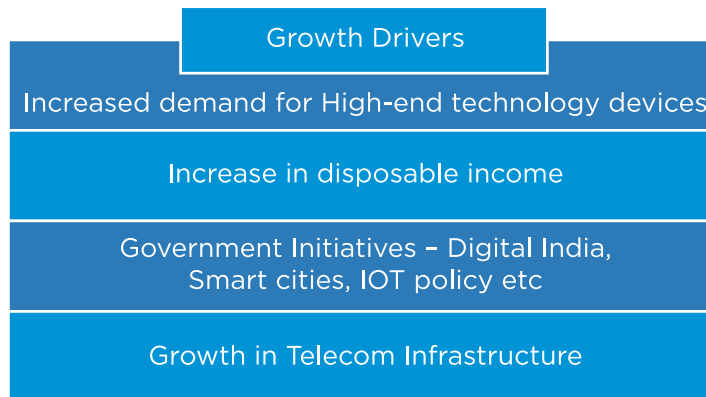
"India's appliance and consumer electronics sector is set to grow at a compounded annual rate of 13.4%, to touch \$20.6 billion by 2020" - (CEAMA)

Source: IESA-F&S 2014, IESA-EY-report-Indian-ESDM-Disability-Identification-Study

Opportunity for investors to manufacture in India, catering to domestic consumption and export

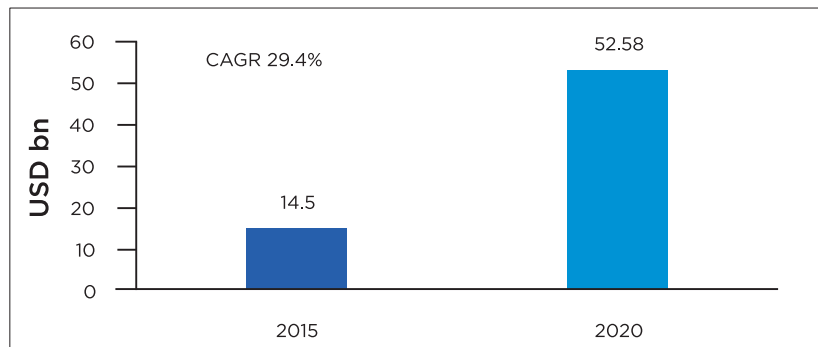
Domestic revenues account for ~ 70% of the industry's revenues

Product revenues constitute bulk of revenues followed by revenues from semiconductor design, and electronics components and services



India emerging as Semiconductor design hub

Semiconductor design Market in India, USD Billion

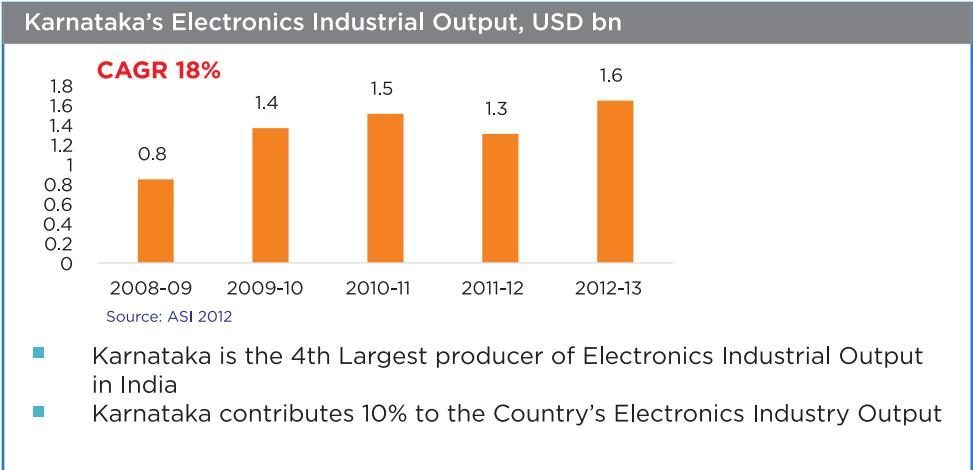


Key Market Categories-Semiconductor design, microprocessors, analogue devices, memory chips, discrete circuits and Application Specific Integrated Circuits (ASIC)

- Rising demand and availability of talent to boost growth of semiconductor design market
- Key end-user segments include communications, IT and consumer electronics
- National Electronic Policy provides Government support for electronics manufacturing clusters

Source: IESA, Oct 2014, IESA-SSIA-EY Report

Karnataka is one of the Top five States contributing to the Country's Electronics Industry



#4

Tech Hub

USD 2.8 bn

ESDM Revenues

Karnataka is the Knowledge and Innovation Hub of the country

Preferred Location for designing companies

Bengaluru is a global hub for R&D activity in the software industry, which will greatly aid the electronic hardware industry

Presence of major Electronic Hardware Cluster in Bengaluru

Two ESDM clusters in Bengaluru and Mysuru being set up with total investment of USD 25 mn

Leading ESDM companies in Karnataka



Karnataka is well positioned to nurture domestic growth in ESDM sector

A hand is holding a metal tool, possibly a probe or tweezers, which is positioned to hold a black integrated circuit (chip) with gold pins. The background is a gradient of blue and yellow. The text 'Karnataka's Unique Advantage' is written in white on the blue background.

Karnataka's Unique Advantage

3

Three key advantages of Investing in Karnataka

1

High Quality Talent Pool

Enabling Infrastructure Support

2

3

Knowledge and Innovation
Hub of the country

High Quality Talent Pool

1 1,00,000
Engineers
Added Annually

5 1 mn Direct
Employment,
2.5 mn Indirect
Employment in IT sector

2 25,000 PhDs

6 1,00,000 Research
Talent

3 200+ Engineering
colleges, 200 +
Polytechnics and
300 Industrial
Training Centres

7 5,00,000 IT
Professionals

4 400+ R&D
Institutions

8 3,500 Tech
Companies

1st State to roll out ESDM
Skill Development Program
15,000 youth to be trained
in 5 years



Moving towards building World's Largest Technology Cluster

“Knowledge Hub of India”

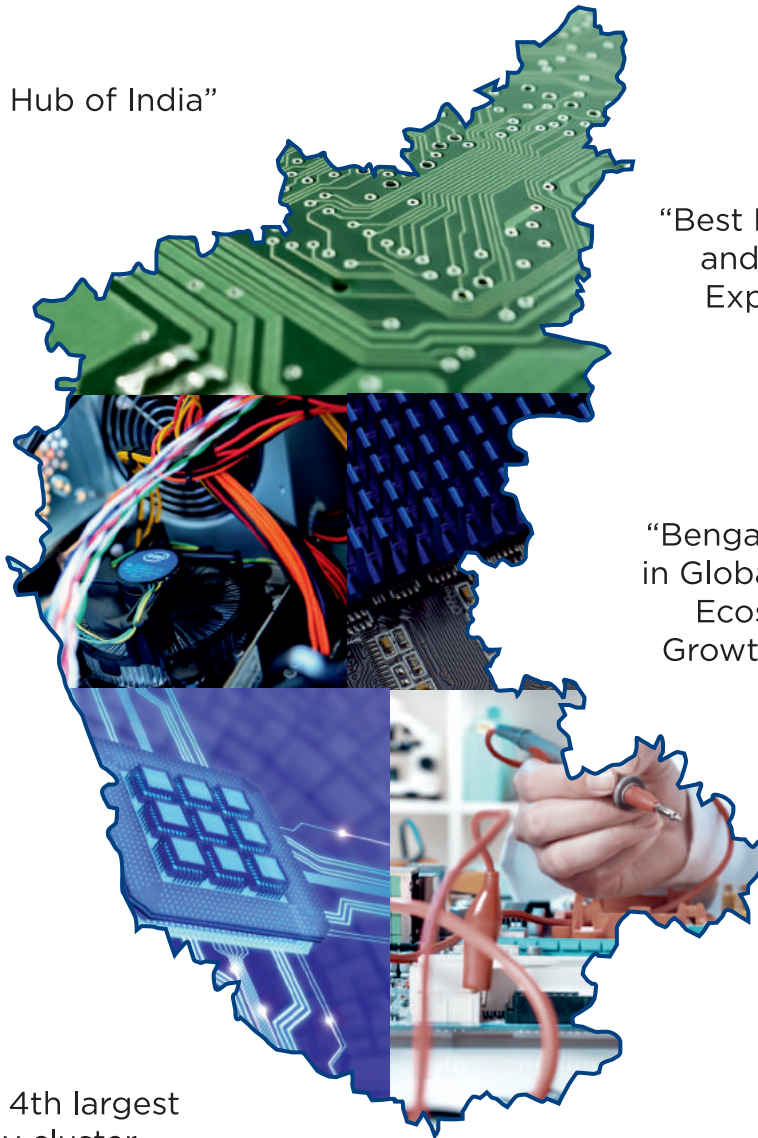
“Best Place to live and work for Expatriates”

“Largest number of R&D Institutions”

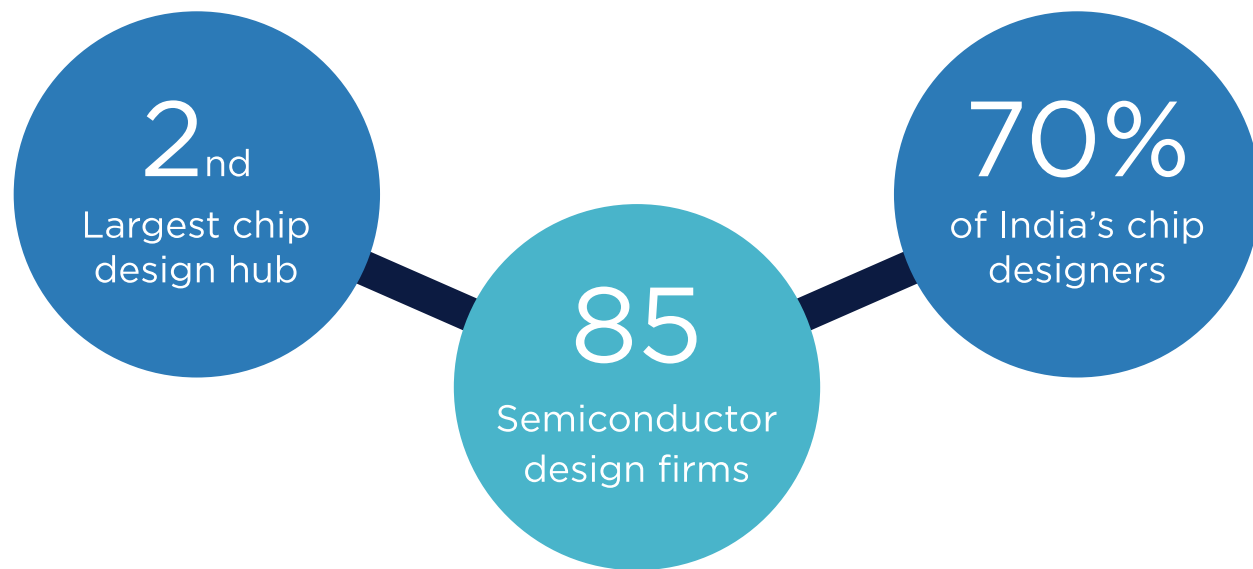
“Bengaluru -2nd in Global Startup Ecosystem Growth Index”

“Bengaluru - 4th largest technology cluster in the world”

“Silicon Valley of India”



Enabling Ecosystem



Two World class innovation centres for designing, prototyping, testing, characterization and certification-IIIT - Bengaluru and STPI - Bengaluru

ESDM Cell under Government of Karnataka

A proactive and business friendly policy environment

Industry oriented ICT Skill Development Programs in association with GoI, NASSCOM & IT companies

Startup capital of India, offering a unique advantage of innovative culture



1

Startup Hub

30% share in the country with over 4000 startup companies in Bengaluru with an average valuation of USD 3.3 mn and 14,000 investors

2

1st State to roll out Multi-Sector Startup Policy

1st State Policy on Startups addressing the need for technology in manufacturing and allied sectors

3

Startup Warehouse

GoK/KBITS in partnership with NASSCOM set up the first startup warehouse in the country

4

New Age Incubation Network (NAIN)

Academic institutions to be assisted to establish incubation facilities for funding of entrepreneurship projects in colleges

5

Startup Cell

To facilitate hand holding entrepreneurial ventures

6

Fund of Funds

Fund-of-funds for early stage startup ventures

Source: Start-up Policy 2015-20

Government Initiatives and Policy Support

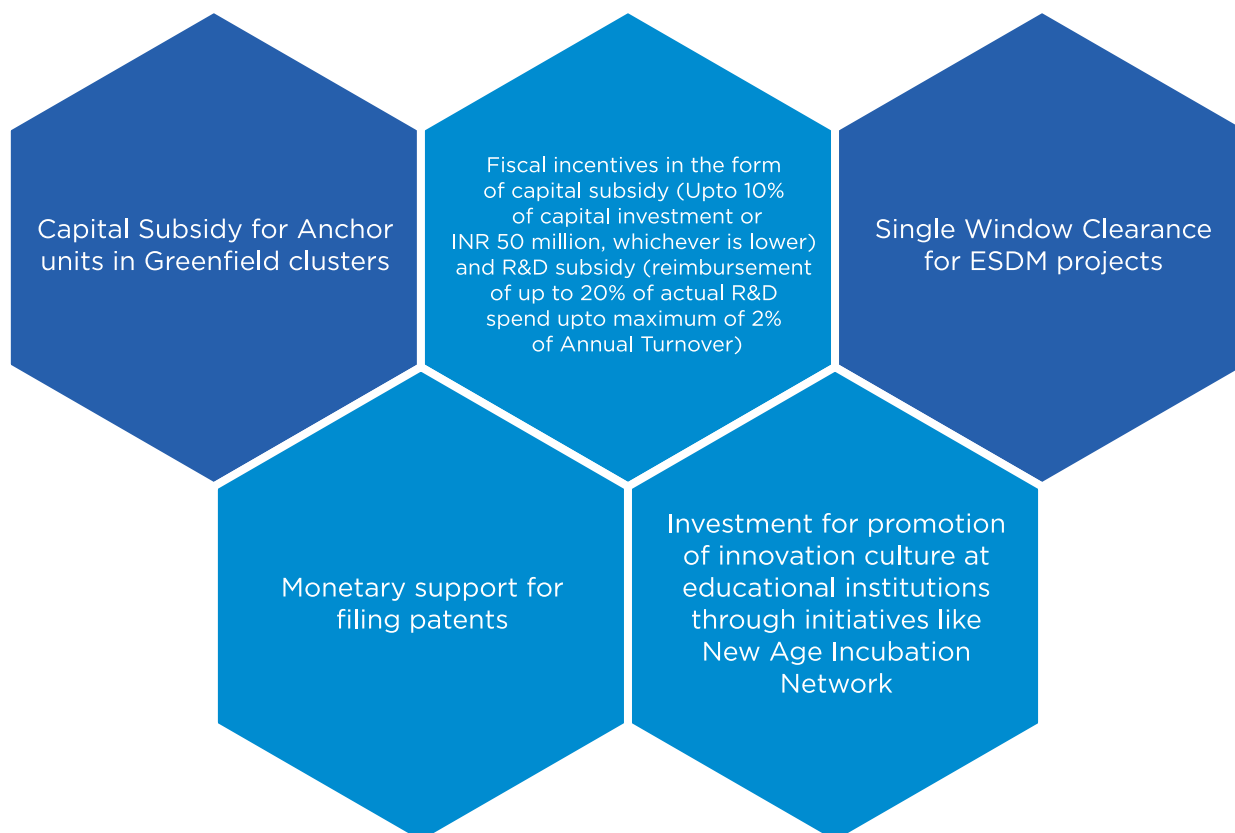
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UN

4

Karnataka Electronic System Design and Manufacturing (ESDM) Policy 2013

Objectives of the Policy

- To achieve 20% of Country's exports (by volume) and 10% of the Country's Revenue by 2020
- To contribute > 60% of India's chip design and embedded software turnover
- Produce 25% of India's PhDs in ESDM, 5000 patent filings by 2020
- 2,40,000 new jobs to be created by 2020

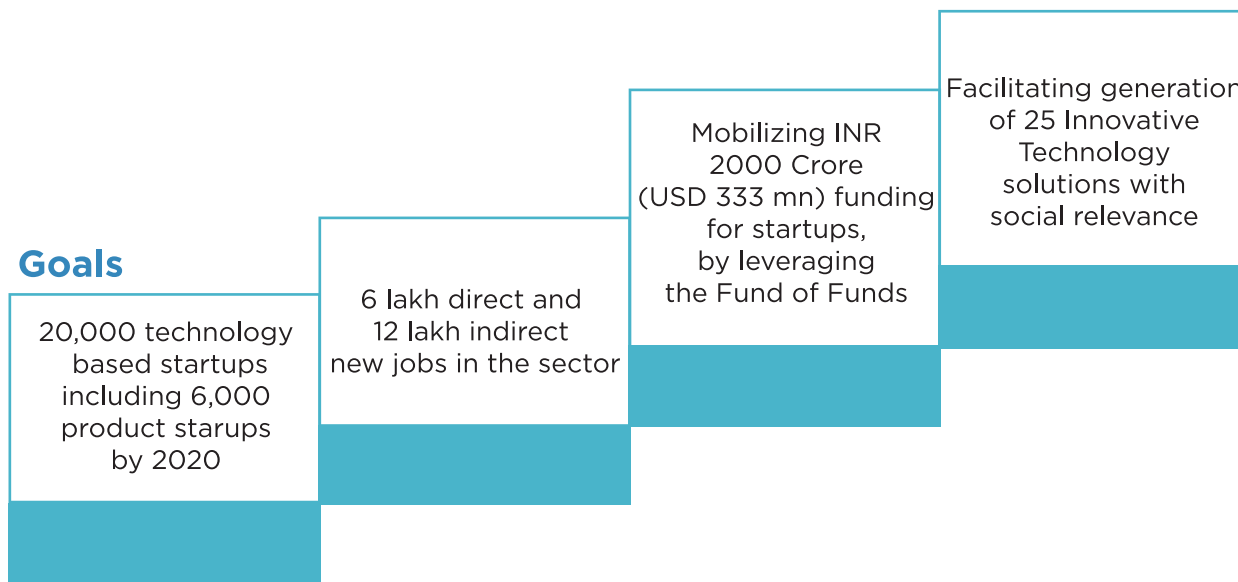


Karnataka Startup Policy 2015-2020



Towards a world-class startup ecosystem through strategic investment and policy interventions leveraging the robust innovation climate

Goals



Strategies

Fostering strong partnerships between R&D Institutions and Industry	Channelizing Innovation for Social Impact	Encouraging Entrepreneurship in Education through NAIN (New Age Incubation Network)
Providing early stage / Idea2PoC (Proof of Concept) funding	Promoting Capacity Building through exposure visits and workshops	Startup funding through Fund of Funds
Creating Incubation infrastructure through PPP	Providing State support in the form of incentives and concessions	Enablement through Startup Cell, Startup Portal and Hotline

Karnataka Semiconductor Venture Capital Fund (KARSEMVEN Fund)

Hardware startup Sensegiz catches fancy of KARSEMVEN, raises \$500,000

"Sensegiz did its sourcing, assembly, research, all out of Karnataka, and has a proven global product. This was a right fit for us," said Manish Kumar B, assistant VP at Karnataka Information Technology Venture Capital Fund (KITVEN), of which KARSEMVEN is the third fund. This is KARSEMVEN's third investment from the Rs 96.15 crore fund and it has taken convertible preference shares in the company. Set up in 2014-15, KARSEMVEN invests in sectors such as semiconductor, electronics system design & manufacturing (ESDM) and embedded systems in Karnataka.[sic]

Economic Times-Bangalore Edition-Nov 19th, 2015



Karnataka government fund puts Rs 5 crore in Graphene Semiconductor

Two-year-old Graphene Semiconductor has received first investment from Karsemven, a Karnataka government-backed specialised fund for semiconductor startups.[sic]

Economic Times-Bangalore Edition-Nov 29th, 2015

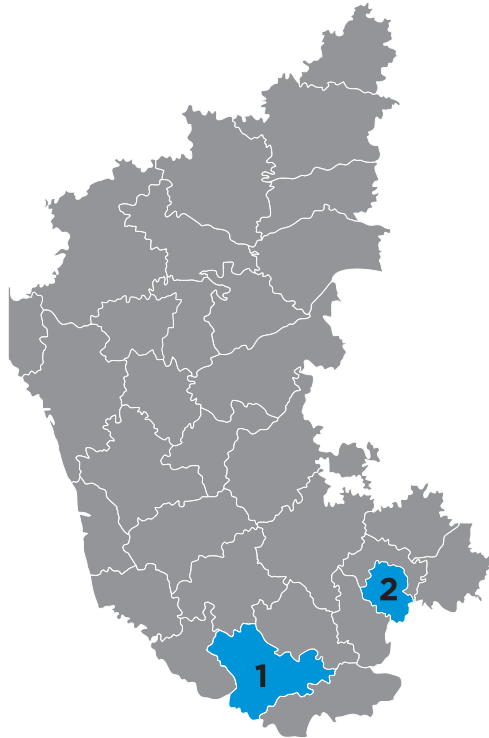


SEBI registered Venture Capital Fund launched during FY 2014-15; 3rd VC fund after the pioneering and highly successful KITVEN I & II.

Fund Managers-Karnataka Asset Management Company Private Limited (KAMCO), a Company promoted by KSIIDC, KSFC and SIDBI

Target Corpus-INR 100 Crore (USD 17 mn) With INR 25 Crore (4.2 mn) contribution from the Govt of Karnataka

Support Infrastructure



SMART Lab (Semiconductor Measurement, Analysis and Reliability Test Lab)

50:50 collaboration between STPI and GoK

Reliability testing and measurement equipment

Electronic Hardware Common Facility Center

1.Mysuru EMC Cluster

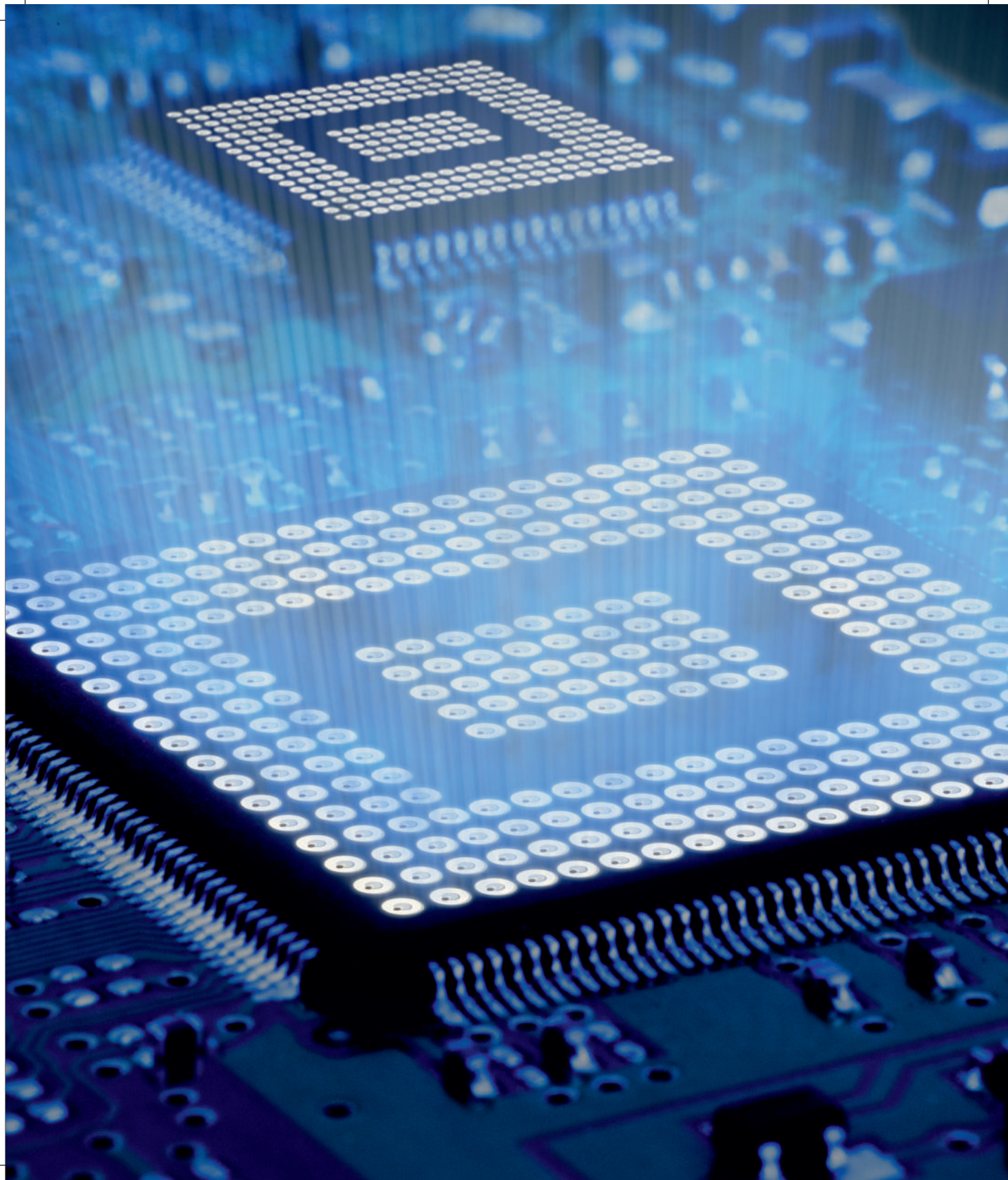
- Cost of the project- INR 30 Crore (USD 5 mn) with Govt participation of INR 25 Crore (USD 4.16 mn)
- Chief promoters: Rangsons (Cyient), Skanray, Kaynes, TU, etc
- Funding support of Government of India and Government of Karnataka

2.Bengaluru EMC Cluster in Electronics City

- Cost of the project-INR 100 Crore (USD 17 mn) with Govt participation of INR 70 Crore (USD 12 mn)
- Funding support of Government of India and Government of Karnataka

Facilities available in these clusters

- Rapid Prototyping
- Proto PCB Manufacturing
- SMT assembly line with Testing facility
- Calibration center
- EM Discharge Simulation Lab, Tool room and mouldings



The image features a vibrant orange background with a large, stylized number '5' in the bottom right corner. On the left side, there is a dark blue area containing glowing blue circuit board patterns. The text 'Investment Opportunities' is positioned in the upper right quadrant, enclosed in a white rectangular box with a thin orange border. The overall design is modern and tech-oriented.

Investment
Opportunities

5

Prospective Investment areas in Karnataka

Potential Areas of Investments

Medical Electronics

- Diagnostic and therapeutic instruments
- Equipment testing and monitoring with wireless connectivity

Communication Hardware and Networks

- Manufacturing of networking hardware like gateways, routers, network bridges, switches, convertors, etc
- Mobile phones, Personal Display Assistants (PDAs)

Semiconductor Design

- Medical, automotive, mobile equipment
- Design for consumer electronics like personal electronics, PCs, servers, etc

Consumer Electronics

- Audio and video equipment for home entertainment (TV sets, set top boxes, music systems), and musical instrument amplification

Defence Electronics

- Maintenance, Repair and Overhaul (MRO)
- System design, engineering and testing services
- Development of Tactical Communication System; Internet protocol based mobile system

For Investments in Infrastructure

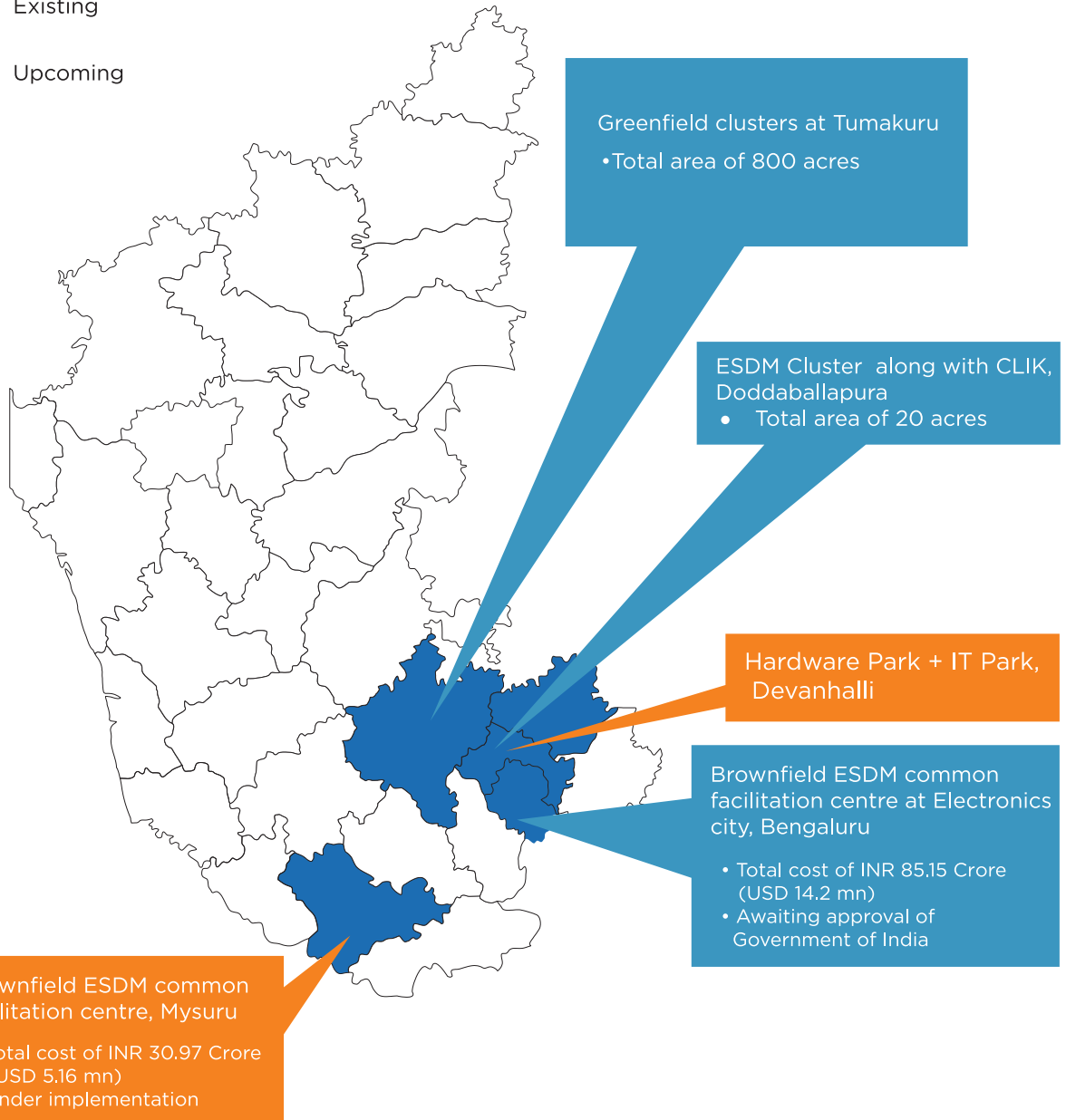
Brownfield and Greenfield Industrial Clusters

Green field clusters to be developed with infrastructure like roads, power and water Eg: Vasanthnarsapura Phase III & IV and Sira

Brown field Clusters to be developed with laboratory, assembly, and testing centres, PCB manufacturing, etc

Existing and Upcoming clusters for ESDM sector in Karnataka

- Existing
- Upcoming



Investment Facilitation

- **Karnataka Biotechnology & Information Technology Services (KBITS)** was established in the year 2000
- KBITS provides secretarial services to the State Level Single Window Clearance Committee and State High Level Clearance Committee, for speedy clearance of the Information Technology and Biotechnology Projects in the State
- KBITS administers incentives and concessions to Information Technology and Biotechnology companies
- KBITS is the single point of contact on behalf of the State Government, for providing all basic information to investors to facilitate the establishment of Information Technology and Biotechnology Industries in the State





Government of Karnataka

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