

# Global Start-ups and Innovations Industry

# **Global Scenario**

# **Innovation**



Innovation is the application of new ideas to the products, processes, or other aspects of the activities of a firm that leads to increased "value" for both firm and consumers.



Measured in terms of performance and growth lead by upgradation in:



- Efficiency
- Productivity
- Quality
- Market share

## **Need for Innovation:**

Hypercompetitive business environment. Increasing expectations and dynamic consumer preferences.

Increasing focus on technology and business model innovation

# Impact on Manufacturing:

- Reduction in production cost
- Boosts market competitiveness
- Creation of opportunities

# Global R&D Scenario

The combined Asian R&D investments are growing at a faster rate than elsewhere and their global R&D shares continue to increase at almost 1% per year

- United States leads the world by investing heavily in R&D and innovation
- China will become the world's top R&D spender by 2019
- In most countries, 10% to 20% of business
   R&D is funded with public money
- Switzerland, the
   United Kingdom,
   Sweden, the
   Netherlands, and the
   United States of
   America are the
   world's five most innovative nations
- China, Malaysia,
   Vietnam, India,
   Jordan, Kenya,
   Uganda, and a group
   of other countries are
   outpacing their
   economic peers in
   2015

# **Global Scenario**

# Top Global Leaders in Innovation, Gll Index 2017

- Switzerland
- Sweden
- Netherland
- USA
- UK



# Top Regional Leaders in Asia

- Singapore
- Republic of Korea
- Japan
- India
- Iran
- Kazakhstan

# **Top 10 most Innovative Companies**

2016 Rank	Company	Geography	R&D Spend (\$Bn)*
1	Salesforce.	United States	8.1
2	Tesla Motors	United States	12.3
3	Amazon	United States	1.8
4	Shanghai RAAS Blood Products	China	0.7
5	Netflix	United States	12.5
6	Incyte	United States	12.7
7	Hindustan Unilever	India	4.8
8	Asian Paints	India	12
9	Naver	South Korea	4.2
10	IBM	United States	5.2
Source: www.forbes.com			



U.S. R&D to increase 3.4% to \$514 billion

• China R&D to increase 6.3% to

\$396 billion

 Asian R&D Shift continues with nearly 42% share

R&D continues to drive overall R&D Investments

# **Global Scenario - Startups**



European ecosystems are best at reaching a global customer base

For startups in Europe, 20.7 percent of their customers come from outside of the continent, whereas the average for all other regions is 12.8 percent.

Advisors are most heavily used by startups in Asia-Pacific ecosystems

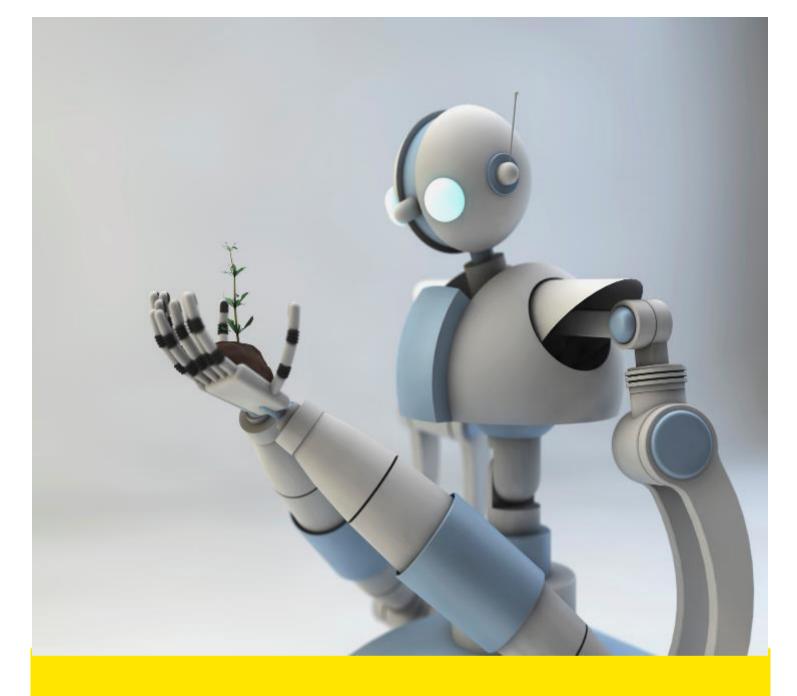
Startups in the Asia-Pacific region have 48 percent more advisors with equity than the rest of the world.

Employee stock options are more widely used inthe United States

AmongdAmerican ecosystems, 42 percent of startups offer stock option plans to all their employees, compared to an average of 22 percent in the rest of the world. (This is likely related to differences in tax law.)

		Performance			
Score based on	Performance	Exit Value	Output	Startup Value	
	Silicon Valley	1	1	1	
N	lew York City		2	3	
	London	3	4	4	
	Beijing	2	3	1	
	Boston	6	6	7	
	Tel Aviv	10	8	9	
	Berlin	5	11	6	
	Shanghai	17	12	5	
	Los Angeles	12	5	8	
	Seattle	13	13	13	
	Paris	16	10	16	
	Singapore	20	14	17	
	Austin	14	17	14	
	Stockholm	9	19	11	
	Vancouver	18	20	18	
	Toronto	15	16	19	
	Sydney	7	18	20	
	Chicago	11	9	15	
	Amsterdam	8	7	12	
	Bangalore	19	15	10	



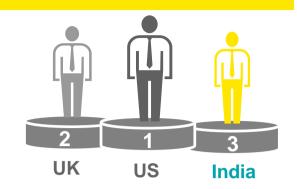


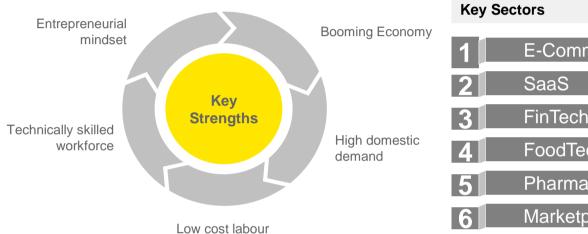
Start-ups and innovations Industry in India

# **India Scenario**

## **Key Highlights**

- ▶ India is 3<sup>rd</sup> largest tech startup hub in the world after US and UK
- ▶ The country has 19,400 technology enabled startups
- ► Average number of tech startups coming up annually 800
- Average age of startup founders is 28
- ▶ Government of India's push for Start up India
- ▶ The number of incubators have grown drastically
- ▶ PE/VC firms have doubled in couple of years





Key Sectors				
1	E-Commerce			
2	SaaS			
3	FinTech			
4	FoodTech			
5	Pharma			
6	Marketplace			

**Tech funding & geographical distribution – Number** of companies that have raised angel/seed or venture capital financing since 2011, until August 24, 2015

City	Big data	Cloud/ SaaS	Digital Media	E- commerce	Internet Classifieds	Mobile Technology	Web based services	Total
New Delhi	4	26	6	52	12	28	108	236
Mumbai	10	17	10	34	17	24	87	199
Pune	2	7	0	2	5	3	10	29
Hyderabad	2	6	0	8	5	5	19	45
Bengaluru	12	64	10	45	12	56	112	311
Chennai	3	11	1	9	4	5	22	55

#### Start-up Definition (As defined by DIPP)1

Start-up means an entity, incorporated or registered in India:

- ▶ Not prior to seven years, however for Biotechnology Start-ups not prior to ten years
- ▶ With annual turnover not exceeding INR 25 crore in any preceding financial year
- ► Working towards innovation, development or improvement of products or processes or services, or if it is a scalable business model with a high potential of employment generation or wealth creation

Source: Economic Survey 2015-16, Grant Thornton And ASSOCHAM report on Startups 2015, VCCircle, DIPP

# **India Scenario**

### **Global In-house Center (GIC)**

#### Global In-house Center (GIC)

- ➤ Over the last decade, GICs in India have emerged as a powerful value creator, maturing from low cost delivery centres to global competency centres which serve as a hub for complex processes
- ➤ The Indian GIC landscape comprises of 825+ players, generating revenues ~ USD 16 billion with
- ► Employment generation of 530,000+ people
- More than 40% of GICs globally are located in India and offer an entire gamut of services ranging from IT services, software products, ER&D and BPM services



## Key initiatives by States across India

State	Initiatives
Gujarat	CSR, funding agency Free access to University, Libraries, Govt. Laboratories, Center of Excellence Gujpreneur -Database of Guj Entrepreneurs GVFL, IoT Laboratory
Chhattisgarh	Startup Bootcamps in 24 districts + 20 college level boot camps in other 3 districts, State Startup challenge, Leap of Faith: Interest Free Debt
Jharkhand	10 lacs as product development, grants to education institutes, Virtual Incubator, VC Fund, procurement
Karnataka	Startup Cell, hotline, Exchange programmes
Kerala	Student Entrepreneurship policy, Learn to Code, Startup Leadership Academy, International Exchange Programme, Startup Box, accelerator
Madhya Pradesh	Marketing assistance after funding, Incubation, Startup Cell
Odisha	Sector specific incubators, Academic intervention, Awards, International exchange, procurement,
Telangana	T-Hub, PPP model, MOOCs, IT skills, Procurement, Open Data, Global Roadshows, Digitization
Uttarakhand	Startup parks in every district, Academic intervention (school syllabus), State exchange, PSU CSR > Incubation
West Bengal	Mentor and Expert Network(MEN), free online project assessment
Andhra	Innovation Academy, Boot camps, academic intervention, Innovation database, Market support
Bihar	Awards, Startup Challenge, EDCs at district level, Common platform

Source: Bain, EY Analysis

# **India Scenario**



# **International Tie-ups**



#### Israel

- Government of India launched an India-Israel Global Innovation Challenge inviting solutions in the area of Agriculture, Water & Digital Health
- T-Hub has inked a pact with Tel Aviv University (TAU) Entrepreneurship Centre to launch an accelerator programme
- ► Israel has the highest per-capita ratio of start-ups in the world



#### Russia

- India Russia Bridge for Innovations (IRBI) A bilateral entrepreneur exchange programme coordinated by Society for Innovation and Entrepreneurship (SINE) in Mumbai and Global Venture Alliance (GVA) in Moscow
- Partnership to augment trade between two countries



# United States of America

- ► Hosted in September 2015, India - US Start-up Konnect conducted to highlight India's potential
- Start-ups selected from sectors such as Agriculture, Healthcare, energy, Financial technology and Biotechnology
- Initiative is a combined effort by NASSCOM, The Indus Entrepreneurs (TiE), and IIM Ahmedabad's CIIE



#### **Switzerland**

- An initiative of the Swiss State Secretariat for Education, Research and Innovation (SERI)
- Swissnex
  (Bangalore) –
  webinars to make
  Swiss start-ups
  "India ready"; fact
  finding, market
  validation and entry;
  enabled 40 Swiss
  start-ups to come to
  India



# **Funding**

# **Government of India support**

- Corpus of USD 1.54 Bn to be managed by SIDBI under the Startup Action Plan launched in 2016 by Government of India
- India Aspiration Fund of USD 0.31 Bn for micro, small and medium enterprises
- Till date SIDBI has committed USD 0.54 Bn to 125 funds, with disbursements of USD 0.20 Bn have been made to 82 funds

## **Trends**

- Investment of over USD 5.56 billion across 452 Indian tech startups during the period January-June 2017
- The start-up industry in India is undergoing through a course correction, with only matured start-ups being funded as Venture Capitals (VCs) are more cautious now

Source: http://www.startupindia.gov.in, http://www.swissnexindia.org/, https://yourstory.com, Inc42

# **Government of India Initiatives**



1

## **Start-up Action Plan:**

Flagship initiative of Government of India, to create a strong Start-up and innovation eco-system in India. The Action plan is based on Simplification and handholding, Funding and Industry-Academia partnership incubation model.

2

## Start-up India Hub

Start-up India hub was operationalised on 1st April, 2016 to resolve queries and provide handholding support to Start-ups. **Start-up India Online Hub was** launched on 19th June, 2017 to serve as an online platform.

3

#### **Patent Benefits**

A panel of facilitators for patent design and application has been constituted to fast track the process of patent filing and acquisition.

4

#### Tax Benefits

The Finance Act, 2016 had made provision for Start-ups to get income tax exemption for 3 years in a block of 5 years, if they are incorporated between 1st April 2016 and 31st March 2019.

5

#### Fund of Funds for Start-ups (FFS)

A 'fund of funds' of USD 1.54 bn to support innovation driven Start-ups has been established which is being managed by SIDBI. INR 600 crore has been released to SIDBI. Total commitments stand at INR 623.5 crore to 17 AIFs.

6

#### **Atal innovation Mission**

Establishment of Atal Tinkering Labs (ATLs) and Incubators across India through a screening and selection process to nurture innovation and curiosity at school and college level.



#### **Others**

Smart India Hackathon an all India event, was conducted by MHRD on 1<sup>st</sup> April 2017, with participation by 29 departments, 40000+ students, 7500 teams from tier 2-3 cities to solve problems in the 36 hour non-stop digital programing event.

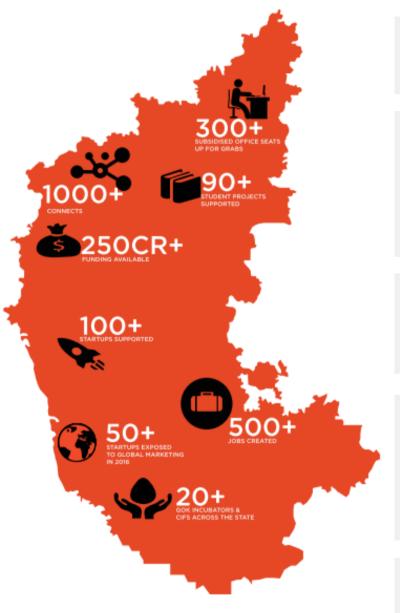


Karnataka's Start-ups and Innovations Industry

# Karnataka Scenario

Bengaluru is Start-up capital of India

- Bengaluru is among the 20 best start up city ecosystems in the world
- ➤ State is 4th largest technology cluster globally and 2nd fastest growing ecosystem in India
- Karnataka has over 4,000 start-ups with a share of nearly 30% of all start-ups in India



State government has come up with a dedicated Start-up Cell guided by the Start-up Policy, for the first time in India.

Start-up booster kit launched in 2016 which contains software tools, cloud credits, access to mentors, legal and consulting accountants and access to government funding and government supported incubators for all the startups registered

State start-up policy envisages the growth of 20,000 new start-ups, including 6,000 product start-ups, 6 lakh jobs directly and 12 lakh indirectly, by 2020

Government is nurturing the ecosystem with strong policies like the i4 Policy, BT Millennium Policy, ESDM Policy and the KAVGC Policy, giving the ecosystem a strong foundation to help entrepreneurs and the established industries to flourish

- Promoting capacity building through exposure visits and workshops
- Opportunity to attend global conferences to expand markets
- Opportunity to meet incoming trade delegations and foreign investors

**ELEVATE 100**, an initiative of the Department of Information Technology, Science and Technology, Government of Karnataka aims to provide a comprehensive entrepreneurship platform for startups

# **Government Initiatives**



Incubation infrastructure creation through PPP

- ▶ Partner selection through RFPs or with Industry Associations
- Government support shall be for 3 years
- Networking and Aggregation of Common instrumentation Facilities (CIFs) like IMTI etc.
- Announcement of 5 challenges every year
- Pilots to be implemented through departments
- Winners to be provided with incubation space on a preferential basis

Channelizing innovation for social impact

Early stage/Idea2 POC (proof of concept) funding

- Validation of Proof of Concept
- Virtual Incubation
- Corpus fund for training workshops and exposure trips
- Opportunity to attend global conferences and meet incoming trade delegations and foreign investors etc.

Capacity Building

Entrepreneurship in education through NAIN

- Support to professional and PG colleges in tier-II and tier-III cities for setting up the incubator
- ▶ 10 student projects funded in each partner institute along with mentor interaction

#### **Incentives**

- ▶ Reimbursement of VAT and CST for early stage start-ups
- ▶ Reimbursements on Patent spends for both domestic and foreign filings
- ➤ Reimbursement on marketing expenditure upto 30% of the cost incurred subject to Rs. 5 Lakhs per start-up annually
- ▶ 10% reservation for women in seats of partner incubators
- ➤ Self Certification under various enactments

# **Funding Opportunities**

Karnataka was a pioneer in funding the growth of IT industry through its KITVEN-1 and 2 funds. Under its Innovate Karnataka initiative, the State Government would be providing financial support equivalent to Rs 300 crore (46,153,846 USD) in the form of grant/equity through its various funds to startups; micro and small enterprises in IT,BT, and other manufacturing sectors in the next four years



#### KARSEMVEN FUND

- ► Fund Size: 100 Crores (15,384,615 USD)
- ➤ **Sector:** Semiconductor, Electronics System Design & Manufacturing (ESDM), Embedded Systems and such other allied sectors.



#### **IDEA2POC FUND**

- ► Fund Size: up to 50 Lakhs (76,923 USD)
- ► Sector: All technology based sectors.
- ► Eligibility: Students, professionals and startups may apply here for this GoK grant-in-aide



## KITVEN FUND-3 (BIOTECH)

- ► Fund Size: 50 Crores (7,692,308 USD)
- ▶ Sector: Bio Technology, Life Sciences and other allied fields.



#### STARTUP FUND OF FUNDS

- ► Fund Size: 200 crores (30,769,231 USD)
- ► Sector: Multi sector
- ▶ Eligibility: VC Funds must be compliant with SEBI and other regulatory
- framework in India.



### **GRAND CHALLENGES FUNDS**

- ► Fund Size: Rs. 15 Crores (2,307,692 USD)
- ➤ Sector: All sectors
- ▶ Eligibility: The State Government will use the mode of grand challenges to identify 5 challenges every year, to seek innovative, technology-based solutions from startups.



## **AVGC Venture Fund**

- ► Fund Size: INR 20 Cr (3,076,923 USD)
- ▶ Sector: Animation, visual effects, gaming and comics

\* 1 USD = 65 INR

# **Incubators**

## GOK NASSCOM 10000 STARTUPS WAREHOUSE

- ▶ GoK NASSCOM Startup warehouse with a subsidized co-working space of 30,000 sqft facility will help create a very robust ecosystem to support the early stage companies by getting angel investors, VCs, and enterprises to play a more active role in Bengaluru and getting more start - ups to succeed
- ► The facility is now expanded with Center of Excellence for innovation and entrepreneurship including an Hackcelerator, a Center of Excellence for Design- an integrated design work space and a Wearables Lab
- ► Facilities such as IOT Lab, Device Lab, Event Space, H-accelerator Space and 18 Conference Rooms

# GOK INCUBATOR FOR TECH START-UPS" (GIFTS)

- ▶ Dept. of IT, BT and S&T, Govt of Karnataka through transparent and unified tendering process [e-procurement platform] has identified a private partner, M/s Springboard Solution Pvt. Ltd as Program Manager (PM) to operate its 1st incubator operated on a truly PPP mode
- ► The "GoK Incubator for Tech Start-ups" (GIfTS) is intended to support and nurture startups that are involved in the domain of Information and Communication Technologies through the development of software / hardware products and services. The core focus is on development of software, embedded solutions, internet applications, SMAC etc.
- ► Facilities such as Device Lab, Event Space, Hackathon- accelerator Space

#### **BANGALORE BIOINNOVATION CENTRE**

- ▶ It is a first of its kind and the largest Bio-incubation centre in the country and is an initiative of Department of IT, BT and S&T, Government of Karnataka. Nestled between academic zone comprising of Institute of Bioinformatics and Applied Biotechnology (IBAB), Centre for Human Genetics (CHG) and Bio-industrial zone, the centre aspires to create a seamless value chain connect from ideas to start-ups and ventures
- ➤ With a total funding of 56 Cr in building, labs and instrumentation, the facility presently has 50000 sq feet of state of the art incubation and instrumentation facility. 16 top notch BT startups selected through a rigorous selection process, are benefiting from the infrastructure available no where else in the country
- ▶ BBC envisions nurturing the innovations in broad areas of biotechnology such as healthcare, agriculture, food and nutrition, environment by providing state-of-the-art Infrastructure including central equipment facility, mentorship, networking, branding and funding support
- ► Facilities such as Lab Spaces, Plant and Animal Tissue Culture Facility, Microscopy Facility, Molecular Biology Lab, Proteomics and Small Molecule Analysis Lab, Flow Cytometry Facility, Confocal Facility, Lab Support Area, Microbiology Labs, Fermentation Facility, Histology Lab

#### **GOK-MOBILE 10X START-UP HUB**

- ► An initiative of Government of Karnataka in partnership with Internet and Mobile Association of India
- ► Hub is set up as Centre for Apps Excellence for innovation and entrepreneurship in Apps development
- ► It provides early stage Apps startups and developers with highly affordable co-working space, training centre, testing lab and design centre conveniently located in the center of the city
- ► Facilities such as Capacity to house and support 70 Plus Mobile Developers, Support System Divided into Zone, Testing Zone, Monetization Zone, Design Zone, Play Zone etc.

# **Common Instrumentation Facilities**



# INSTITUTE FOR BIOINFORMATICS AND APPLIED BIOTECHNOLOGY (IBAB), BENGALURU

- ► The Institute of Bioinformatics and Applied Biotechnology (IBAB) was established by the Government of Karnataka. IBAB's mission is to catalyse the growth of the biotechnology and bioinformatics industries in India.
- ► Area : Biotechnology & Bioinformatics
- ► Facility: Biotechnology & Bioinformatics Laboratory equipped with Instruments including Electrophoresis Units for DNA and Proteins, Gel Doc, HPLC, FPLC etc.

## GANIT LAB, BENGALURU

- ▶ It is an independent not-for-profit Bio-IT centre set up in 2010 through a Public-Private Partnership between IBAB and Strand Life Sciences.
- ► Area: Work at GANIT ranges from whole genome sequencing to primary and secondary data analysis, microarray, capillary sequencing etc.
- ► Facility: The well-equipped Bioinformatics & Molecular Biology lab is available to support both research and entrepreneurship.





#### CENTRE FOR HUMAN GENETICS, BENGALURU

- ▶ It is engaged in advanced research, teaching and training in areas which lie at the interface of modern genetics and medicine.
- ▶ Area : Genetic disorders, both chromosomal and DNA mutations
- ► Facility: State-of-Art lab with instruments like DNA Sequencer, PCR machine, Micro-volume Spectrophotometer, Gel Doc, Preparatory Centrifuge, etc.

#### INSTITUTE OF AGRICULTURE BIOTECHNOLOGY (IABT)-DHARWAD

- ► A centre of excellence for Research and Training in the area of Agricultural Biotechnology is set-up in collaboration with University of Agricultural Sciences, Dharwad.
- ► Area: Agri Biotechnology
- ► Facility: The institute has five modern labs for undertaking R & D, Marker-aided selection / Trait integration for crop improvement, AGRI-Incubation Centre and Common Instrumentation Facility which include include Microbial Scale-up System, Gradient Thermal cycler etc. .





# NUTRA - NUTRI PHYTO PHARMACEUTICAL PARK, MYSURU - KARNATAKA

- ▶ Initiated for nurturing entrepreneurs in the area of Nutraceuticals and Functional Foods in collaboration with Central Food Technological Research Institute (CFTRI), Mysuru to provide opportunity to explore and innovate ideas into a commercially viable technology by Start-up ventures and SMEs.
- ► Area: Nutraceuticals and Functional Foods
- ► Facility: The Instrumentation facility has high end equipment including HPLC with PDA Detector, GCMS, ICP, Spectrophotometer

# **Common Instrumentation Facilities**



# CENTRE FOR BIOTECHNOLOGY RESEARCH - UNIVERSITY OF HORTICULTURAL SCIENCES. BAGALKOTE

- ► Established in collaboration with University of Horticultural Sciences, Bagalkote,
- ► Molecular biology laboratories, genetic Engineering facility, transgenic containment, breeding cages and other facilities available.
- ► Area: Molecular biology & Genetic Engineering
- ► Facility: The labs are well-equipped with Instruments like Real Time PCR with HRM function, Liquid Handling Systems, Gyratory Shaker, Thermal Cyclers, Simple Sequence Repeat Separation Unit, etc.

## CENTRE FOR NANO SCIENCE AND ENGINEERING, BENGALURU

- ► The Centre for Nano Science and Engineering (CeNSE) focuses on interdisciplinary research and education in the broad area of nanoscale science and technology.
- ► Area: Nano Science, Nano Technology, Nano Electronics, Sensors, Nano materials, Nanotech Sensors for IoT, 3D System Integration, Electronics
- ► Facility: The Centre has state-of-the-art nanofabrication and characterization facilities





# SEMICONDUCTOR MEASUREMENT, ANALYSIS & RELIABILITY TEST LAB, BENGALURU

- ➤ STPI in association with Government of Karnataka has setup Semiconductor Characterization lab in Bengaluru, branded as SMART (Semiconductor Measurement Analysis & Reliability Test) lab. Tessolve Semiconductor Pvt. Ltd., is chosen to be the partner by STPI in housing and managing the SMART Lab as part of providing eco system that helps in Semiconductor, product and system design companies
- ► Area: Electronics, Semiconductor Design & Manufacturing
- ► Facility: The STPI SMART lab is equipped with latest high-end Semiconductor Test & Measurement and Reliability equipment.

# INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY BENGALURU- INNOVATION CENTRE

- ▶ IIIT-B Innovation Centre is one of innovation / incubation centers approved by Governments of India and Karnataka. IIITB has set up a sec 25 company named IIITB innovation Centre.
- ► Area: Technology startups focusing on Digital Governance, Urban Mobility, Sustainable Community, Public Health, Education, Collaboration, Offline Retail
- ► Facility: The Innovation Centre offers space, connectivity and other infrastructure facilities at a nominal cost. In addition students are encouraged to work in the enterprises or R&D centres in the Innovation Centre.



# **Common Instrumentation Facilities**



# CENTER OF EXCELLENCE-INTERNET OF THINGS, BENGALURU

- ➤ The center helps in building industry capable talent, startup community and an entrepreneurial ecosystem for IOT. CoE will provide multi technology and interoperable platform for creating a validated product.
- ➤ Area: IoT products in the areas of Wearables, Fitness and Healthcare, Industrial Automation, Home Automation and Security, Life Safety, Communication Protocols, Cyber Security, Automotive etc.
- ► Facility: The IoT lab is an interoperable, multitechnology based stack providing design prototype equipment, validation & testing space, demo space and concept lab



#### CENTRAL MANUFACTURING TECHNOLOGY INSTITUTE, BENGALURU

- ► The Institute is an applied Research & Development organisation focusing on providing 'Technology Solutions' to the manufacturing sector.
- ► Area : Nanotechnology, Precision engineering, Metrology (Micro and Nano), Additive Manufacturing, Mechatronics, Vision and Image processing and Human Resource Development.
- ► Facility: State of the art facility like Digital Design Centre, Sensors & Vision systems, Product Manufacturing, Ultra precision engineering, Rapid prototyping, Assembly & Testing, Nano technology, Metrology, Noise & Vibration, Test rigs & fluid power, Laser calibration, Chemical, Metallurgy, Academy of Excellence for Advanced Manufacturing Technology

# **Manufacturing In Karnataka**





























# **Contact Details**