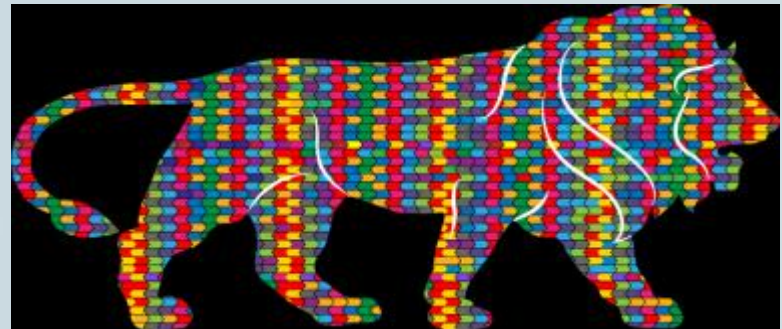# Innovate in India OR Make in India

What is relevant for companies like Texas Instruments in India?

Santhosh Kumar
Texas Instruments
sant@ti.com

TEXAS INSTRUMENTS

Texas Instruments
An Overview
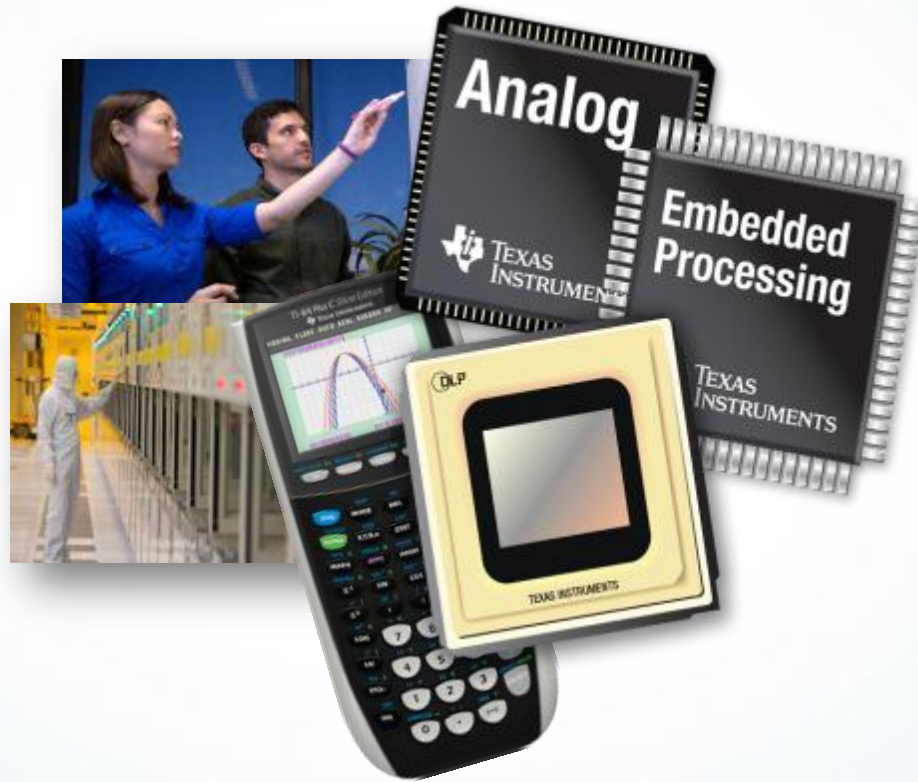
Global semiconductor design and manufacturing

Helping more than **100,000** customers **create technologies** that improve how we live our lives

With a diverse **portfolio** of more than **100,000** semiconductor products

Analog

Embedded Processing

TEXAS INSTRUMENTS

TEXAS INSTRUMENTS

Diverse and global workforce

More than 30,000 employees in 35 countries

TI headquarters

● facilities
● manufacturing sites

TEXAS INSTRUMENTS

A history of reinvention

1930s — Oil exploration

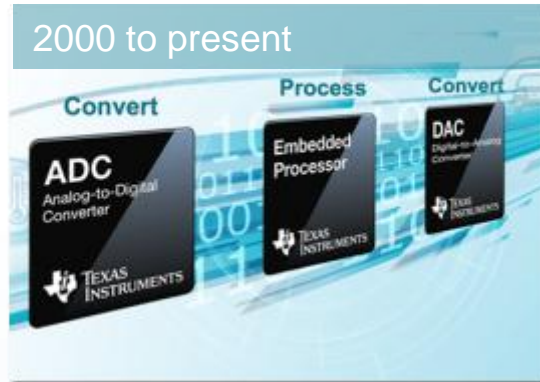
1940s — Defense systems

1950s — Integrated circuit

1970s-'80s — Microprocessors

2000 to present — Analog and embedded processing
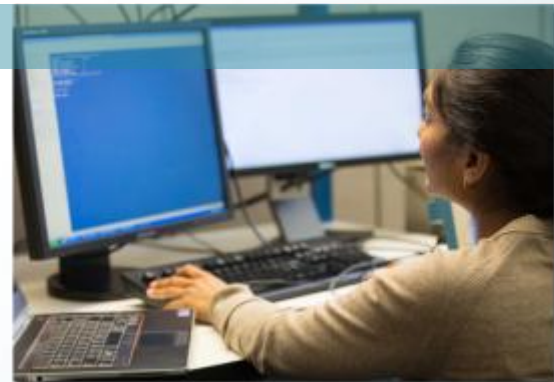
Applied research in Kilby Labs

TEXAS INSTRUMENTS

Investment in innovation and R&D

$9 billion invested in the past 5 years*
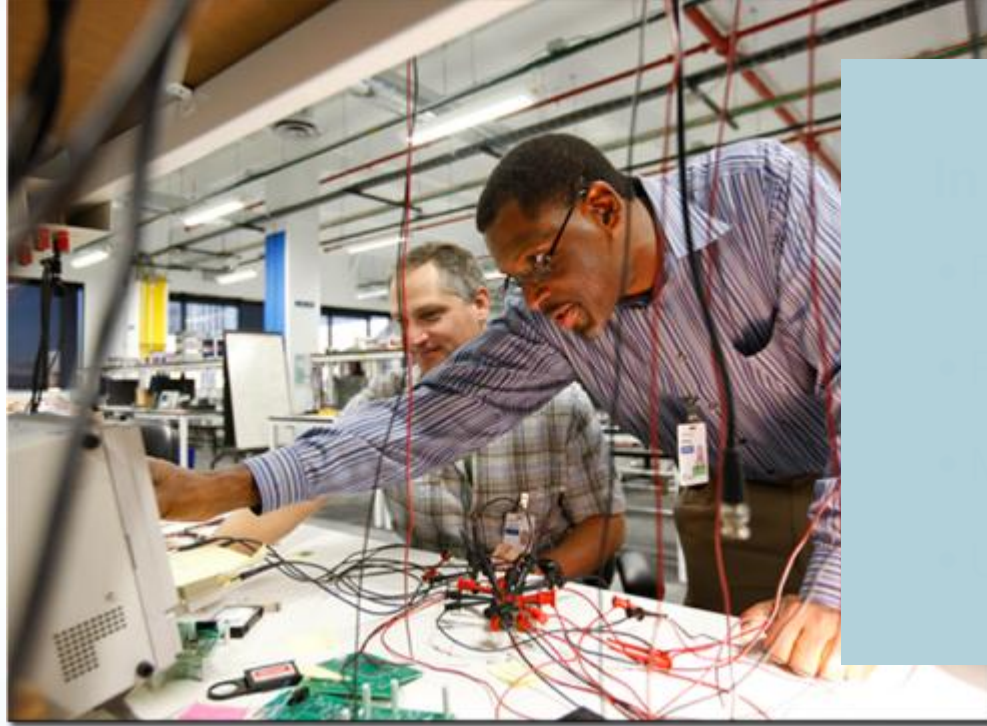
TI has more than **40,000** patents

*2009-2013

TEXAS INSTRUMENTS

Texas Instruments *in* India

Why India?

By 2015, close to **50%** of all **Fortune 500** companies will have their facilities in India.

R&D Centers contributing $11.3 billion worth of services to their parent companies

(33% of World's total R&D Needs)

Indian Universities Produce over 600k tech graduates every year

Largest Pool of Technical Skills in the World

Among the top three scientific manpower of the world

$42billion worth of research and development work product engineering will be outsourced to India by 2020

India is home to about 200 wholly-owned Centre's of multinationals that deliver pure-play IT and ITeS services

TEXAS INSTRUMENTS

Data from Zinnov

"There are a lot of places around the world where we can manufacture but it is in India that we can get research and innovation coming out which would have a local and global impact."

- **Rich Templeton,** chairman, president and chief executive officer of Texas Instruments

Ushering In The IT Revolution In the Country

First Satellite Dish in the country used for exporting software by a MNC, being unloaded at TI office in 1985

TEXAS INSTRUMENTS

Our Journey in India

1995 - 2000
- Country's first CPU (Ankoor) designed out of India (EDN Asia Component Design Award)
- THS1206 ADC - EDN Top 100 Product of the Year Award
- Industry's highest performance 130nm standard cell library (Recognition by ASIC Customers)
- Development cycle time in history of Ti NOVO (Memory products Div) 8-Mbit Flash Memory (0.5um)
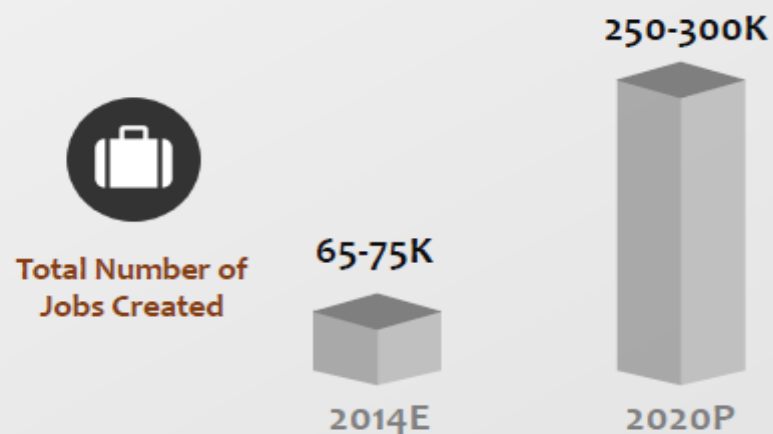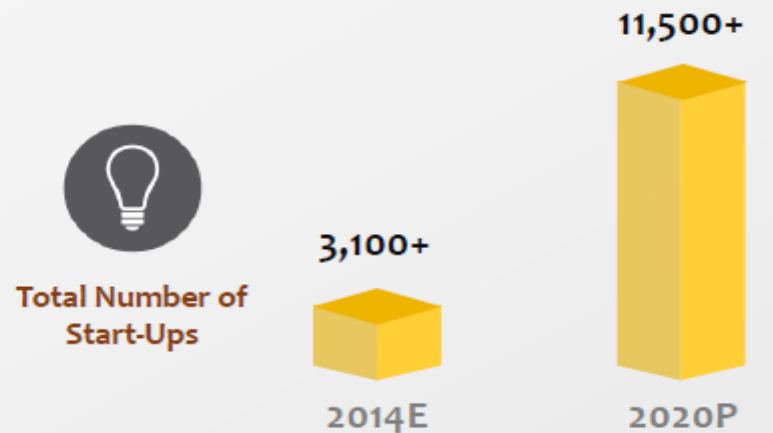
2005 - 2010
- Antara: Highly Optimized Performance Audio chip (Top Programmable Embedded Processor of the Year – EDN 2006)
- Netra -DM8168 : 3rd generation of TI's flagship DaVinci video processor family
- ADS6245: Industry's fastest and highest performance 14 bit ADC
- ADS8422: Industry's fastest SAR ADC
- ADS52xx: Industry's lowest power Octal Channel ADC

1985 -1990
- First software released over the dedicated satellite link
- Switched cap filter synthesis tool

1985-1990	1990-1995	1995- 2000	2000-2005	2005-2010

1990 - 1995
- Country's first 8Mbit DRAM Memory
- Country's first 8Mbit Flash Memory out of India

2000-2005
- LoCosto: Single Chip Cell Phone Processor (EE Times ACE Award 2005)
- Zeno-DM642: Digital Media Processor for next generation video solutions
- ADS55xx: Industry's fastest 14 bit ADC
- ADS4245: Industry's lowest power 14 bit 250 MSPS ADC

- NL5500: Industry's most integrated GPS (GPS + BT + FM)
- Quattro: Industry's first 4-in-one (WLAN + BT + FM + GPS) SoC with integrated DCDC
- First 3D enabled projectors\
- First DCI Compliant (FIPS certified) Cinema projectors.
- First LED based Pico projectors (Laptop accessory/Cell phones)
- TLV 700: First 3 cent low Cost LDO
- Set up pan India sales footprint

TEXAS INSTRUMENTS

One Possible View Of India

India has created over 3,100 start-ups in the last 5 years alone and MNCs have played a significant role

Technology Start-ups by Inception Year

Year	Start-ups
2010	480+
2011	525+
2012	590+
2013E	680+
2014E	805+
2020P	2,000+

Total Number of Start-Ups

2014E	2020P
3,100+	11,500+

Total Number of Jobs Created

2014E	2020P
65-75K	250-300K
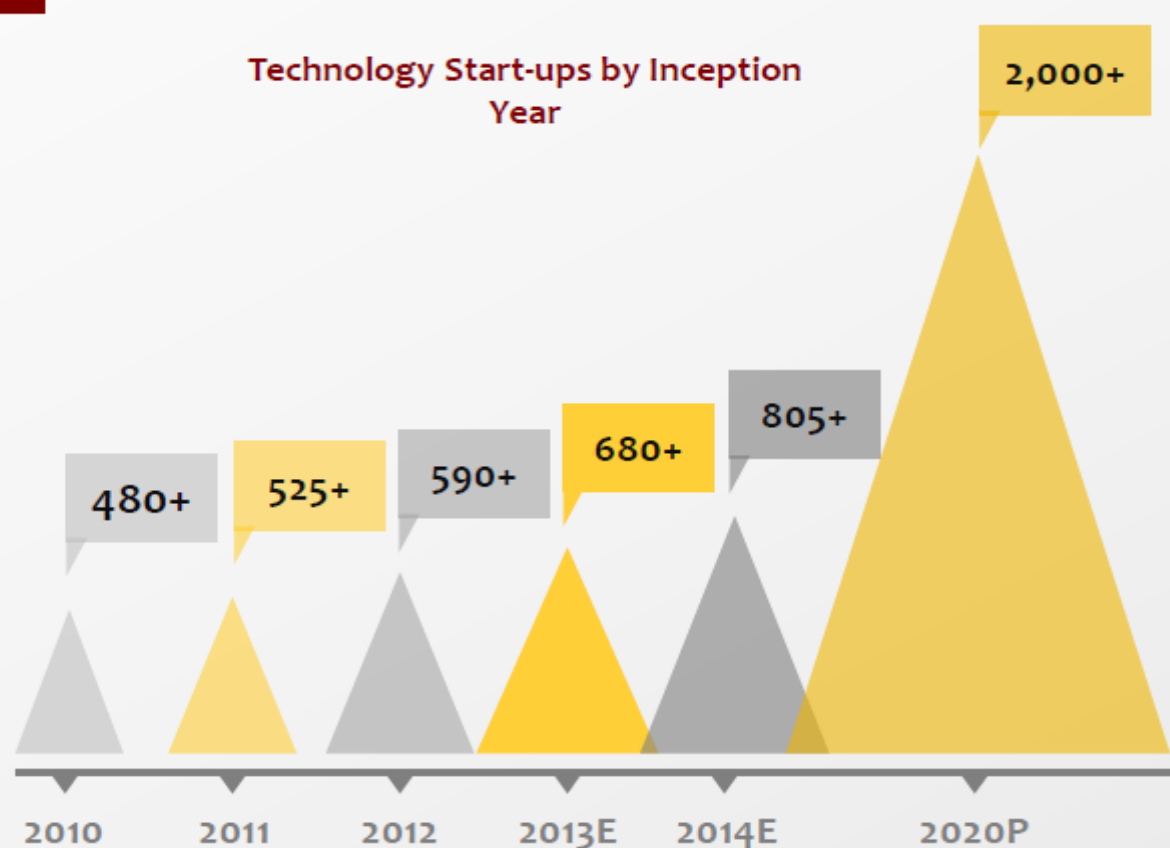
Numerous start-ups have been founded by people with MNC experience

Start-Ups Founders' Experience Profile*

Category	Percentage
MNC Tech	35%
MNC Non-Tech	13%
Indian Tech	27%
Indian Non-Tech	12%
No Previous Experience	13%
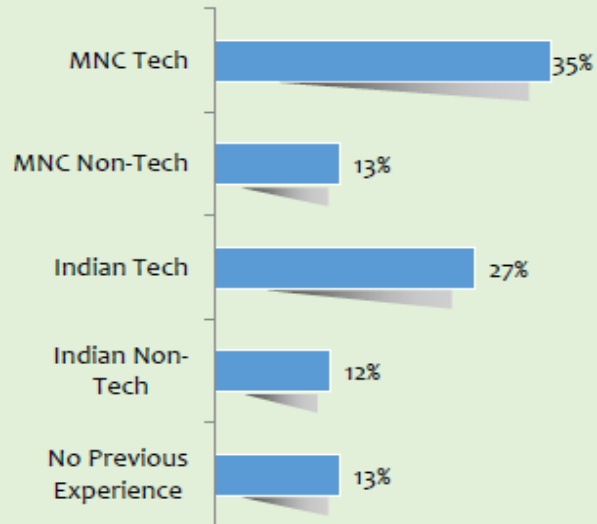
Quick Facts

48% Founders worked with MNCs (35% + 13%)

Funded Start-Ups Founders' Experience Profile**

Category	Percentage
MNC Tech	35%
MNC Non-Tech	18%
Indian Tech	19%
Indian Non-Tech	22%
No Previous Experience	6%
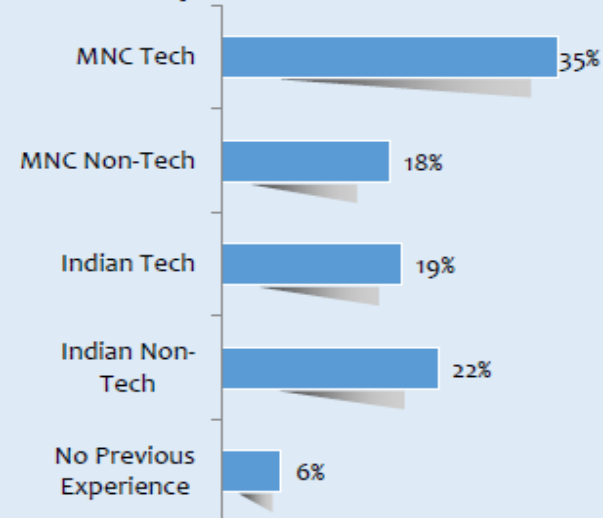
Quick Facts

53% **Funded** Start-ups founders worked with MNCs (35% + 18%)

*Analysis based on a sample of 100 Start-ups across year, **Analysis of 80 funded Start-ups across years
Source: Zinnov Product/Digital Start-up Database

The core and new technology sectors have been most impacted by this trend

Start-ups Backed by MNC Founders

Internet of Things
cariQ
Founder worked with **Veritas** (now part of Symantec)

Big Data & Analytics
Flutura
Co-founders worked with MindTree for 10+ years

Augmented Reality
ig InGage
Reach. Connect. Engage
Founder worked with Intel & AMD

Cloud Computing
SmartRx
Founder worked with Realcom Inc

Security
ArrayShield
Co-Founder worked with Philips Electronics India Ltd

Funded Start-ups backed by MNC Founders

Big Data & Analytics
UNBXD
Founder worked with Gluster (part of RedHat)

Augmented Reality
imaginate
TECHNOVATING REALITY
Founder worked with Sovoz

Cloud Computing
chargebee
Founder worked with Cognizant

Security
CIPHERGRAPH networks
Founder worked with SonicWall (part of Dell)

Payments
FortunePay
Founder worked with Bechtel

India, traditionally, has been a vibrant economy with strong economic fundamentals to support growth

Consumption Driven Economy

~3X	Expected increase in India's share of global middle class consumption by 2020
60%	Consumption as % of GDP
13th	Largest Consumer Market

High level of consumer spending ensures continued demand from the domestic market

Big Investments in Infrastructure

$1 Tn	Infrastructure investment during the 12th Five-Year Plan
35%	Investment as % of GDP

Government's perennial focus on improving the infrastructure has driven growth of Indian Economy

INDIA

Open Indian Economy

2nd	Rank in FDI Confidence Index Survey
2x	India's Trade to GDP ratio growth in last decade

India's open-economy policy, initiated in 1991, has transformed India to a flourishing economy

Services Led Economy

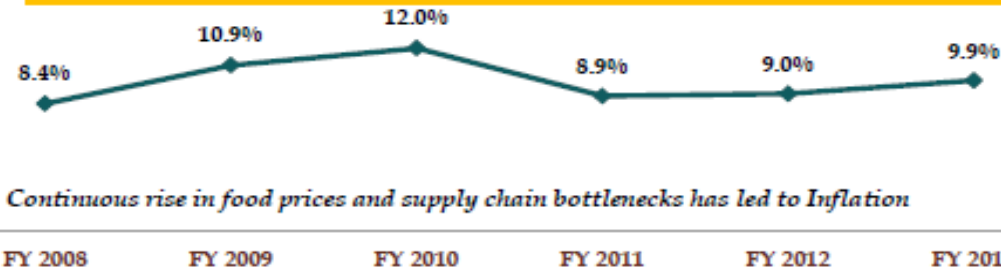|	
57%	Share of services in GDP
12%	Growth of Services Sector
2nd	Largest Labor Force

A large workforce and Services led economy have augured well for India's growth

Despite the strong economic fundamentals, Indian economy has struggled over the past half decade which has driven away the investors

Real GDP Year-on-year change

9.3%
6.7%
8.6%
9.3%
6.2%
4.9%

FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013
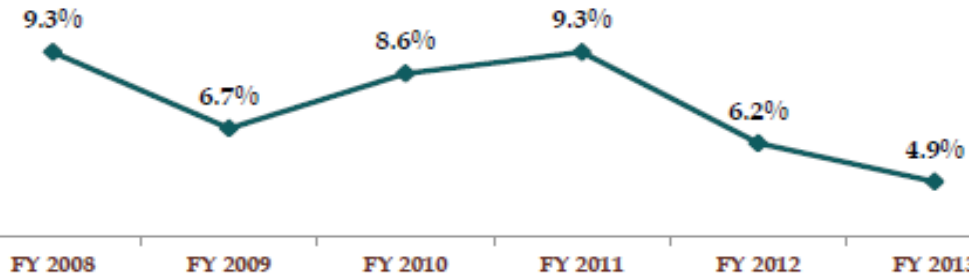
Consumer Price Inflation Index

8.4%
10.9%
12.0%
8.9%
9.0%
9.9%

Continuous rise in food prices and supply chain bottlenecks has led to Inflation

FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013

Global economic conditions and internal issues such as policy indecision, corruption and subsidies have hampered the "India Growth" story

Foreign Direct Investment (USD billion)

43.4
35.6
27.4
36.5
24

2008 | 2009 | 2010 | 2011 | 2012
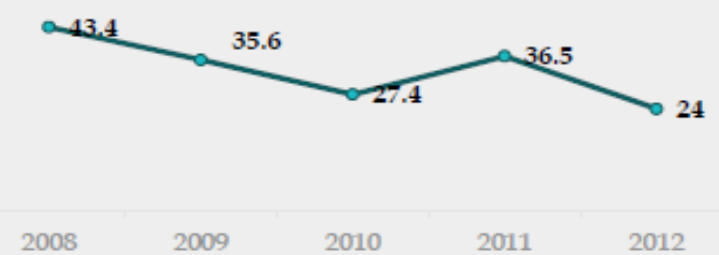
INR Depreciation vs. USD

2011 -2%
2012
2013

-13%
-8%
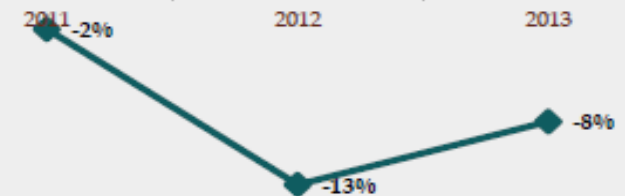
Loss of confidence among the foreign investors and MNCs resulted in decrease in FDIs and foreign exchange rates

Source: World Bank Data

Zinnov | 3

The new government has identified 5 key levers to accelerate India's economic growth...

India's

5

Growth Levers
As identified by Modi

Digital India

"IT(Information Technology) + IT (Indian Talent) = IT (India of Tomorrow)"

India as the Innovation Hub

"I am confident that India will become the world's innovation hub in ICT"

Next Gen Infrastructure

"Focus in infrastructure needs to shift from highways to "iways" and optical fibre networks"

Enhance Ease of Doing Business

"Maximum governance and Minimum government"

Revive Manufacturing

"We should become a Global Manufacturing Hub"

India's Growth Pillars

Talent Availability

- 85,000: Graduates from Top tier Engineering institutes
- 1.2 Million: Total engineers graduated in 2014
- 80 Million: Vocationally Trained labors

Strong Democratic Fiber

- Strong parliamentary democracy since its political freedom
- Well defined electoral processes
- Diversified representation in Lok Sabha – 16% - SC, 9% - ST
- 33% Women representation in various government levels

"Entrepreneurial Indian" mindset

- 40+ first generation billionaire
- 4000+ technology startups are active in Indian Ecosystem
- 150 Start up incubators
- 49 Million SMEs/ SMBs operating in India

Communication Infrastructure

- >200 Mn internet users; Third Largest in the world
- 2nd largest number of telecom users
- 73.32% India's teledensity
- 18.94 Mn telecom users added each month
- 13 Mn broadband subscribers

The government's investments in enabling the identified "Growth Levers" present a huge opportunity for the technology MNCs

Government Investments in technology (Year 2014-15)

- Digitization — **7 BN**
- Infrastructural Improvements — **11 BN**
- Push for Manufacturing — **7.3 BN**
- Technology in Healthcare and Agriculture — **790 MN**

Year 2014-15

USD 26 Billion

Total Opportunity Size for Technology Companies

Opportunity by Technology Areas

- Communication Technology **4 BN**
- Computing & Storage **2.6 BN**
- Software **4.2 BN**
- Engineering & Machinery **6.6 BN**
- IT Services **5.9 BN**
- IoT **2.7 BN**

Revive Manufacturing: India is already home to many top manufacturing companies and with Modi's strategic impetus India can potentially emerge as the leading manufacturing hub

BAJAJ

World's 3rd largest Motorcycle manufacturer

ADITYA BIRLA HINDALCO

One of the largest Aluminium Rolling companies

Biggest producer of Primary Aluminium in Asia

Reliance Industries Limited

World's largest producer of polyester yarn and fibre

SUZLON

World's 5th largest Wind Turbine manufacturer

Hero

World's largest Motorcycle manufacturer

Largest Oracle Siebel CRM Implementation in India

ADITYA BIRLA GRASIM

World's 2nd largest producer of Viscose Rayon Fibre

The strong and pro-business government at the center is expected to drive various changes which will provide a strategic advantage to the R&D centers....

Expectations from "Modi" Government

Advantage for R&D centres

Next Gen Infrastructure
Focus on growth of communication and structural infrastructure across tier-1 and tier 2 cities

➡ Lesser technology barriers and emergence of new R&D destinations

Growth of India as a consumer
Expected implementation of GST will broaden Indian market horizon resulting in more consumption and increasing India's relevance as a target market

➡ Take engineering & product leadership for India centric products

Improved higher education quality
Curriculum reforms in engineering will enhance research talent availability

➡ Opportunity to drive innovation from India for local and international markets

Focus on STPI/SEZ
Expected removal of Minimum Alternate Tax (MAT) and Dividend Distribution Tax(DDT) on SEZ units

➡ Growth of operations and leveraging the cost advantage

Government as a customer
High scale digitization projects across government functions

➡ Ownership of large scale mature projects for Indian government

Strategic Benefits for R&D centres

Source: Primary Interviews

...and also an operational advantage

Expectations from "Modi" Government	Advantage for R&D centres

Stable Indian Currency
Rupee is expected to stabilize due to a strong and majority government at the center

➤ Predictability of Operations cost

Emergence of Tier-2 Cities
Focus of the new government is on infrastructural growth of tier-2 cities

➤ Lower cost of operations intensifying the India's cost advantage

Improved government R&D facilities
Increased public spending on R&D and establishment of emerging technologies centric R&D specific labs and Institutes

➤ Availability of better R&D infrastructure and ecosystem

Rationalization of tax regime
Regulatory clarity and review of transfer pricing policies, CSR rules is expected
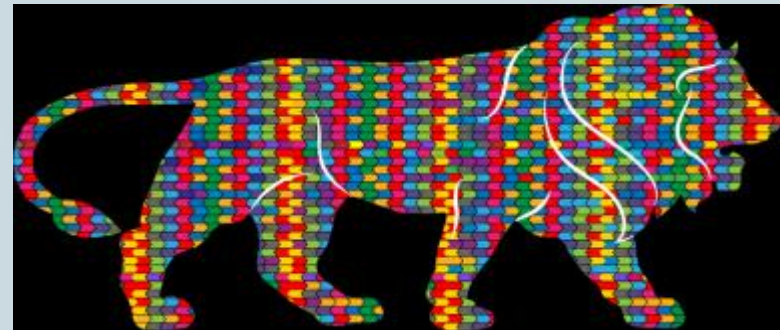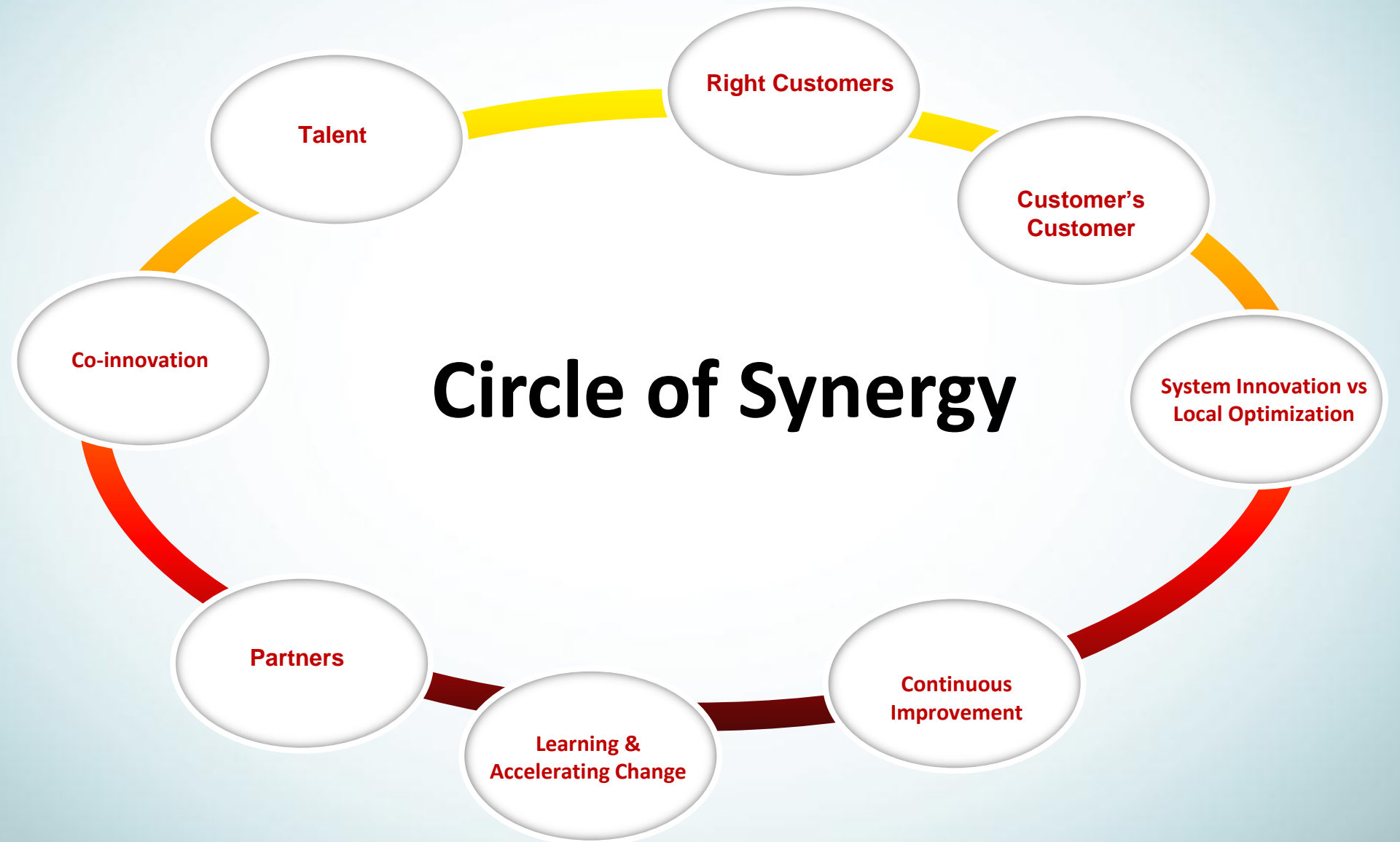
➤ Transparent and pro-business tax structure

Operational Benefits for R&D centres

Innovate in India OR Make in India

What is relevant for companies like Texas Instruments in India?