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Business Opportunities and Challenges in IoT

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About DEV IT

- Founded in 1997 in Ahmedabad, India – one of the fastest growing metros of India
- NSE Emerge listed company (NSE:DEVIT), 1st Ever IT Company from Gujarat on NSE Emerge
- Branch offices in India, USA and Canada
- Multi-million US$ turnover with CAGR of 20%
- More than 30,000 square feet of usable office space
- 800+ certified and skilled professionals serving more than 300+ clients globally
- Offering end-to-end solutions to meet IT and ICT needs of clients

Awards and Recognitions

- India SME Forum - Top 100 SME's of INDIA - 2017
- SKOCH - Achiever Order-of-Merit Award for being Top 100 Best SMEs in India - 2016 & 2017
- ISODA - Award for Business Excellence – 2017 & 2014
- GESIA - Best Work Place ICT or Electronics Industry, Best ICT Managed Service Provider and Best Software Company - 2016
- ITPV - Best Smart Technology Solution for Governance – 2016 and Best Managed IT Services Company - 2015
- GESIA - ICT Awards The EXCELLENCIA for Excellence in the ICT Business - 2015
- Channel World - Premier 100 award for 3 consecutive years - 2015, 2014 & 2013
- Silicon India - 5 Most Promising IT Infrastructure Companies in India - 2014
- CRN Excellence Awards - India's Best Managed Services Provider - 2013 & 2012 and Best Solution Provider, Software - 2014
- CIO Review - 10 Most Promising IMS Companies in India - 2013
- And many more…

- SME IT Voice in National EC Council of NASSCOM
- Appraised at CMMi Level 3
- ISO 9001:2008 quality certification
- ISO 27001:2013 quality certification
- CARE MSE1 Rated Company

Indian IoT market is expected to grow significantly

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2016

IoT market: USD 1.3 billion
IoT Installed Units: 60 million

2020

IoT market: USD 9 billion
IoT Installed Units: 1.9 billion

- Although India began its IoT journey much later than developed economies, the installed base of connected units in India is expected to grow at a rate much faster than them
- IoT market in India is expected to grow significantly, with the number of connected devices expected to grow ~32X to 1.9 billion and revenue expected to grow ~7X to USD 9 billion by 2020

Source: GoI draft policy on IoT, Industry reports
Note: Number of IoT enabled devices mentioned does not include internet-enabled mobile phones

IoT market in India is expected to be valued at USD 9 bn, with an installed base of 1.9 bn units by 2020

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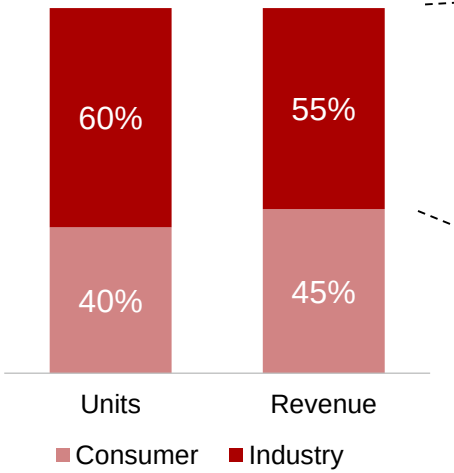
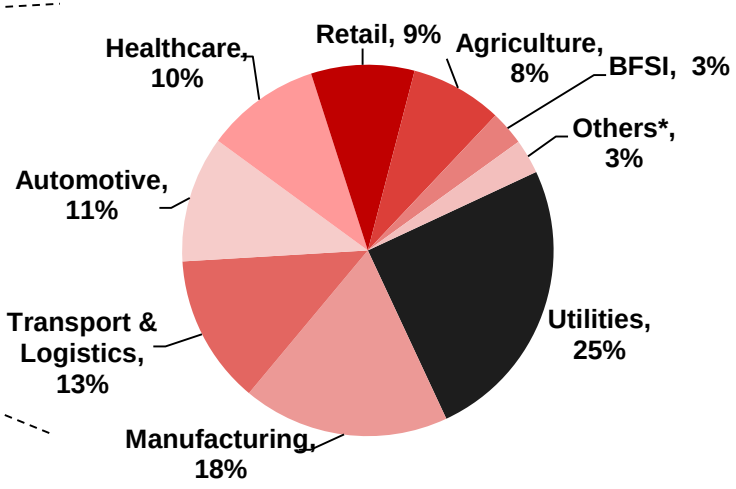
Figure 4.2: IoT market in India (2020e)



India IoT installed base (e): 1.9 Bn units
India IoT market size (e): USD 9 Bn

Figure 4.3: Market size by industry (2020e)



India Industrial IoT market size: USD 4.95 Bn

***Others include food technology, education, construction etc.**

Key Insights

- IoT solution deployment for Digital Utilities/ Smart Cities and in the Manufacturing, T&L and Automotive industries will drive the demand for Industrial IoT applications going forward
  - With GoI's focus on building Smart Cities and IoT being a key enabler for this, Utilities' share in the IoT market is expected to be the highest
  - With growth and consolidation, owing to the e-commerce boom and regulatory changes such as GST, Transport & Logistics industry will increasingly leverage IoT technology for more efficient operations
- Rise of the tech-savvy consumer along with increasing smartphone and mobile internet penetration is driving consumer IoT applications in the India market
  - However, consumer IoT adoption is expected to be slower than its industrial counterpart due to cost of IoT devices and security as well as privacy concerns of consumers

Source: Deloitte Analysis, Industry reports, Primary research

Key IoT Case Studies in India (1/2)

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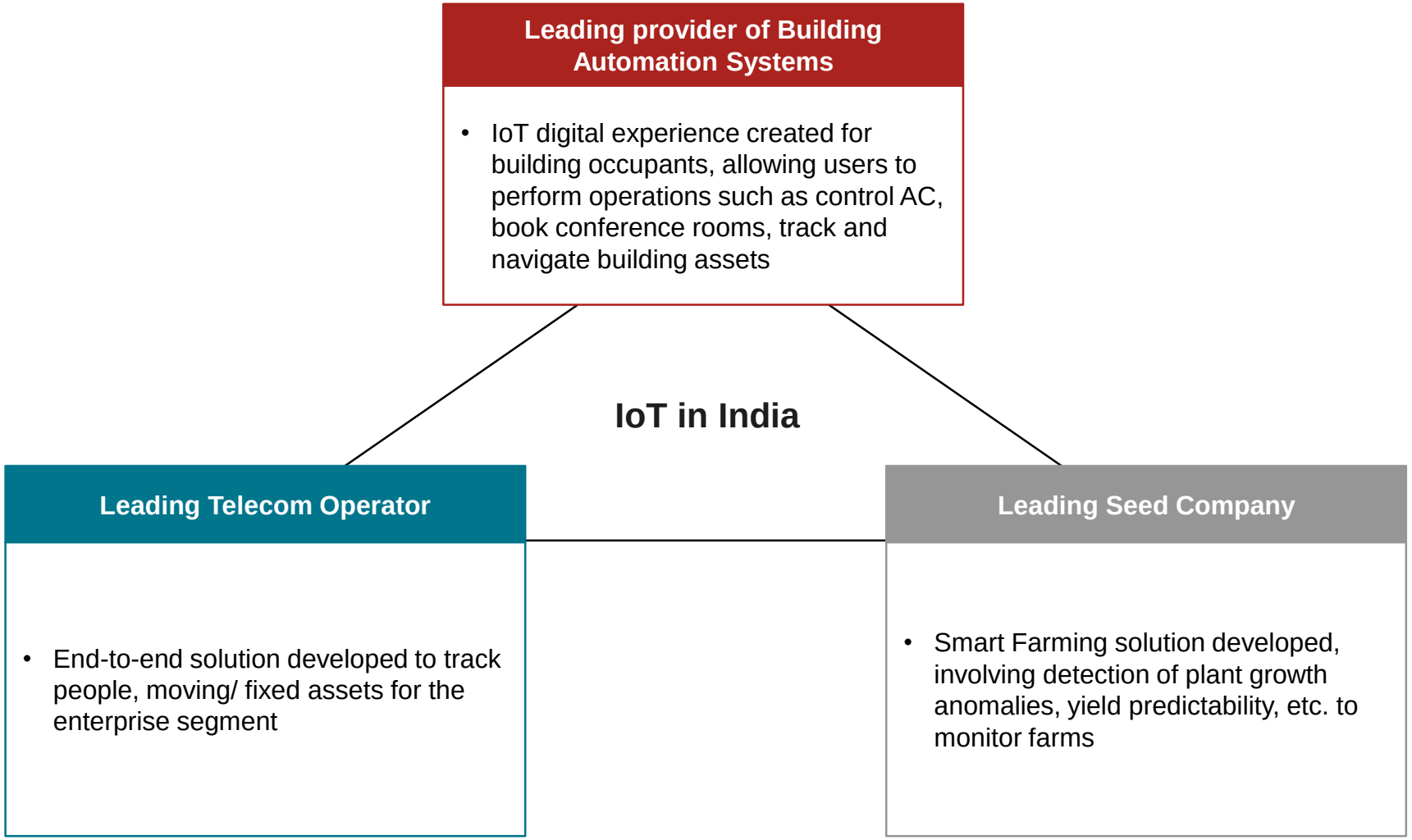

Source: Primary research

Key IoT Case Studies in India (2/2)

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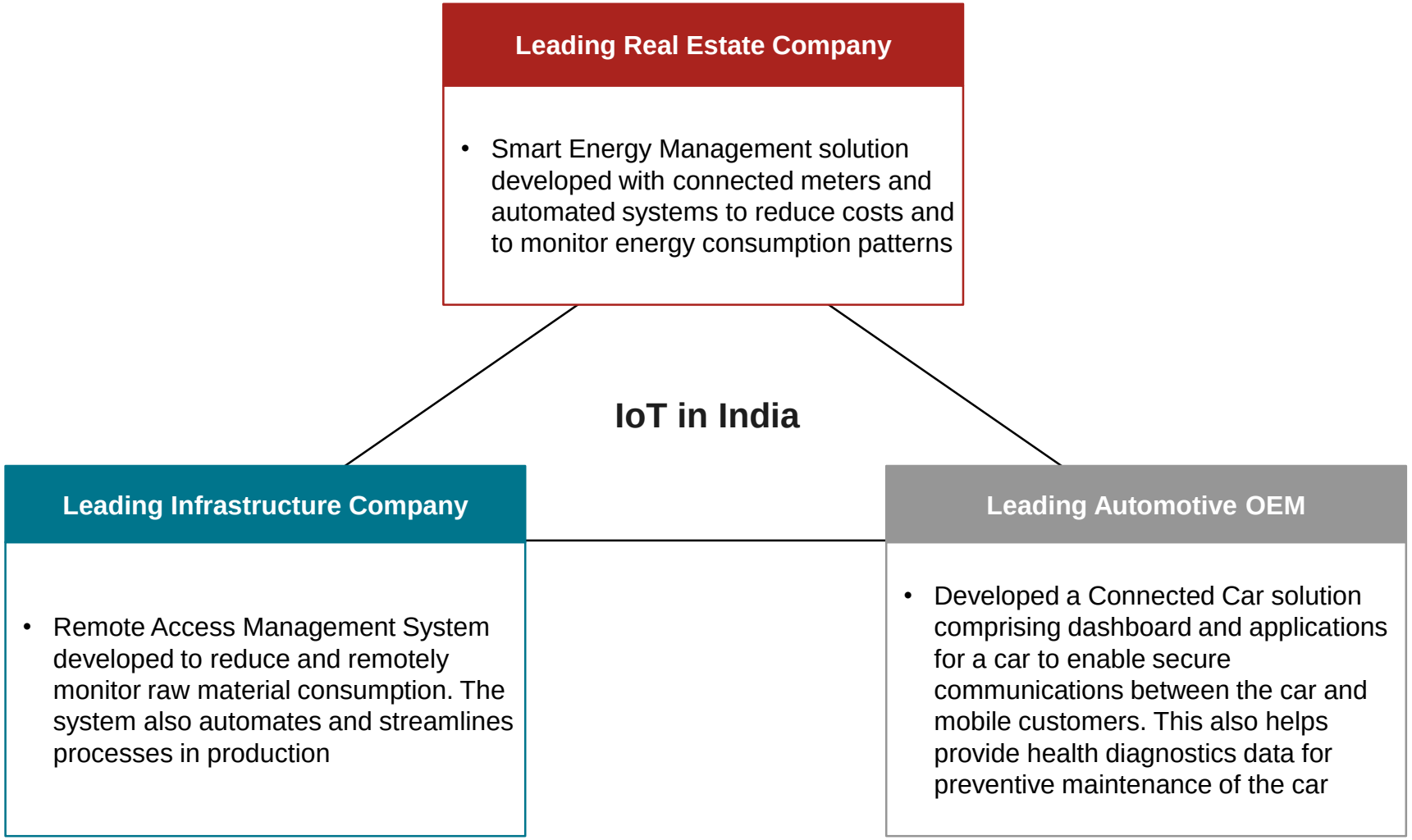

Source: Primary research

IoT presents opportunities for players across the value chain, with Application Vendors expected to garner 50% share of the India IoT market

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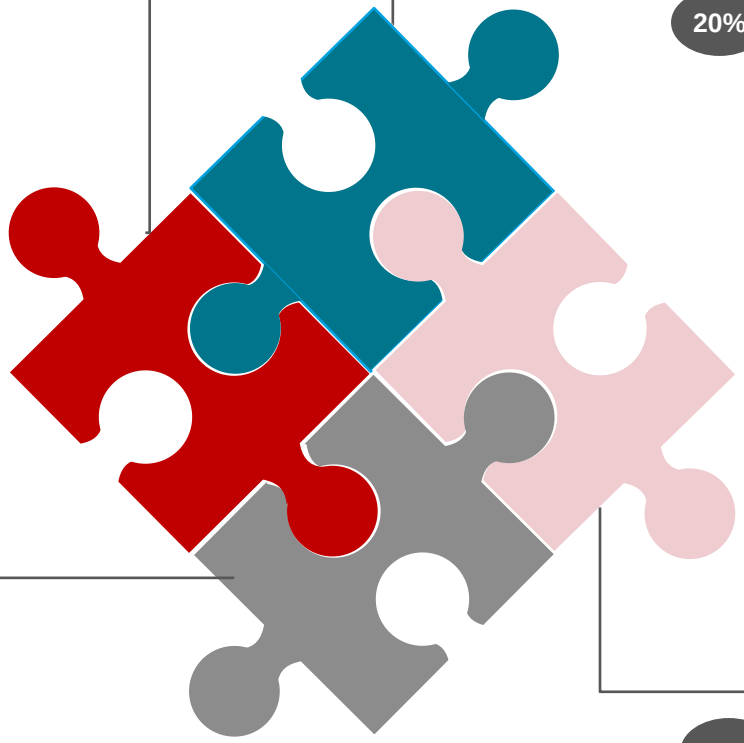
Figure 4.5: Possible opportunities for players in the IoT value chain

Hardware Vendors

- Only Hardware
- Hardware with applications focused on end-user
- Full control of integration

10%



20%

Network Operators

- Only Connectivity
- Third-party products
- Bespoke products
- Services for multiple markets and verticals

20%

System Integrators

- Implementation of Application, Network and Infrastructure services
- Customized software
- Support services for enterprises
- Business-process-as-a-service

50%

Application Vendors

- Cloud/ Data Center
- Data Management services
- Application enablement
- Network, Device, Connectivity Management

xx% Expected revenue share by 2020

Source: Deloitte Analysis, Industry reports

Players across the value chain are preparing themselves to capitalize on the IoT market opportunity

	Hardware Vendors	Network Operators	System Integrators	Application Vendors
Key components/ types	• Sensors • Modules • Transponders • Smart objects such as appliances, cars, machines, etc.	• Spectrum • Connectivity • Availability and quality of service	• Interfaces • Solution architecture • Back-end integration • Installation • Data management	• Platform • Service provisioning • Analytics/ Cloud • CRM/ Billing
Key developments	• Increasing investments in R&D to expand product portfolio in IoT • Increased adoption of 3G/ 4G enabled modules for IoT communications • Increase in M&A activities to enhance market share and leadership in IoT	• Increasing investments in networks such as SigFox to raise connectivity revenues • Investments being made in both horizontal and vertical capabilities; still no standard approach being followed • Marginal play even now in investment for IoT and in M&A activities	• Increasing investments in marketing consultancy and implementation services • Focus on building digital capabilities and solutions in IoT by acquiring niche companies and platforms	• Focus on both vertical and horizontal solutions including Consumer and Industrial IoT; however, the volumes are more in case of Industrial IoT • Change in erstwhile business models involving working with large number of consumers to working with groups of fewer consumers

Source: Deloitte Analysis, NASSCOM

Start-ups offering innovative solutions are playing a key role in driving the growth of IoT in India

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Start-Up – IoT play

Start-up ecosystem in India	• Start-ups comprise majority (60-65%) of the ~120 organization strong Indian IoT ecosystem and are expected to drive growth going forward • IoT focused start-ups is a recent phenomenon with 70% of the start-ups that exist today having come up over the last 6 years
Start-ups in Industrial IoT applications	• Majority of Industrial IoT start-ups offer niche solutions and solutions in embedded computing and industrial internet; with upcoming solutions for connected cities and vehicles • All such industrial IoT applications help drive business value
Start-ups in Consumer IoT applications	• With lifestyles getting more advanced and connected, most of the Consumer IoT start-ups play in the wearables and connected homes & buildings categories
Drivers for growth of Start-ups	• Various incubators and accelerators are providing funding, mentorship and networking opportunities to start-ups, in order to help them revolutionize the IoT ecosystem • Start-ups offering innovative IoT solutions have attracted over USD 60 million in investments since 2014

Source: Deloitte Analysis, NASSCOM

IoT adoption is expected to grow across industries by 2020

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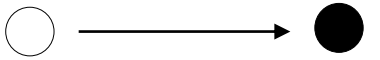
Industry	Focus areas	Current adoption level	Forecasted adoption level, 2020
Utilities	Smart cities, Smart grids etc.		
Manufacturing	Connected Supply Chain, Processes, Tools		
Automotive	Connected Cars, Infotainment, Usage Based Insurance		
Transport & Logistics	Location and condition updates of packages, vehicle tracking		
Healthcare	Real time alerts, mitigation of risk of diseases, remote patient monitoring		
Retail	Personalized customer experiences, virtual reality, promotion based sales		
Agriculture	Predictability of weather, livestock and crop monitoring		



Low High

Various challenges will need to be overcome to enable IoT adoption and growth in India

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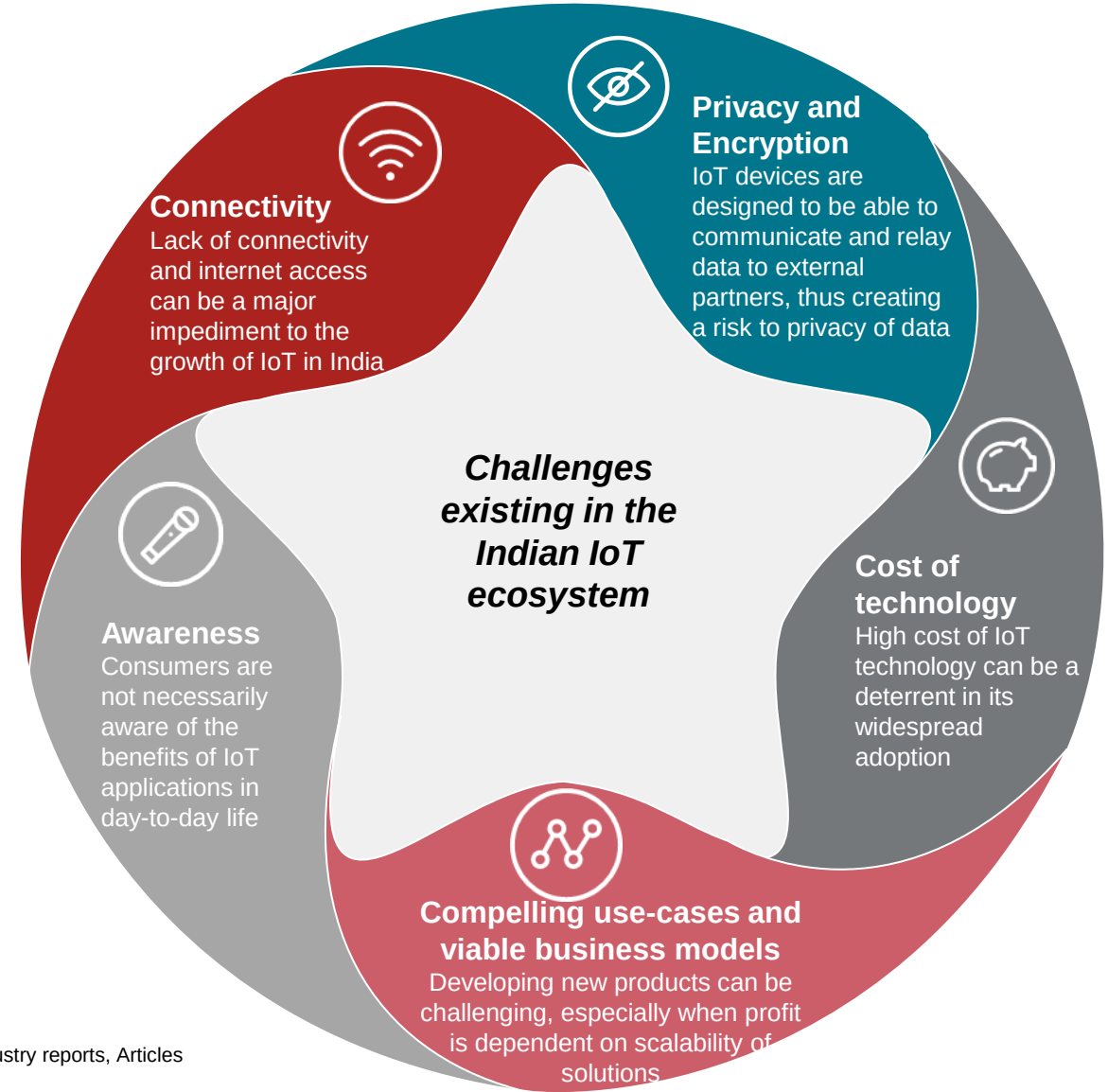
Figure 4.6: Key challenges in the Indian IoT ecosystem



Source: Deloitte Analysis, Industry reports, Articles

India will need to build on certain core areas to be a global differentiator in IoT

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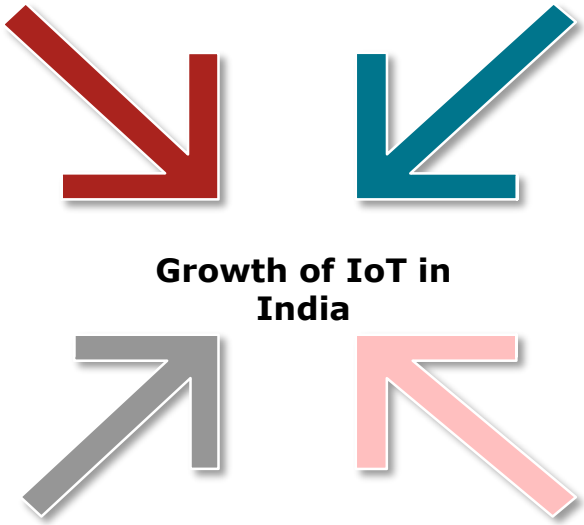
Figure 4.7: Enablers for building IoT market in India



Role of Government

GoI has announced a draft policy on IoT, as part of which it aims to accelerate R&D efforts, provide start-up funding, establish nodal organization for setting standards etc.

Technology framework development for India

Technology framework comprising capabilities in sensor technology, network infrastructure, standards and augmented intelligence needs to be developed

Skill-sets of manpower

Cross-functional skill-sets and specialized training are needed to enable successful deployment of IoT by the workforce

Innovation at grass-root

Start-ups in India need to continue to focus on building innovative IoT solutions, with the support of accelerators and incubators

Source: Deloitte Analysis, Department of Electronics and Information Technology

Government of India has proposed a multi-dimensional approach to develop the IoT market

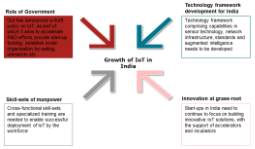


Figure 4.8: Draft policy on Internet of Things by Government of India

Demonstration of domain-specific solutions
To develop domain specific strategies for IoT, especially in the areas of smart grid and smart manufacturing

Innovation, R&D
To identify core areas in IoT R&D and to initiate cloud based open source projects

Incubation and capacity building
To promote institutional capacity with ERNET* to implement test-beds for all possible devices/ technologies

Draft Policy on IoT

Incentives & engagement
To provide funding for IoT based start-ups and to launch a program focused on export of IoT services

Standards
To setup a nodal organization to drive and formalize standards on technology, processes, interoperability, etc.

Governance structure
To build a legal framework for addressing issues that might arise due to deployment of IoT systems and devices

Source: Deloitte Analysis, Department of Electronics and Information Technology
* ERNET – Education and Research Network India

India needs to build capabilities in sensor technology, network infrastructure, standards and augmented intelligence

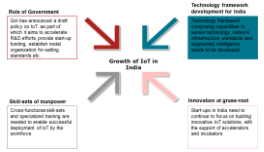
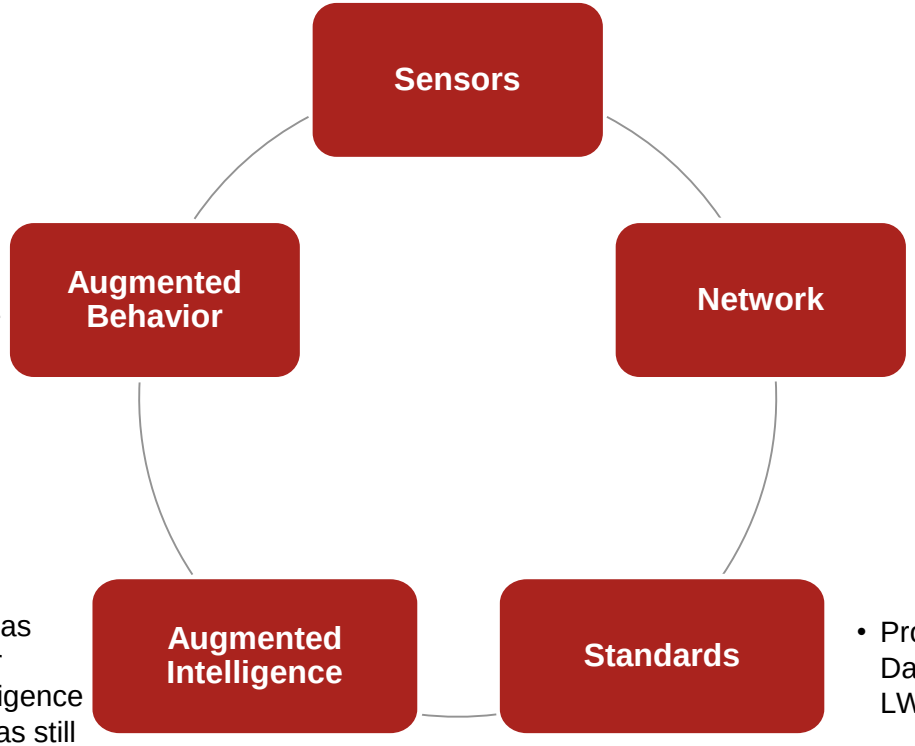


Figure 4.9: Trends in India across the technologies in Information Value Loop

- The type of sensors being used in verticals with the highest adoption are - acoustic, humidity and pressure/ vibration sensors, accelerometer, weight, heart rate and BP sensors, RFID sensors and tags



- Use of machines and robots from basic automation to sophisticated applications has picked up in India because of foray of numerous start-ups in this space
- Specific applications include warehouse automation, chat-bots for IVR calls, etc.

- Most widely used form of connectivity in India is Cellular technology
- Also, Bluetooth Low Energy (BLE) is used very widely in personal devices, wearables, etc.

- Data collection via sensors has been a seamless process for companies in India, but intelligence to analyze that information has still not been completely utilized

- Protocols such as WiFi HART, Dash, Dect, Continnua and LWM2M are being used in India

Source: Deloitte Analysis, Primary research, Industry reports

Cross-functional skill-sets and specialized training are needed to enable successful deployment of IoT by the workforce

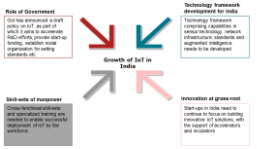


Figure 4.11: Current state of talent gaps pertinent to IoT in India

Lack of cross-functional expertise	• Workforce lacks exposure across all aspects of IoT technology leading to knowledge in silos and lack of application ability
Lack of training infrastructure	• Poor infrastructure, lack of awareness, inadequate supply of trainers are some issues in this area in India • Lack of specialized courses makes it difficult to cope with the very frequent changes in hardware configuration and software updates
Inadequate hardware knowledge	• Choice of right hardware, lack of resources for initial prototyping and rapidly changing landscape contribute to difficulties faced by the Indian workforce • Lack of adept engineers who can build IoT solution architectures
Shortage of UI/ UX engineers	• Skillsets of engineers have not kept pace with the transformation of IT services to Digital services

Source: Deloitte Analysis, Primary research, NASSCOM

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Transform the ways we communicate, create, collaborate, and explore.

https://www.youtube.com/watch?v=ZW_w4TNbl_k

Thank You