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Technology Trends: 2016

May 2016

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Five "Megatrends" are reshaping business and accelerating change

Technological breakthroughs

Demographic shifts

Accelerating urbanization

Climate change and resource scarcity

Shift in global economic power

Implications

Increasing speed of innovation

Highly individualised products and solutions

Scarce raw material, flexible production capability

Sustainability, the 'moral' dimension and regulation in a transparent world

Millennial talent pool – Opportunity and challenge

Impact of 'Megatrends' on Technology

Social

Cloud

Mobile

Analytics

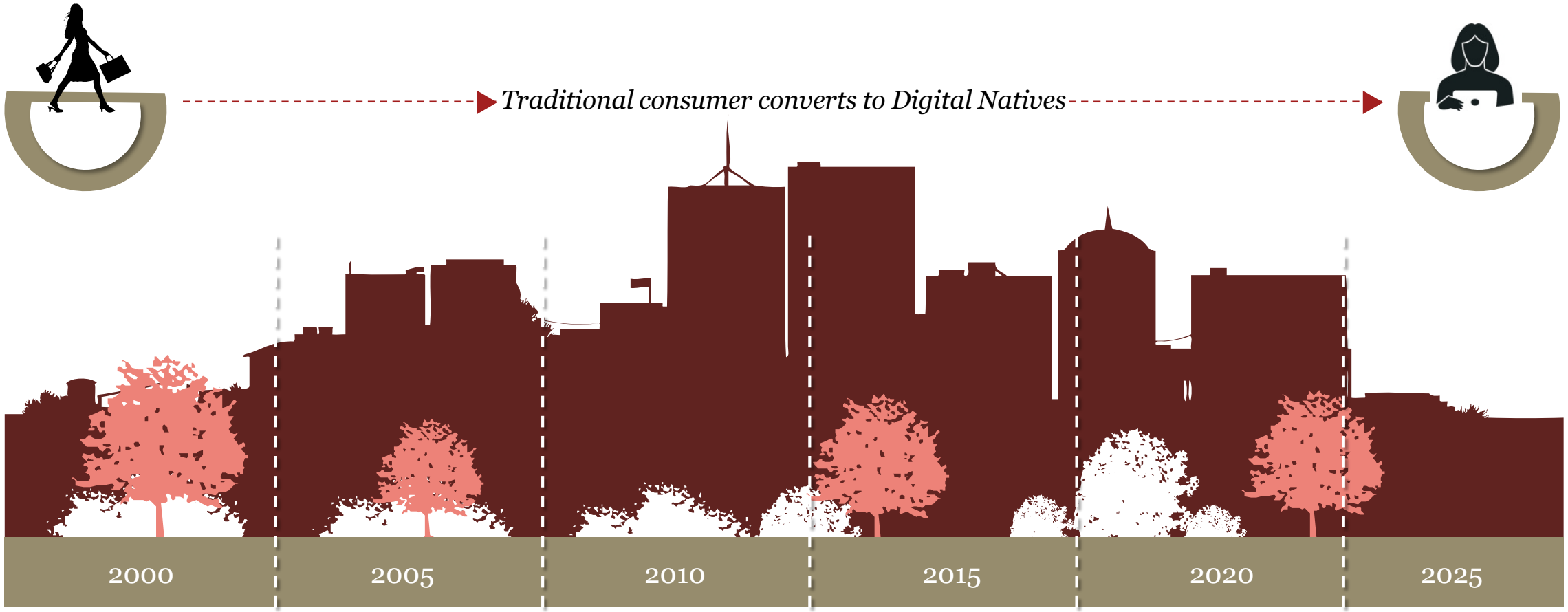
Digitisation

What is there in future..

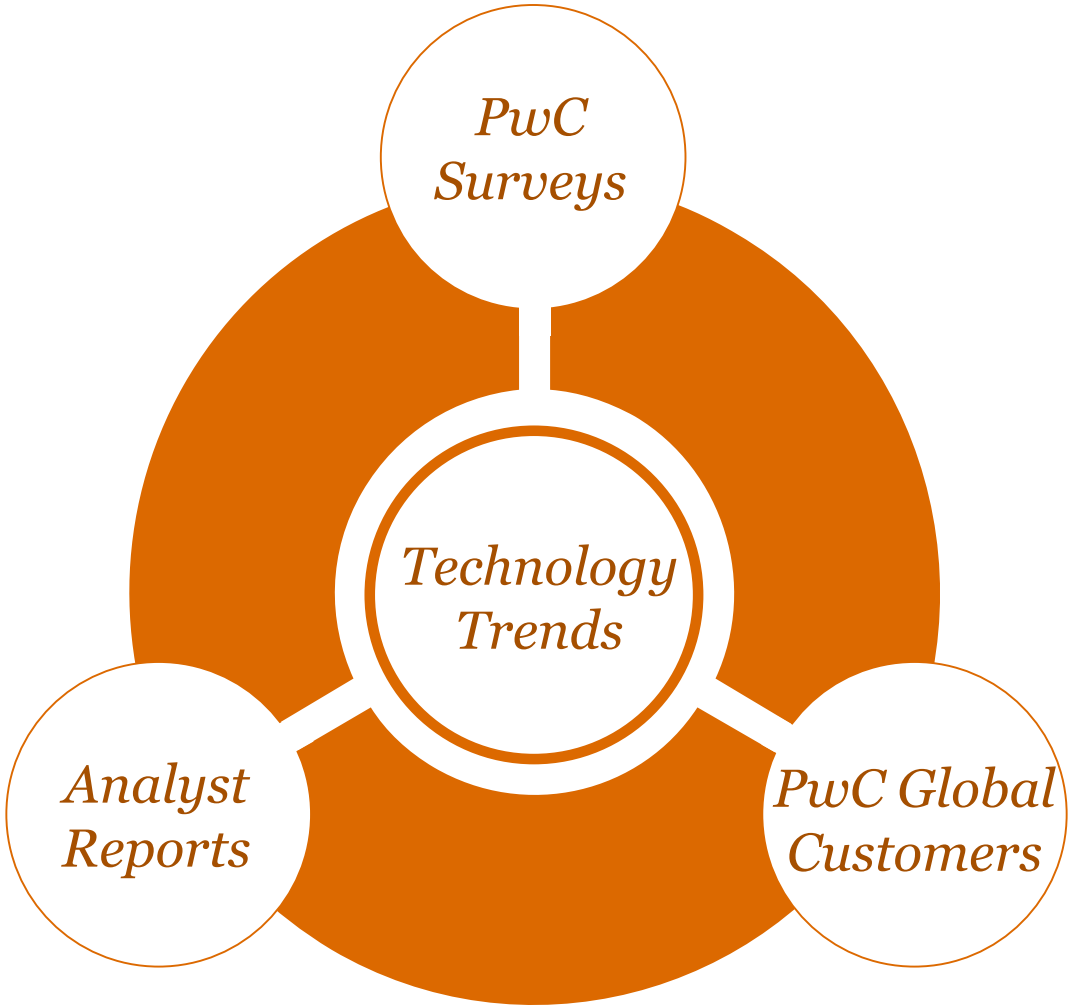
By 2017 a new breed of customer

Digital Natives

will dominate economic activity



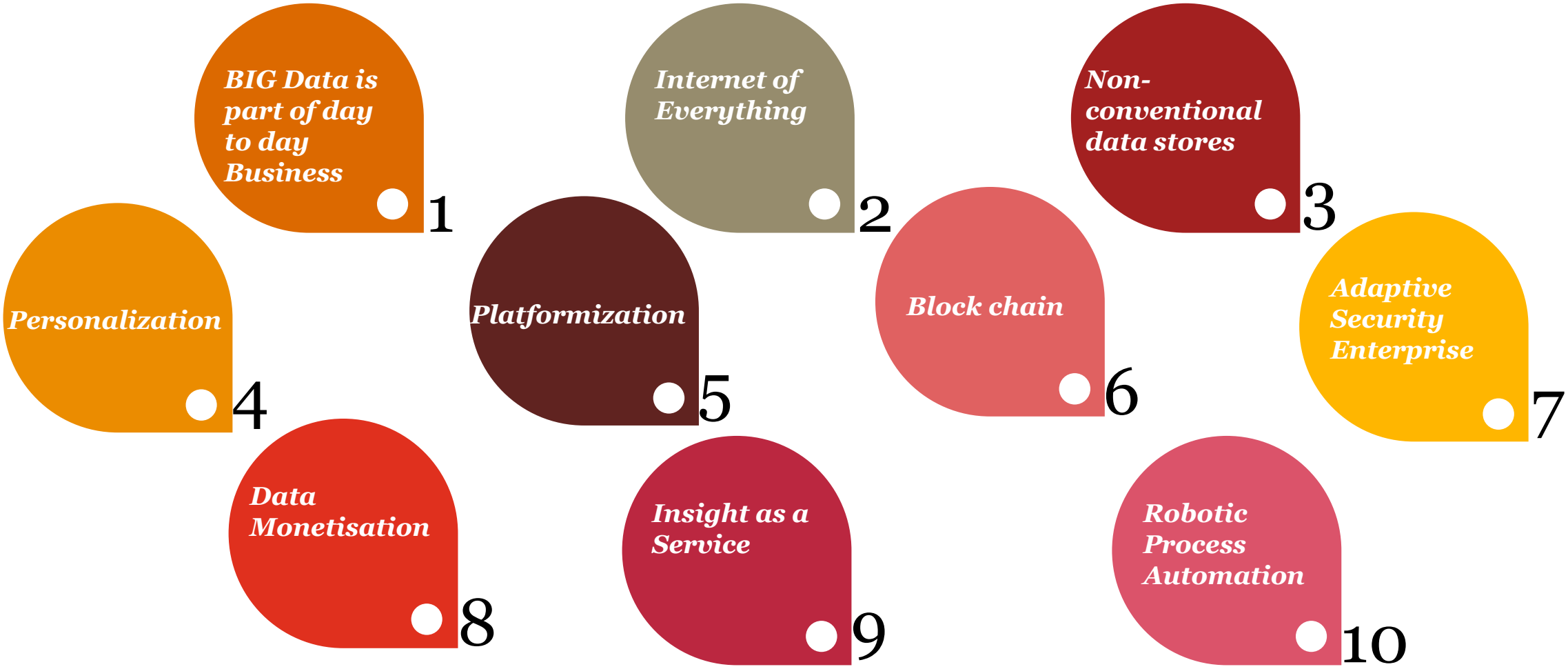
Our References



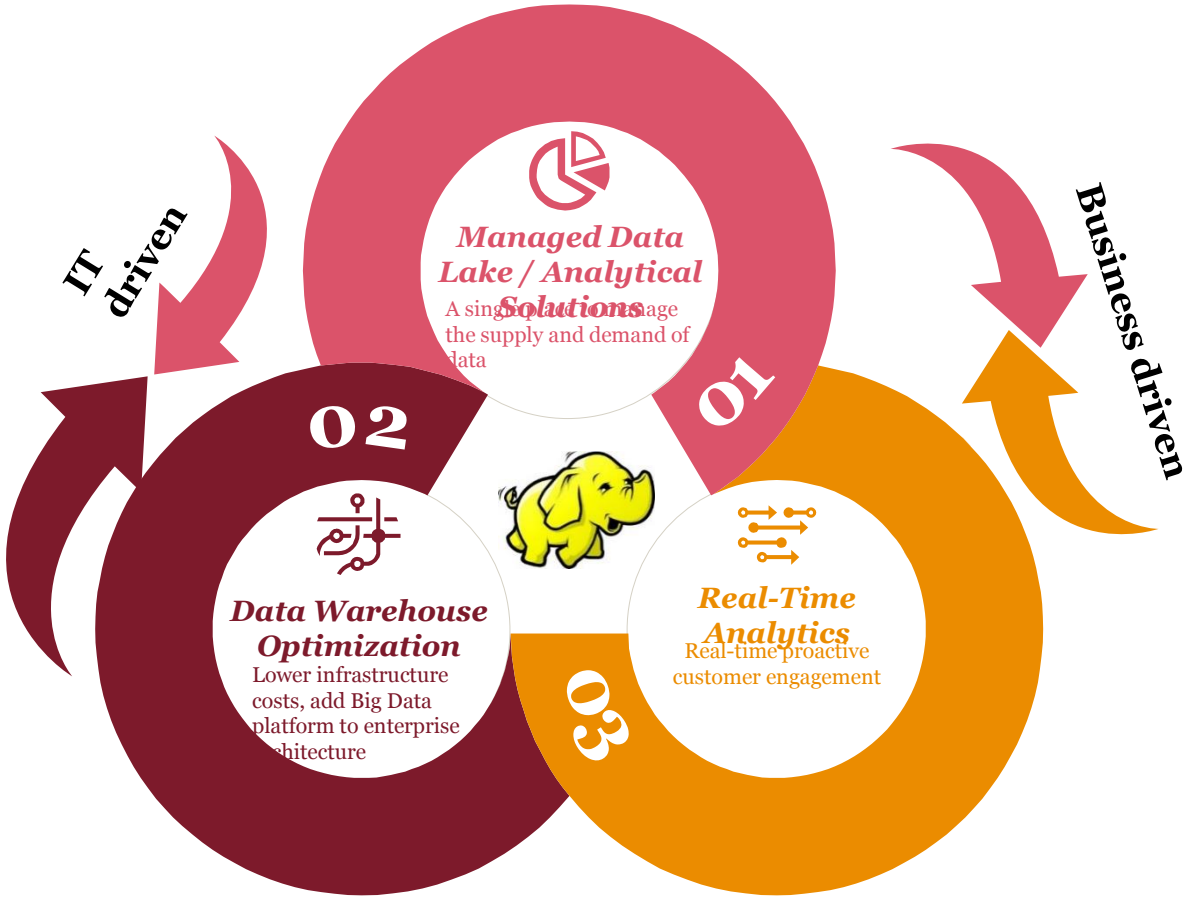
References

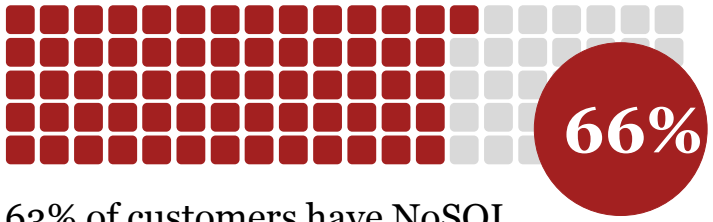
- Multiple PwC surveys like CIO survey, CEO survey, Next Generations survey, Industry specific survey, Digital Age survey, etc.
- Multiple PwC thought leadership articles
- Multiple Analyst reports available in market
- PwC's global customer implementations

Quick glance at Technology Trends



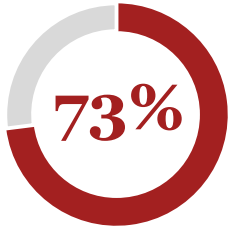
Big data use cases on Hadoop become part of day to day business





63% of customers have NoSQL DBs implemented for a production use case
- DBTA poll

By 2014, 73% of companies had already invested or planned to invest in Big Data without knowing what to do with it.
- Gartner



Internet of everything! Convergence of IoT, Cloud & Big data

Big data generators are not only consumers

1 *GB/second* — Google self-driving car

40 *TB/hour* — Boeing 787 Dreamliner

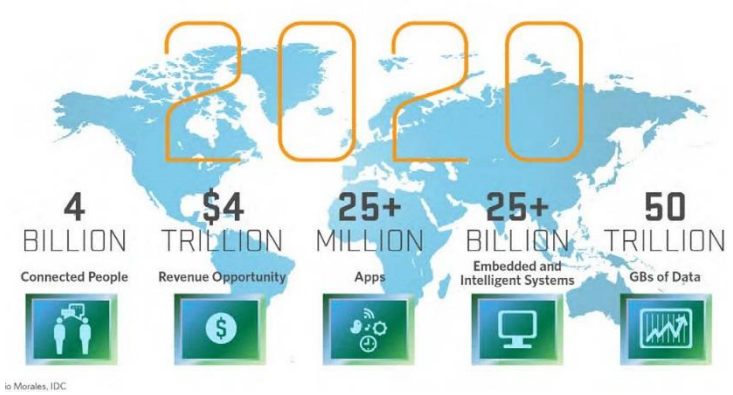
3,600 *TB/day* — Chinese mobile data usage

Social media · Utilities · Sensors · Connected homes

M-payments · Server logs · Wearables · Geo location

Google · amazon web services · Microsoft

Leaders are bringing IoT services to life → data moves seamlessly to their cloud based analytics engines



AI, Advanced Machine Learning & Cognitive analytics (such as NLP) getting embedded into workflow environments

Need for a sturdier platform to handle the many device protocols and bring all of the data flows into big data platform

Legislations around Data privacy become important

Gartner identified advanced machine learning as a top strategic trend for 2016. It says Deep Neural Nets (DNN) will empower systems to autonomously learn to perceive the world on their own

Adoption of non-conventional data stores

- Disrupted way of data generation and consumption have forced industry to find new ways to store the data. Industry have adopted non-conventional data stores for their mainstream critical application
- One of UK's major media house have successfully implemented MongoDB for storing news items
- Many of the social media application owners have successfully adopted graph databases for storing contacts and connects

Distributed File System	hadoop HDFS		
Column Data Model	accumulo	APACHE HBASE	cassandra
Document Data Model	mongoDB	ArangoDB	
Stream Data Model	EVENT STORE		
Graph Data Model	neo4j	ArangoDB	
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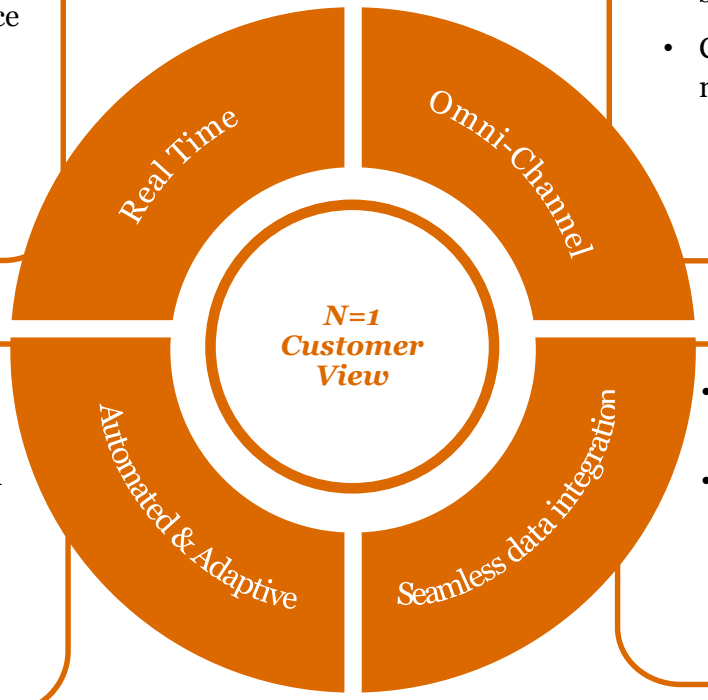
Personalisation & real time next best action

- Actionable insights
- Embedded intelligence
- Prescriptive analytics will take the lead

- Acquisition & retention strategies
- Customer experience maximization



- Self-learning operational systems
- Call-centers, campaign mgt systems reaching out to customers with personalized recommendations at the right time & place

- From physical, mobile, social sources
- Semantics, FRS, emotions, transaction history, demography, metadata, price sensitivity, location

Customer facing businesses moving away from segmentation towards attending to each individual in a unique way

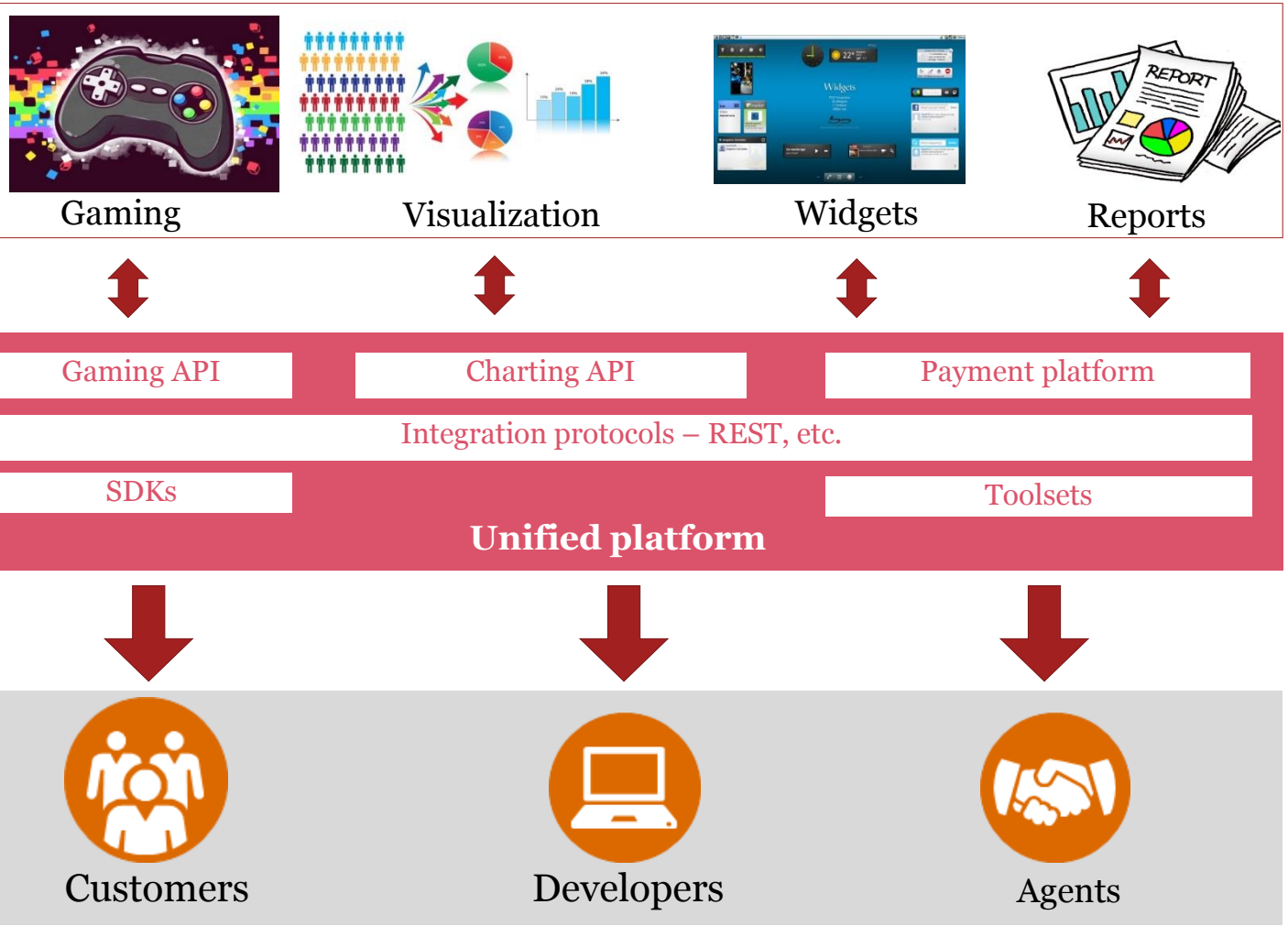
The ultimate aim is to maximise LTV of customer and to innovatively drive incremental revenues

IDC predicts - by 2020, 50% of all business analytics software will incorporate prescriptive analytics built on cognitive computing functionality

Platformisation & API based offerings

Business users / customers want to focus on their core areas without worrying about -

- Integration with interfaces
- Alerts
- Payment gateways
- Standards for platform
- Customizations
- Faster GTM



Block chain technology find use cases beyond BITCOIN

Blockchain Transformation

Automatic Reconciliation and Authorization

- **Authenticity**
- **Quality**
- **Avoid Fraud**
- **Reduce Cost**

Document Management System

Honduras shifted entire land property registration system on block chain technology

Banks

Most of the banks in the world exploring their transaction processing systems to be shifted on block chain

Loyalty Points System

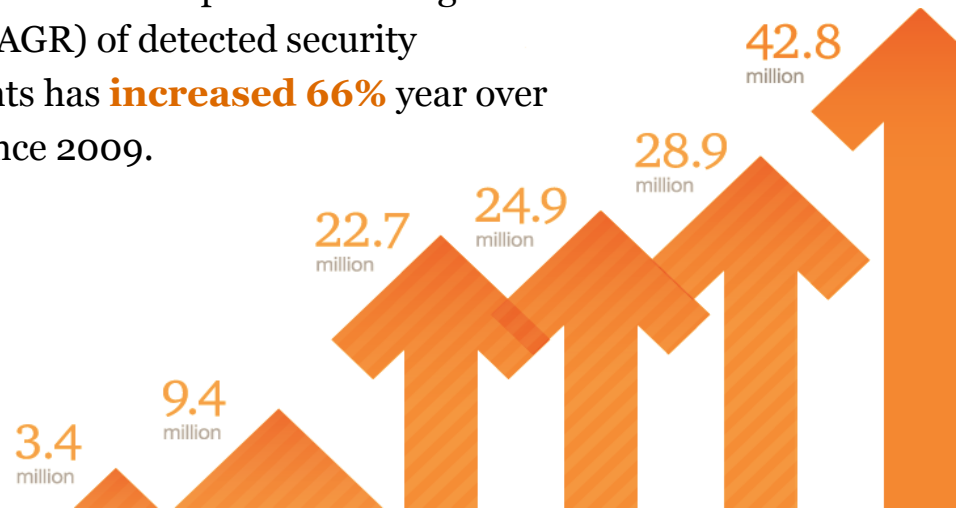
Consolidation of loyalty points system from various vendors

Product license management

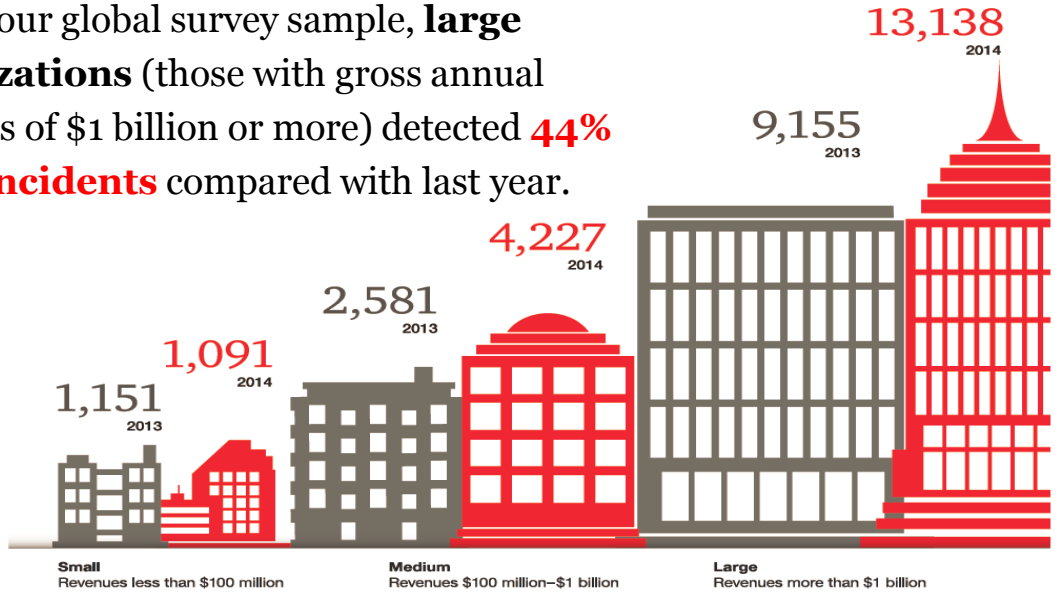
Product and licenses sell and management can happen using block chain

Adaptive Enterprise Security Setup

Taking a longer view, our survey data shows that the compound annual growth rate (CAGR) of detected security incidents has **increased 66%** year over year since 2009.



Among our global survey sample, **large organizations** (those with gross annual revenues of $1 billion or more) detected **44% more incidents** compared with last year.



Source: The Global State of Information Security® Survey 2015

Data security threats due to

- Digital business
- Algorithmic economy
- Cloud based services
- Open APIs

Adaptive security architecture

- Perimeter defence
- Rules based security
- Application self-protection
- User and Entity behaviour analytics

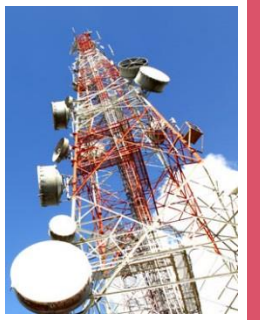
Analytic Ecosystem / Data Monetization

Is 'DATA', the new currency?

Rise in 'Analytics' Platform as a Service' solutions

Companies want to tap on the 'data assets' captured by other companies

Major global soft drink vendor targets the competition market based on major retailer's transaction data.



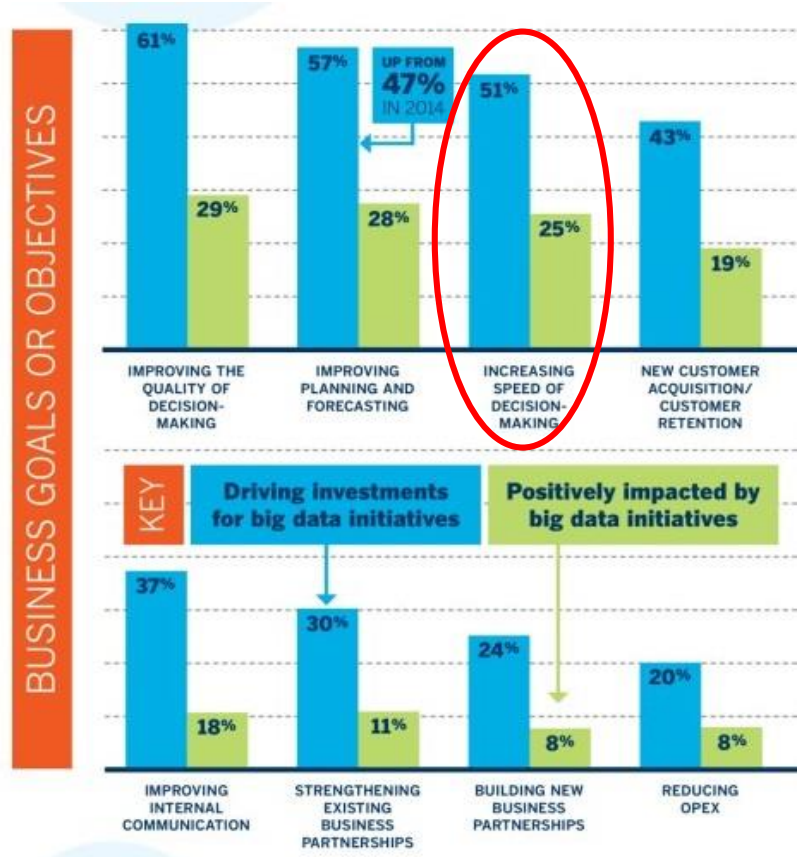
With 4G launch in India, telecom service providers are capturing user's browsing data at granular level which can be further utilized for personalized offers

Oil & gas companies capture customer's transaction data from petrol pumps and retail outlets that can be used to identify customer behaviour and preferences

Government census data and data exposed through data.gov.in is available for insights that can drive many business initiatives

Analytics / Insights as a Service

Productivity Qualities Rise as Reasons to Invest



Source: IDG

Drivers for AaaS

- Need for agility in business decision making & faster GTM
- Continuous disruption in data mgt technologies. Evolution of BDaaS, IaaS, private cloud
- Need to reduce incremental Capex on new HW & analytics tools
- Need to cut on IT process overheads – security, privacy, compliance

Insights as a Service
- SAS, leading SIs adopting the path
- One stop shop to customers for secure and fast data insights
- Actionable insights to HR, Finance, Marketing, Sales dept.

PaaS

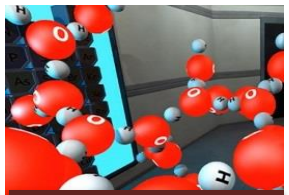
SaaS

On premise infrastructure
- High Capex
- High latency
- Slow GTM

Robotic Process Automation -RPA

Retail shopping

Travel



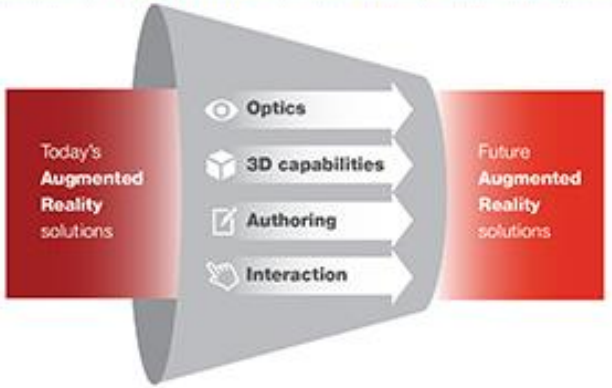
Education

Efficiency for Corporates
Deskless workers engaged with the physical world and hands-free solutions, can provide a lot of value by bringing rich information to desk workers to make them more efficient and effective.

Barriers to enterprise adoption
- Fragmented ecosystem
- Lack of standards
- Tech barriers – 3D tracking, content authoring
- Operational risks – data privacy, introduction of new HW

Source: PwC Technology forecast

Four technology areas that will shape the future of augmented reality




Future of India :
The winning leap
Breaking new ground by deploying solutions for rapid, sustainable and resource-efficient growth
Future of India
The Winning Leap
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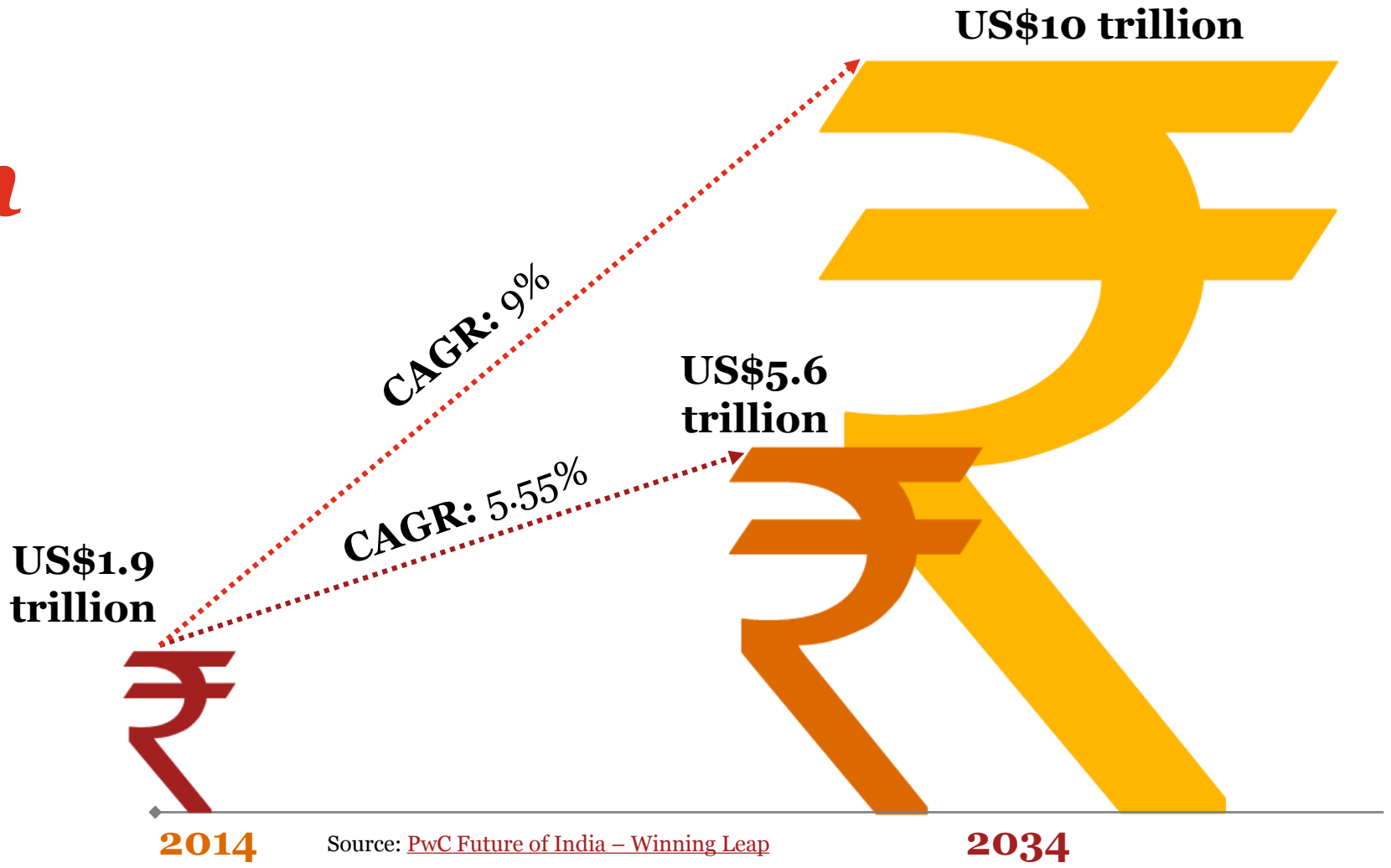
The national ambition

Building a $10 trillion economy

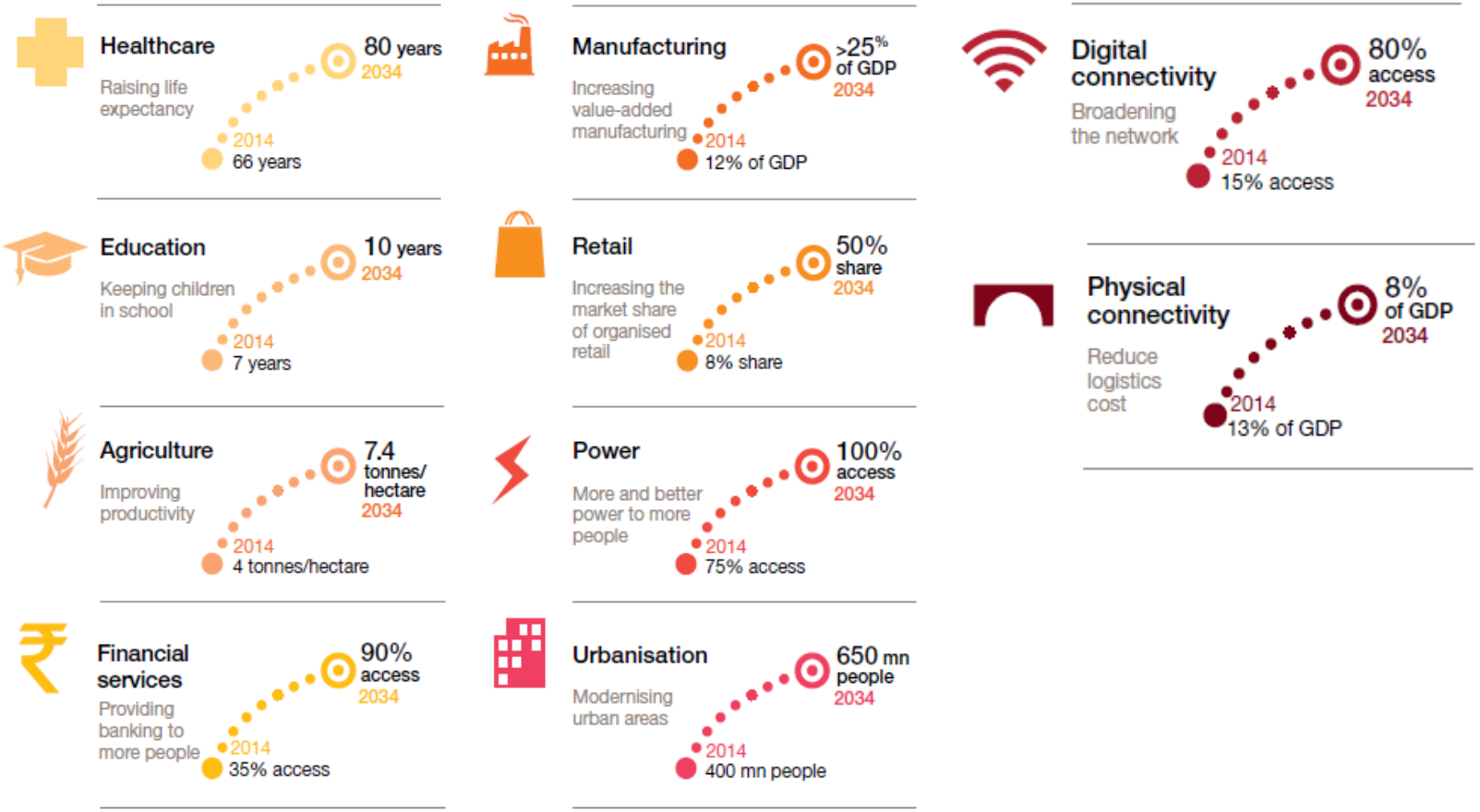
If India continues on its present growth course, it could have a US$5.6 trillion economy in 20 years. To create a US$10 trillion economy, India will need to accelerate its growth to 9% CAGR over the next 20 years.



Source: PwC Future of India – Winning Leap

Future of India

Focusing on the growth vectors to realize the national ambition.



Source::
PwC Future of India – Winning Leap

Thank You

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