



The Digitisation of Society

Enabled by the Internet of Everything

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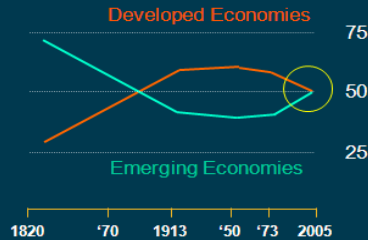
Global Head Market Development - Internet of Things

May 20, 2015

3 Major Trends are Reshaping the Global Landscape

Economics

Share of global GDP* (%)



Environmental/ Energy



Social Demographics



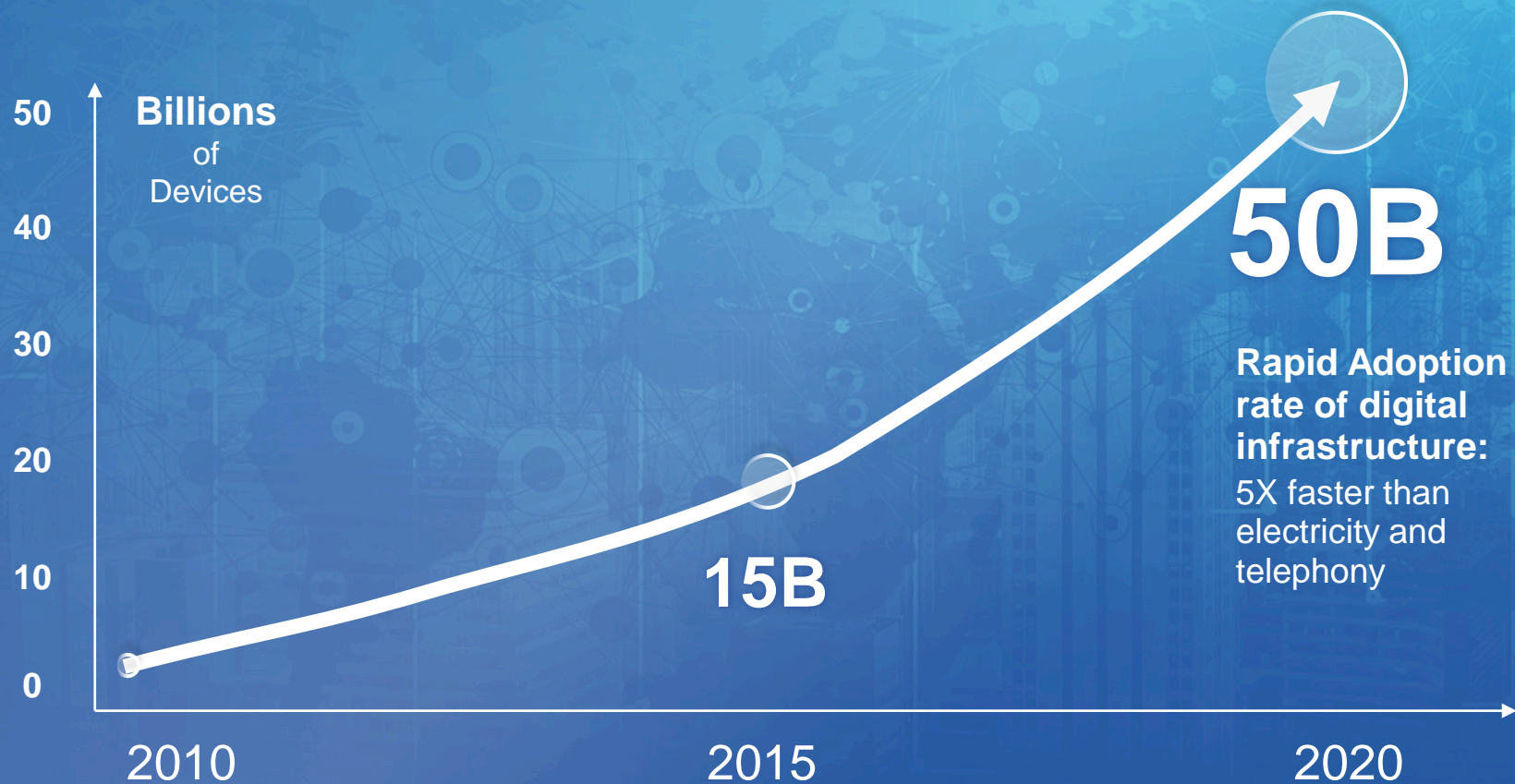
The Impact of Worldwide Shifts in Population

Aging				Shrinking			Growth		
Elderly (60+ yrs)	2010	2050		2050 Estimate	Million	% Decline from 2000	2050 Estimate	Million	% Growth from 2000
World	6.8%	16.2%		Portugal	10.0	(2%)	World	9,149.9	50%
USA	12.4%	21.6%		Europe	691.0	(5%)	Lebanon	4.6	25%
Canada	14.4%	24.7%		S. Korea	44.0	(5%)	Brazil	222.8	28%
China	6.8%	23.3%		Slovakia	4.9	(9%)	India	1,613.8	55%
Canada	12.6%	25.5%		Hungary	8.9	(13%)	Bangladesh	222.4	58%
Netherlands	13.6%	25.6%		Germany	70.5	(14%)	Egypt	129.5	85%
Switzerland	15.4%	26.0%		Poland	32.0	(17%)	Jordan	9.8	105%
Europe	14.8%	27.4%		Japan	101.6	(20%)	Saudi Arabia	43.6	110%
Poland	12.2%	29.9%		Russia	116.0	(21%)	Pakistan	335.1	126%
Singapore	7.2%	32.6%		Romania	17.2	(22%)	Nigeria	289.0	132%
Germany	16.4%	32.5%		Ukraine	35.0	(28%)	Iraq	63.9	160%
Italy	18.4%	33.3%		Bulgaria	5.3	(33%)	Ethiopia	173.8	165%
S. Korea	7.3%	34.2%					Congo	147.5	190%
Japan	17.2%	37.8%					Afghanistan	73.9	260%
							Qatar	2.6	343%

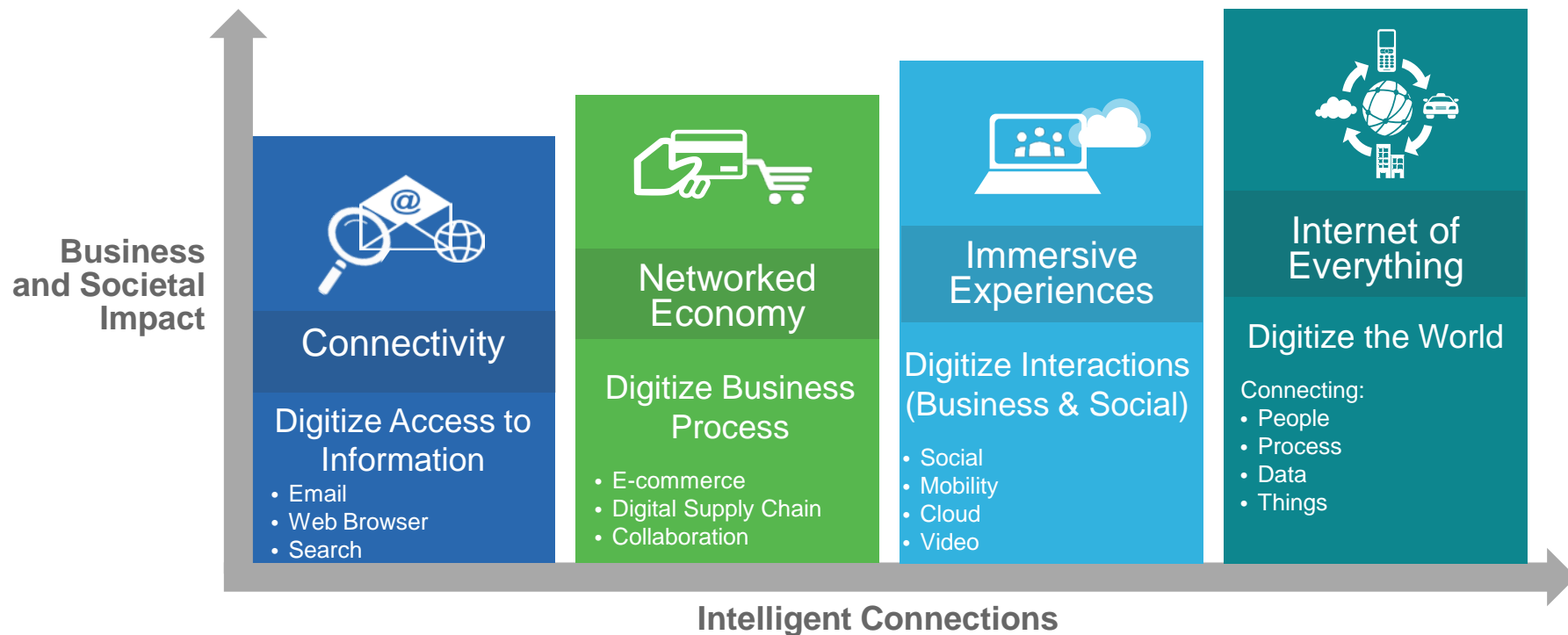
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World	11.2%	21.8%		Russia	126.1	(11.7%)	World	9,149.9	34.8%
USA	18.8%	26.6%		Japan	101.6	(20%)	India	1,613.8	41.6%
Netherlands	22.3%	31.9%		Hungary	8.9	(13%)	Nigeria	289.6	140.7%
Japan	17.2%	37.8%		Germany	70.5	(14%)	Saudi Arabia	43.6	110%
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Everything Will Be Connected to Everything

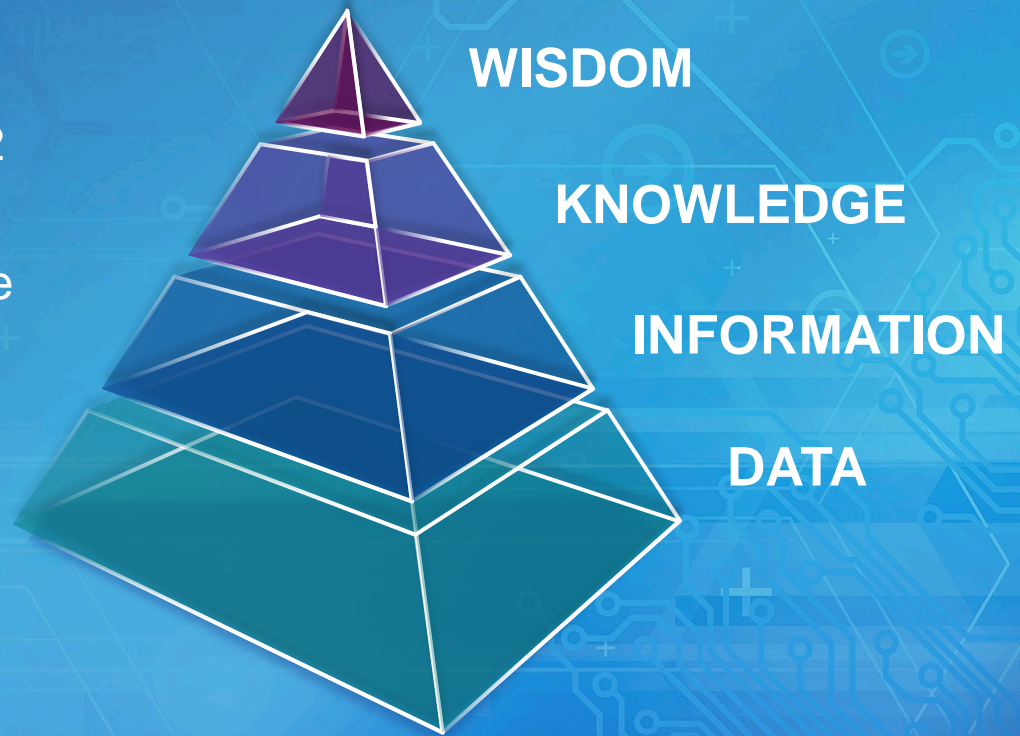


Evolution of the Internet



Transforming Data into Actionable Intelligence

- 90% of world's data created in the last 2 years
- More new data created in 2012 than in prior 5,000 years
- By 2020, 40% of data will come from sensors
- Walmart collects 2.5 petabytes of customer data hourly
- The average hospital has 665 terabytes of patient data, 80% unstructured (CT scans and x-rays)



Moving from Web-based to Apps-based

100 Movies
250 Books

vs

15K Apps
Released
WW/Week

3K

Mobile Apps
2007

250K

iPhone Apps Alone
2010

2.6M

Apple & Google
Apps Worldwide
2014

?

Apps
Worldwide
2020

Pace of CHANGE

Disrupt or Be Disrupted





Every Country,
City, Company



DIGITAL

Pace of **CHANGE**

- Innovation Speed... $2x \rightarrow X^2$
- IT Industry Disruption
- Clouds... Private, Hybrid, Public, Fog
- Security Challenges
- Mobility
- Big Data & Analytics
- Business + Technology Models

Internet of Everything... 5X – 10X Impact of Internet To Date

What is the IoE Opportunity?



Only 1%
of the World is
CONNECTED
TODAY

What is the IoE Opportunity?



Value Sources



**Innovation/
Revenue**
\$3.0T



**Customer
Experience**
\$3.7T



**Asset
Utilization**
\$2.5T



**Employee
Productivity**
\$2.5 T

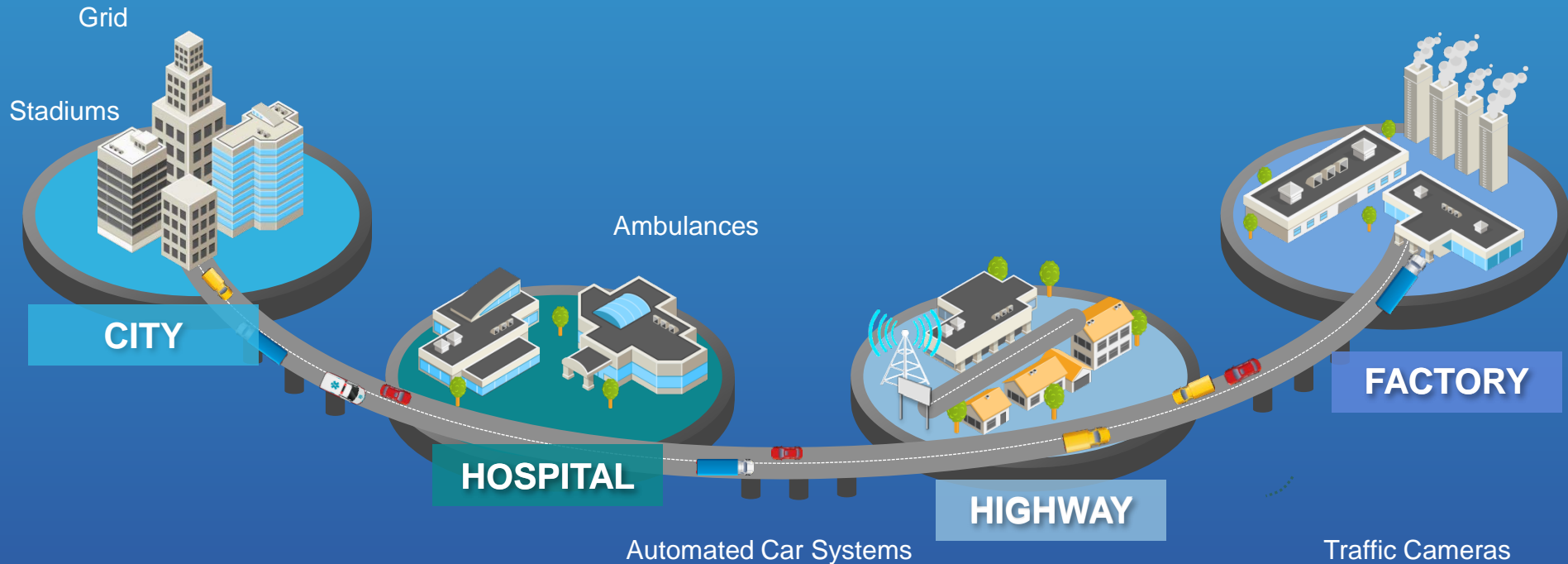


**Supply Chain/
Logistics**
\$2.7T

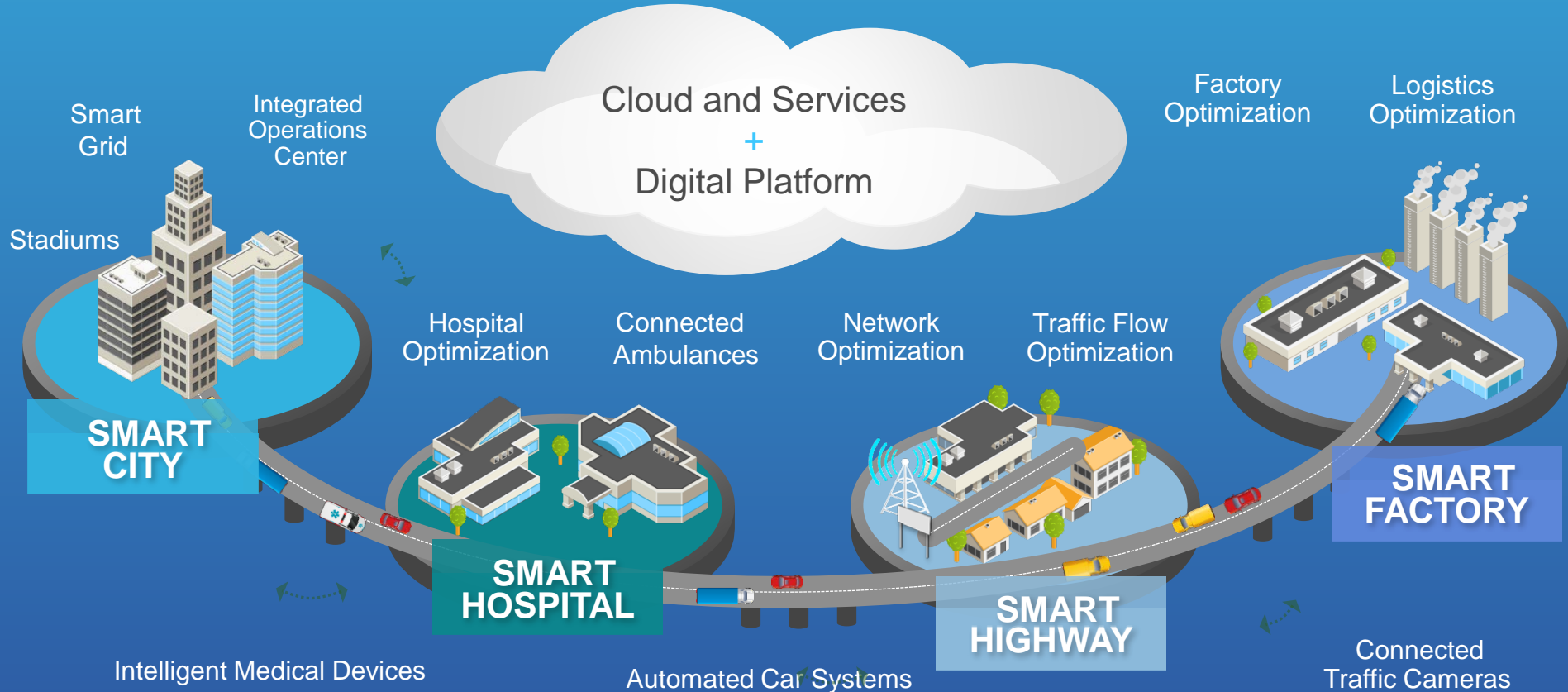
Implementing IoE in **Japan** could generate **US\$870.2B** of value



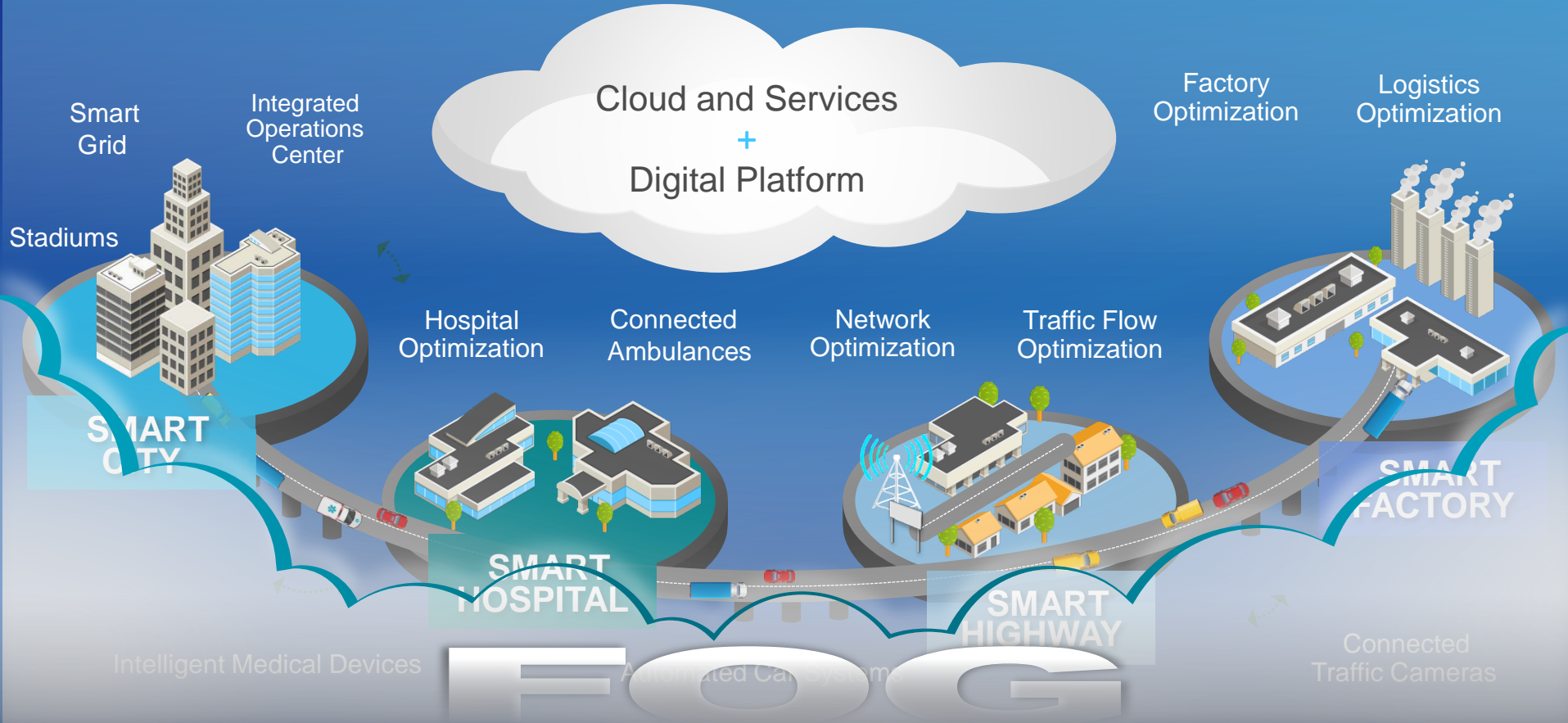
A Country, City, Company, Home, Person With a Digital Overlay



A Country, City, Company, Home, Person With a Digital Overlay



A Country, City, Company, Home, Person With a Digital Overlay



City Issues: Rapid Urbanization, Economic Constraints, and Environmental Sustainability

Current Challenges faced by Cities

Demographics shifts in urbanization

- 6.3 billion will live in cities in 2050, up 70% from 3.6 billion in 2010 – How many will be over 65?

Environmental pressure

- Cities responsible for between 60-80% of world's energy and greenhouse emissions
- Cities consume 60% of all water and lose as much as 20% in leakage

Economic pressure

- Large section of developed world will only grow between 0-2% in 2013
- Recent economic recovery has not resulted in proportional job growth

Implication

Rapid growth puts pressure on city infrastructure, making it harder to maintain citizen quality of life

Greater need to manage carbon footprint and improve sustainability

Boosting livability index is more crucial than ever to retain and attract trade, commerce, and talent



The ability to improve city infrastructure management is increasingly defining social, environmental, and economic success

Why Businesses **SUCCEED** *or* **FAIL**

- Market Transitions
- Right Thing Too Long
- Reinvent
- Customer Driven



Cities Traditionally Address these Issues in Silos

Every city department makes investments independently resulting in:

- No sharing of infrastructure costs and IT resources
- No sharing of intelligence/information, e.g., video feeds, data from sensors, etc.
- Waste and duplication of investment and effort
- Difficulty in scaling infrastructure management

Traffic
management



Public
safety



City
lighting



Pollution/
environment



Waste
management



Parking
optimisation



This fragmented approach is inefficient, has limited effectiveness, and is not economical

Barcelona: Smart City...\$3.6B Value Creation

Smart Lighting

Smart Buses

Smart Water

Smart Bus Stop

Smart Parking

Smart Waste



Smart Citizens

Revenue

Citizen Experiences

Jobs

Productivity

Cost Avoidance

Barcelona: Smart City...\$3.6B Value Creation

Smart Lighting

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Smart Parking

Smart Waste



Smart Citizens

- 1,500 New Companies
- 44,000 New Jobs
- Mobile Collaboration: \$1.6B
- Telework: \$199M
- Smart Parking: \$67M
- Smart Water: \$58M
- Smart Lighting: \$47M

Revenue

Citizen Experiences

Jobs

Productivity

Cost Avoidance

Kyoto : Smart City... ? \$B Value Creation

Smart Lighting

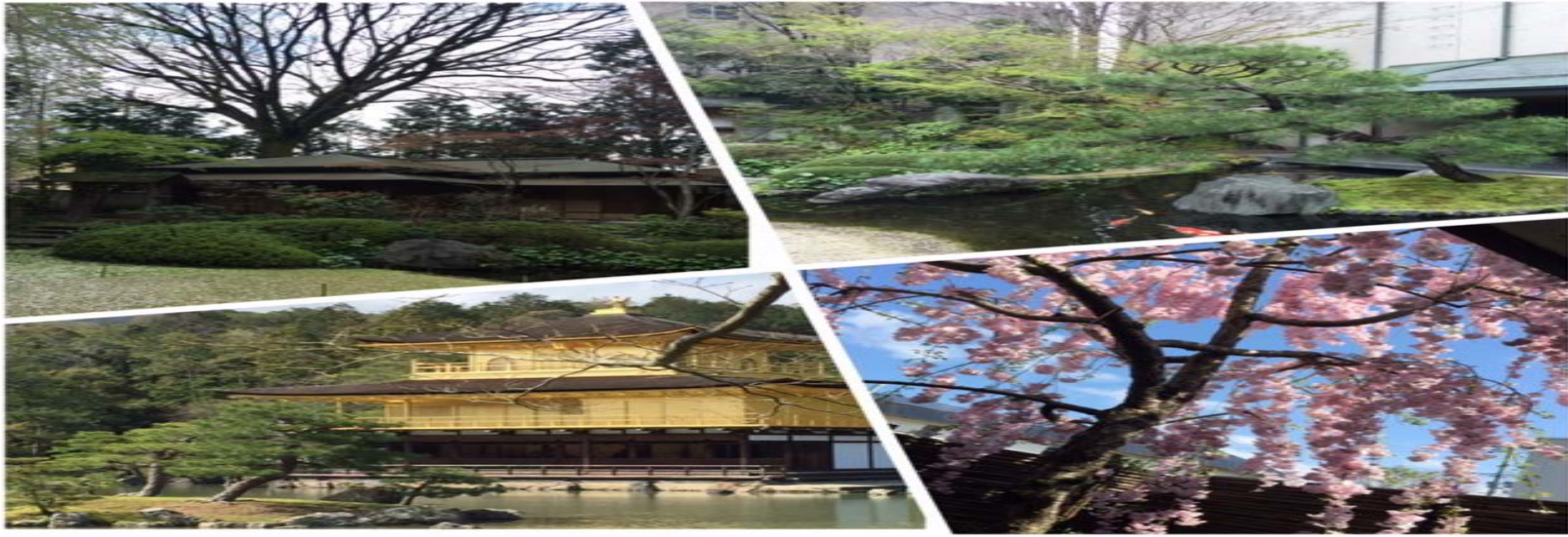
Smart Buses

Smart Water

Smart Bus Stop

Smart Parking

Smart Waste



Revenue

Citizen Experiences

Jobs

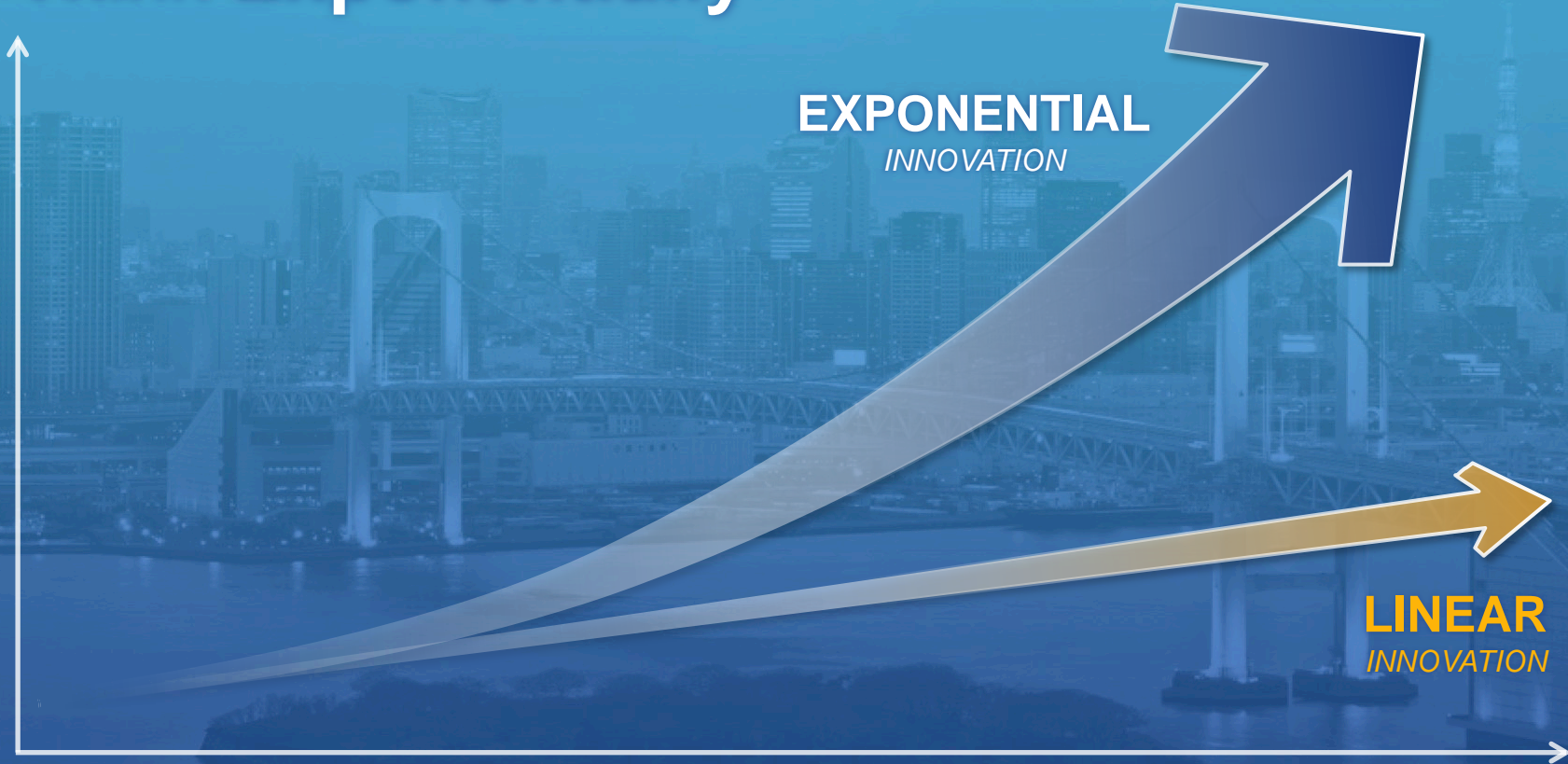
Productivity

Cost Avoidance

Think Exponentially

EXPONENTIAL
INNOVATION

LINEAR
INNOVATION



What Will it Take?



Decade of
experimentation
and collaboration



Co-innovation
and rapid
prototyping



Accept failure,
learn and
move on



CISCO

TOMORROW starts here.

KYOTO



SMART CITY EXPO 2015