iCity in China

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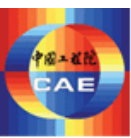# Outline

I. Concept : Smart City → iCity

II. iCity in China

III. Conclusion

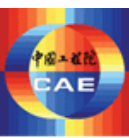# I. Concept : Smart City → iCity

1."Smart City" concept

1) IBM proposed the concept of "Smart City" in 2008: 3I (instrumented, interconnected, intelligent), providing solutions to transport, medical care, government, state grid, water utilities, etc.

2) Digital cities were being built around the world before "smart city" was raised

Tallinn

Stockholm•

eEurope in 1999
i2010 in 2005

Seol&Matsushima

Beijing

U-Japan
Tokyo

U-Korea

•UAE "Zero Carbon City"

Hong Kong

•Singapore•I-Hub"

San Francisco

•New York

IBM "Smart Earth"

Malaysia "Multimedia Super Corridor"

■ Top 10 digital cities

■ Information and digital programs

All of them tend to be "smart cities"

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3) Smart Cities in China

Beijing

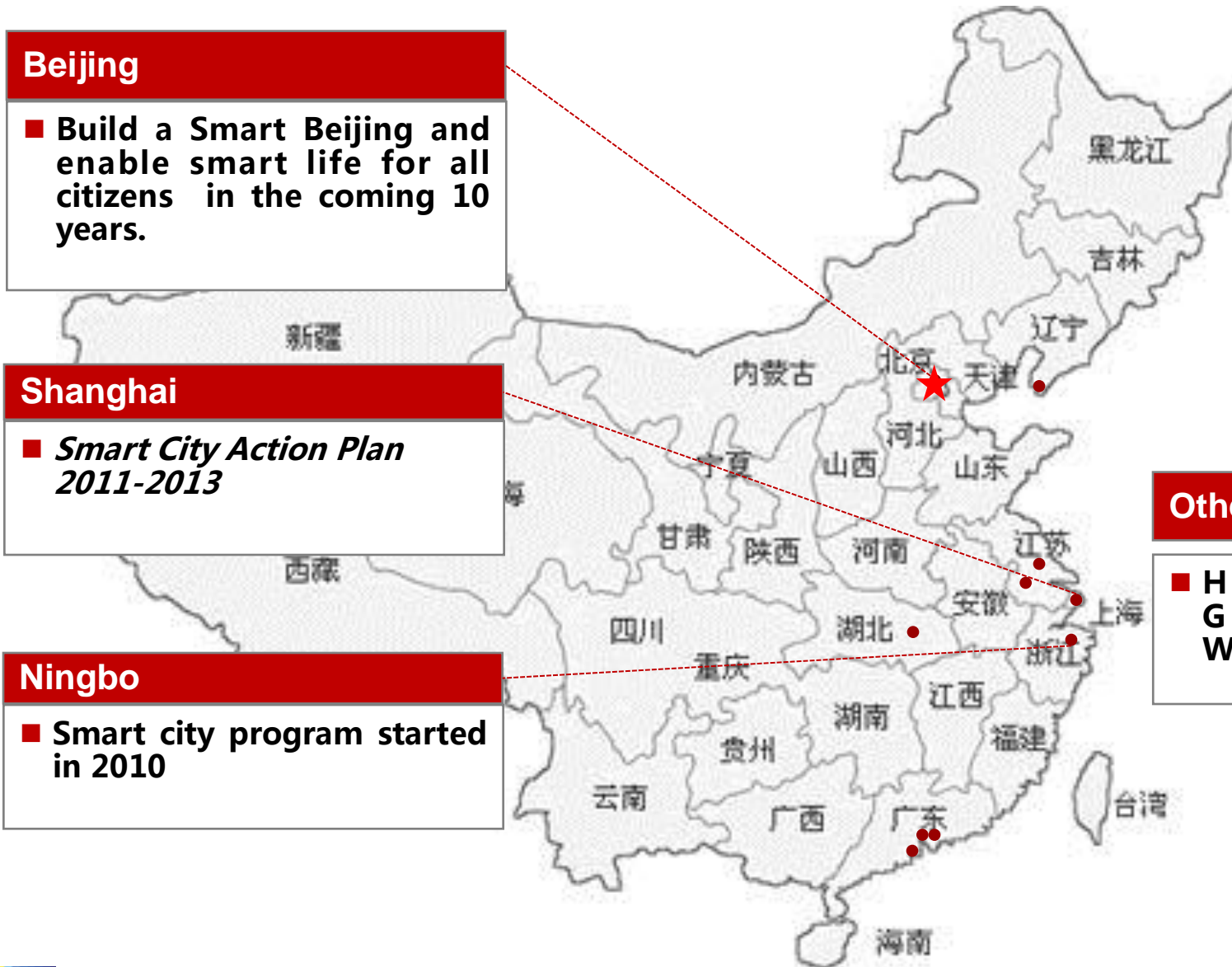- **Build a Smart Beijing and enable smart life for all citizens in the coming 10 years.**

Shanghai

- *Smart City Action Plan 2011-2013*

Ningbo

- **Smart city program started in 2010**

Others

- **Hangzhou, Guangzhou, Wuhan, Xi'an**

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2. The concept changed in China

➢ In 2010: smart city is a new model for city development focusing on smart technologies, industries, services, managment and lifestyle based on the use of information technologies and comprehensive use of information resources.

In May, 2011 the concept was chagned: smart city is a new model to achieve optimized socioeconomic development in cities by utilizing ICT technologies to achieve interactions and complementation between men and things.

➢ There is a big gap between the Mayor and the IT companies: a Mayor was disappointed after hearing the smart system plan of an IT company and said, "You don't have the vision of a Mayor".
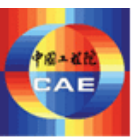
➢ **what & Why?**

3. the iCity

CAE launched a plan to study the strategy for China's ICity development in 2012

➢ Members of CAE disagreed with IBM 's "Smart City", because the city plan is a long-term work based on the collection of extensive data & knowledge, therefore we use the concept of "**Intelligent City**" or **iCity**。

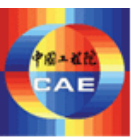# II. iCity in China

iCity in four aspects identified by CAE

1. City planning and building

2. Economic and industrial development

3. Information infrastructure

4. City management and services

1. City Building and Planning

1) Urbanization: chance and challenges

➤ China's urbanization rate grew by 1.34% every year in the past 15 years.

  1978 : 17.92%

  1996 : 30.48%

  2011 : 51.27%

  2012 : 52.57%

  Urban population increases by 18 million each year.

➤ About 200 million people will move to cities in the coming 15 years.

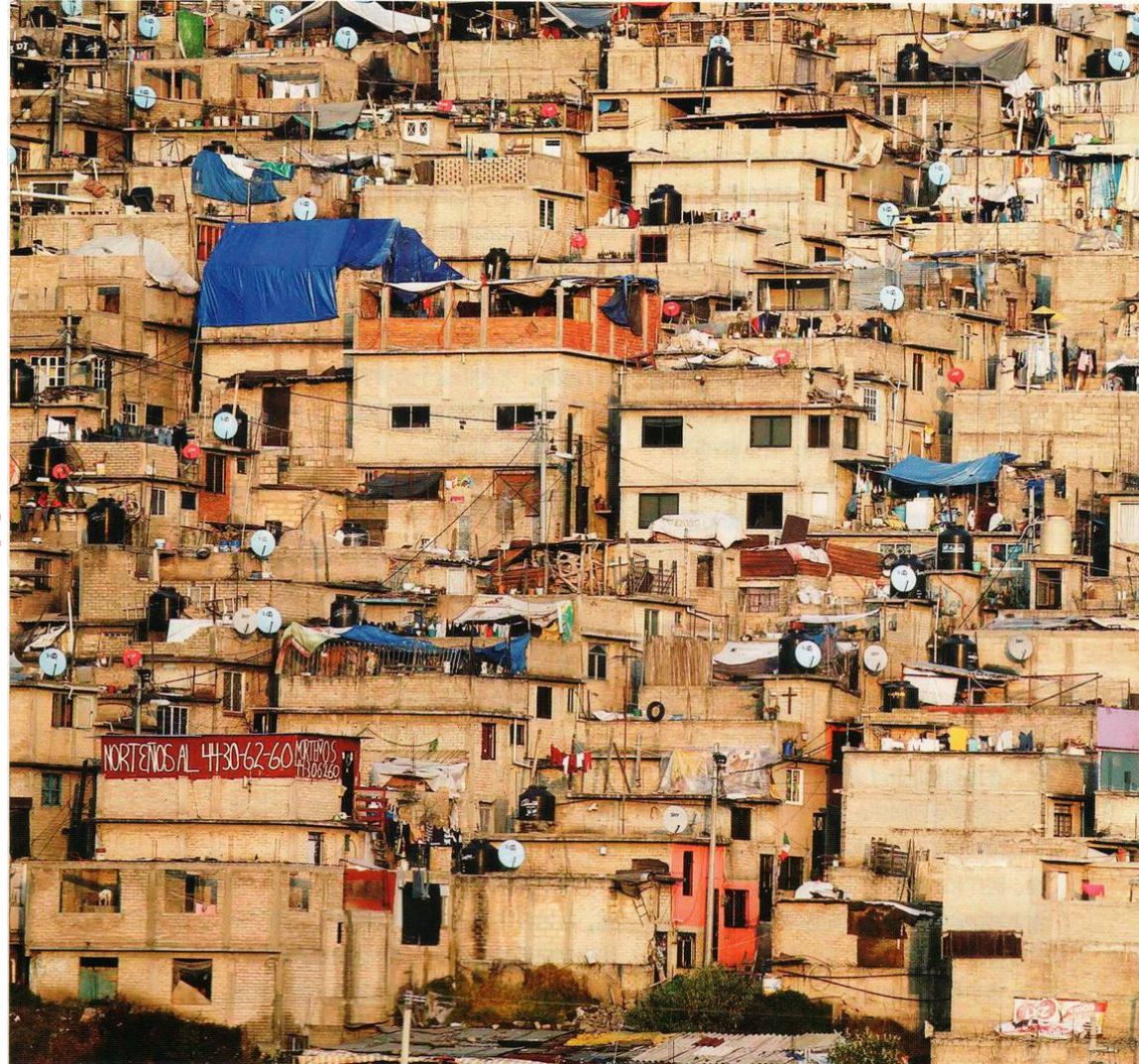# 2) How to avoid the traps?

➢ Slums

    Mexico， India

➢ Safety

    Johannesburg

➢ Pollution & Trafic Jam

London (19th century)

    Kawasaki (1960s)

    Beijing (now)

slums in the outskirts
of Mexico City

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3) The city we want

➢ In China, most buildings of 40 years ago have been toren down. There must be a mistake between our forefathers and our generation.

Q1: Are we going to repeat it after 40 years?

Q2: How many Chinese cities can endure the test of history to be world famous like London, Paris, Prague and Florence? It is a huge challenge for our urbanization now.

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➢ Prof. Daniel Bell from Canada wrote in Global Times, April 10, 2012:

❑ Chinese cities copied the Soviet model for 30 years, then the American model for another 30 years. These might be the worst two from the architectural perspective.

❑ China should spend more time, money and efforts to protect the uniqueness of its cities to avoid homogeneity induced by globalization.

❑ Cities must protect their unique culture & environment, such as Hangzhou.

4) Three topics are focused on c i t y planning and iCity building

a) The relations between economic development, science and technology progress, culture, management and planning of a city(Xu Qingrui, Wang Yingluo, Wang Zhongtuo)

b) Spacial organization model, intelligent transport and logistics (Zou Deci, **Wu Zhiqiang**, Shi Zhongheng)

c) Intelligent buildings and housing (Jiang Yi, Sun Yu, Ni Weidou)

2.Economic and Industrial Development of iCity

Sound economic development is the main mission of Chinese Mayors.

➢ economic development in cities is the essential solution for various social problems in China. Therefore it is the main focus of the Mayors!

➢ What is that our Mayors are interested in ?

1) How to develop the main industries of the city?

➢ Top 4 industries of China's export (2009)

- mechanical and electrical products: USD 536,9 billion
- textile products: USD 161,4 billion
- metalware: USD 77,1 billion
- furniture and toys: USD 72,2 billion

➢ e.g. the textile industry , 30% of world exports come from China. How to improve the products?

2) How to promote emerging industries?

strategic emerging industries may come from the following sectors:

(1) Information industry: chips, internet, smart technologies;

BNIC: integration of information technologies with biological, cognitive and nano technologies

(2) Biomedicine: vaccine, drugs, diagnostics and equipment

(3) Materials: information materials, high performance structural materials, biomedical materials, frontier materials

(4) Energy: efficient clean energies, smart grid

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(5) Agriculture molecular breeding, bioreactor

(6) Marine science marine exploration, transportation, biological resources, ecosystem and environment

(7) Environment protection, monitoring and cyclic use of water, land and air

(8) Manufacturing smart manufacturing, sensors, smart diagnosis

(9) New energy vehicles battery, engine, electric control, vehicle structure

(10) Modern service industry

**Emerging industry? Subversive Technologies?**

Innovation Products?
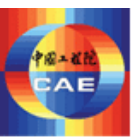
3) How to embrace the new technologies & the industrial revolution?

➢ many scholars say that the numerous new technologies may drive forward the 3rd industrial revolution ("industry 4.0").
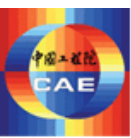
➢ **smart manufacturing** 3D printing can, by using computers, laser and powder metal or plastics, print out complex components like hip joint, teeth and airplane parts.

➢ **The internet** brings together innovation capacities, to connect the designer, maker, consumers, market managers together, and are bringing huge business opportunities and radical changes of society.

➢ **big data** large scale of data and their processing will enable new services & new market.
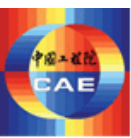
4) Three topics are focused in city economic and industrial development

a) smart manufacturing (**Wu Cheng**, Sun Youxian, Xu Zhilei, Wang Tianran, Zhong Zhihua, Li Bohu)

b) smart grid and energy (**Yu Yixin**, Cen Kefa)

c) smart business and finance (Zhang Yaoxue)

3. Information infrastructure of city

Three aspects

1) sensable city: sensors for traffic, fire control, environmental protection; smart meters for water, electricity and heating.

e.g. By 2015, Beijing will achieve sensable road 90%, environment 95%, smart electric meter 98%

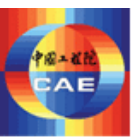**2) next generation Internet**

upgrade information infrastructure : Internet (broadband, ubiquitous, mobile)

e.g.   Beijing's 2015 plan

residential area: 100M

community and business: 1G

key enterprises: 10G

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3) Big data and knowledge services

➤ Discovering new knowledge from the city big data will give a huge benefit to the Mayor, CEOs, residents of the city

city Big Data

Government: e-governance, smart communities

Company: online design, network manufacturing

Residents: Health, education , culture

Research: knowledge, digital library

4) 3 topics of city information infrastructure:

a) information network (Liu Yunjie, Zhu Gaofeng, **Chen Junliang**, Wu Jiangxing)

b) Sensors network & GIS(Ning Jinsheng, Wang Jiayao)

c) knowledge center and informaiton processing (Li Guojie, Liu Yongcai)
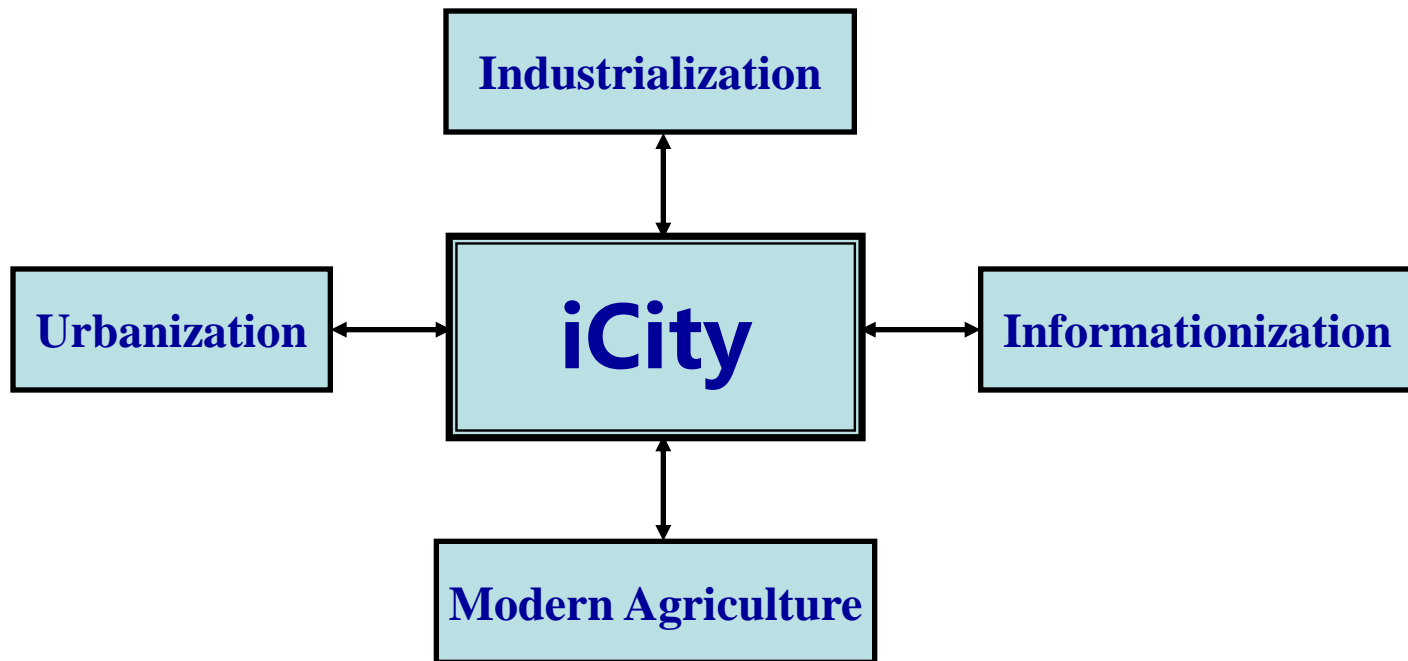
4.Uniqueness of iCity in China

➢ 3 Coordinate axes respectively represent informationtization, urbanization and industrialization, and China will choose a way other than US and Europe
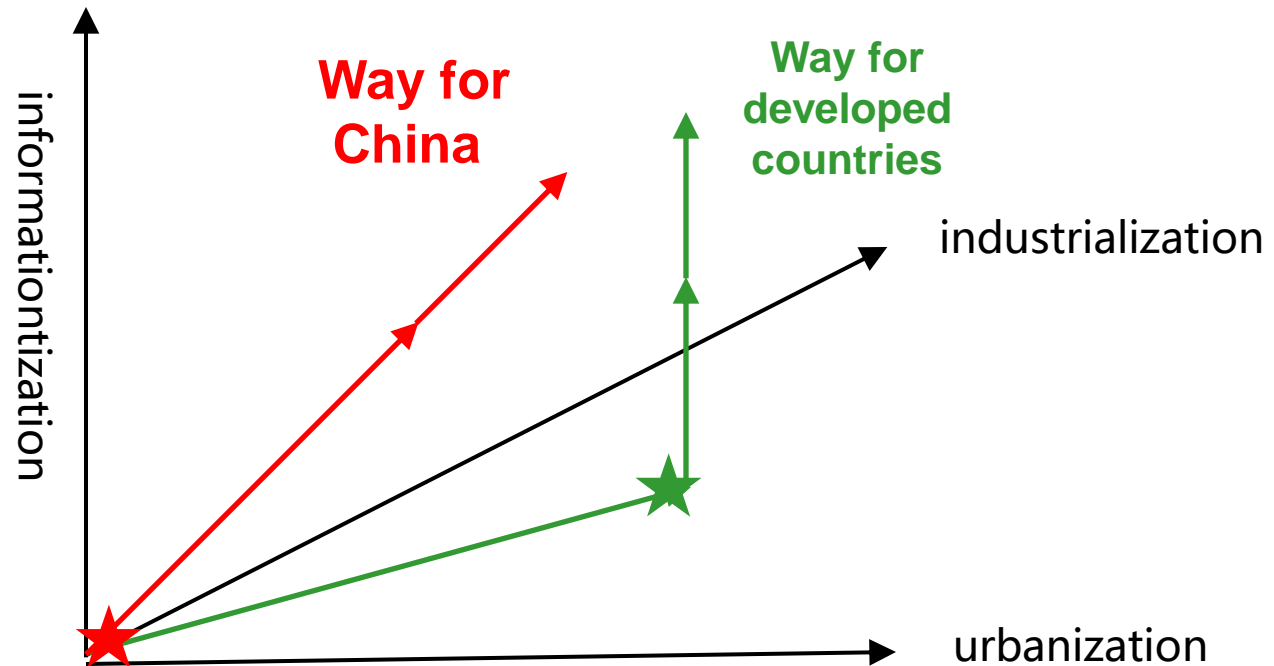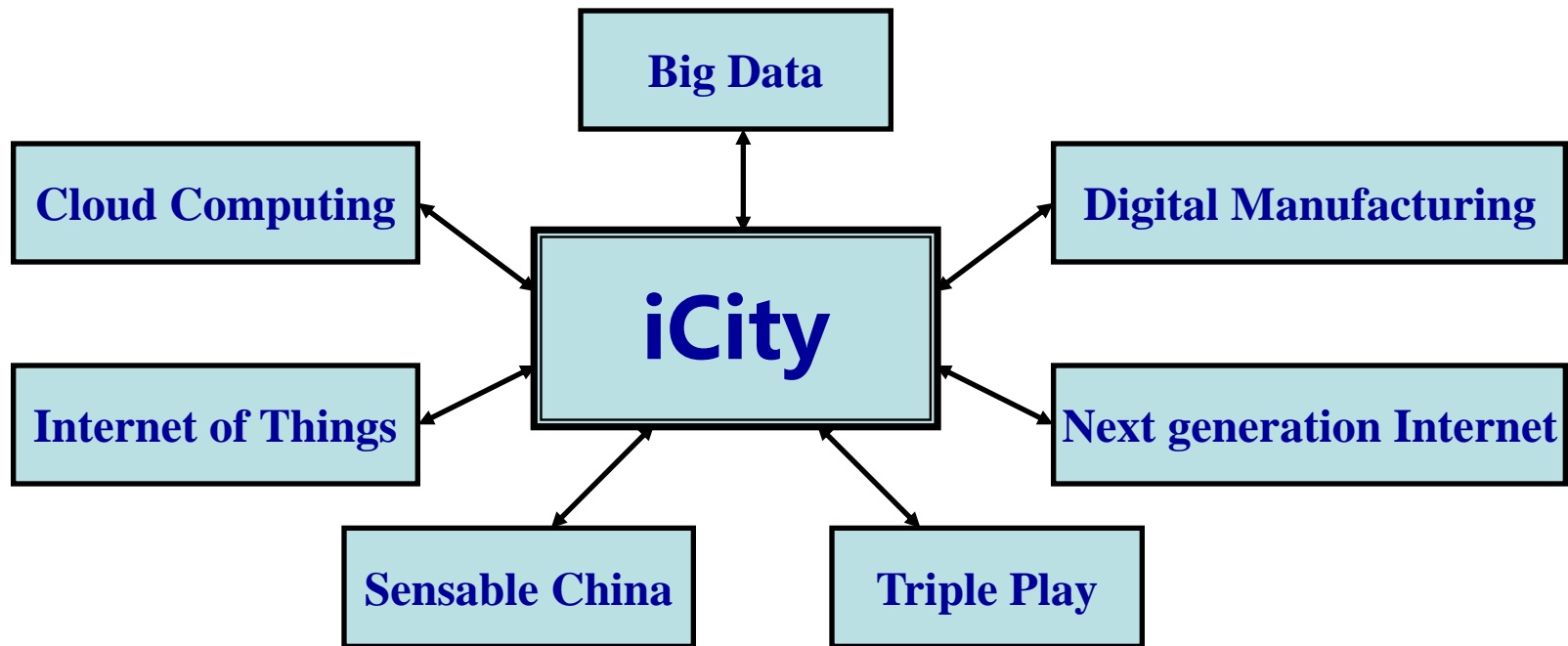
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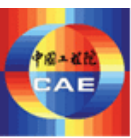
1. iCity is important, for it is interacted with industrialization, informationization, urbanization and modern agriculture development in China.

2. iCity creates huge potential for IT development, providing platform for integration of new ICT technologies.

Big Data

Cloud Computing

Digital Manufacturing

iCity

Internet of Things

Next generation Internet

Sensable China

Triple Play

3. iCity also fits the management structure in China. With strong administration capacity, China city will push forward fast and sound development through iCity.

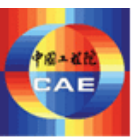**iCity is the right idea at the right place and time.**

Many cities in China, especially along the east costal area, have launched their iCity program and the IT companies are taking actions. The grand initiative shall exert huge impact in the future.

The initiative will not only benefit cities in China, but also the world!

Thank You!

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