

IT Paradigm Shift with the Rise & Fall of Global ICT companies

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Introduction



Paradigm Shift of Global IT Industry



Fading stars, Shining stars



Rising stars?



Lessons from Looking Back

I . Introduction



Introduction



What will happen in the future?

- **To reduce Risks in the future**
- **To prepare for Competitiveness in advance**
- **Check the Trend, Catch the Changes of Paradigm Shift**



How do we know Future IT Technology / Service?

- **Ranking of Global IT companies over the past 35 years**
- **Sales : Current value / Market Capitalization : Future value**
- **The Rise and Fall of Global IT Companies**

The background of the slide features a light blue sky with soft, white, fluffy clouds. Scattered throughout the sky are several 3D cubes of varying sizes. Some cubes are a light beige or off-white color, while others are a vibrant blue. They appear to be floating or falling, adding a sense of movement and depth to the background.

II . Paradigm shift of global IT Industry

1. Top 30 IT companies in market capitalization

1980년	1990년	2000년	2010년	2015년
1 IBM	1 IBM	1 CISCO SYSTEMS	1 Apple	1 Apple
2 HEWLETT PACKARD	2 HITACHI	2 Microsoft	2 Microsoft	2 Alphabet
3 Panasonic	3 Panasonic	3 NOKIA	3 Google	3 Microsoft
4 xerox	4 ALCATEL	4 intel	4 IBM	4 amazon.com
5 digital	5 NEC	5 ORACLE	5 ORACLE	5 facebook
6 SONY	6 SONY	6 IBM	6 SAMSUNG	6 Alibaba.com
7 TEXAS INSTRUMENTS	7 FUJITSU	7 EMC ²	7 intel	7 Tencent 腾讯
8 HITACHI	8 Nintendo	8 NORTEL	8 CISCO	8 intel
9 MOTOROLA	9 FUJIFILM	9 Sun	9 HEWLETT PACKARD	9 SAMSUNG
10 UNISYS	10 SHARP	10 ERICSSON	10 amazon.com	10 ORACLE
11 intel	11 SANYO	11 TEXAS INSTRUMENTS	11 QUALCOMM	11 CISCO
12 Apple	12 Microsoft	12 SONY	12 Canon	12 IBM
13 HARRIS	13 KYOCERA	13 HEWLETT PACKARD	13 tsmc	13 tsmc
14 SANYO	14 HEWLETT PACKARD	14 ALCATEL	14 SAP	14 SAP
15 NEC	15 intel	15 QUALCOMM	15 TATA CONSULTANCY SERVICES	15 QUALCOMM
16 FUJITSU	16 Canon	16 Panasonic	16 EMC ²	16 TATA CONSULTANCY SERVICES
17 PHILIPS	17 MOTOROLA	17 PHILIPS	17 Infosys	17 accenture
18 Canon	18 NORTEL	18 CORNING	18 Tencent 腾讯	18 Baidu 百度
19 SHARP	19 ERICSSON	19 DELL	19 FOXCONN	19 TEXAS INSTRUMENTS
20 Tektronix	20 digital	20 Lucent Technologies	20 TEXAS INSTRUMENTS	20 salesforce
21 FUJIFILM	21 Pioneer	21 MOTOROLA	21 NOKIA	21 EMC ²
22 CORNING	22 Apple	22 JDS Uniphase	22 Nintendo	22 Adobe
23 NORTEL	23 COMPAQ	23 ADP	23 ERICSSON	23 AVAGO
24 Pioneer	24 CORNING	24 JUNIPER	24 vmware	24 ADP
25 KYOCERA	25 ADP	25 ST	25 eBay	25 ASML
26 National Semiconductor	26 EDS	26 VERITAS	26 SONY	26 FOXCONN
27 AVNET	27 TEXAS INSTRUMENTS	27 YAHOO! JAPAN	27 Baidu 百度	27 Infosys
28 ADP	28 TDK	28 APPLIED MATERIALS	28 accenture	28 Cognizant
29 Data General	29 muRata	29 Canon	29 BlackBerry	29 BROADCOM
30 CRAY	30 PHILIPS	30 NEC	30 CORNING	30 KEYENCE

1. Top 30 IT companies in 1980

1980년

★	1	IBM	USA
★	2	HEWLETT PACKARD	USA
	3	Panasonic	Japan
★	4	xerox	USA
★	5	digital	USA
	6	SONY	Japan
	7	TEXAS INSTRUMENTS	USA
	8	HITACHI	Japan
	9	MOTOROLA	USA
★	10	UNISYS	USA
	11	intel	USA
	12	Apple	USA
	13	HARRIS	USA
	14	SANYO	Japan
★	15	NEC	Japan
★	16	FUJITSU	Japan
	17	PHILIPS	Netherlands
	18	Canon	Japan
	19	SHARP	Japan
	20	Tektronix	USA
	21	FUJIFILM	Japan
	22	CORNING	USA
	23	NORTEL	Canada
	24	Pioneer	Japan
	25	KYOCERA	Japan
	26	National Semiconductor	USA
	27	AVNET	USA
	28	ADP	USA
	29	Data General	USA
	30	CRAY	USA

Era of Mainframe Computing

- ① IBM was the absolutely 1'st company in IT area
- ① Famous mainframe computer was IBM system 360
- ① The market value of IBM was about 4 times higher than HP, 2'nd ranker

1. Top 30 IT companies in 1990































1990년		
★	1 IBM	★
★	2 HITACHI	
★	3 Panasonic	
	4 ALCATEL	
★	5 NEC	
★	6 SONY	
★	7 FUJITSU	
★	8 Nintendo	
★	9 FUJIFILM	
★	10 SHARP	
★	11 SANYO	
	12 Microsoft	★
★	13 KYOCERA	
	14 HEWLETT PACKARD	★
	15 intel	
★	16 Canon	
	17 MOTOROLA	
	18 NORTEL	
	19 ERICSSON	
	20 digital	
	21 Pioneer	
	22 Apple	★
	23 COMPAQ	★
	24 CORNING	
	25 ADP	
	26 EDS	
	27 TEXAS INSTRUMENTS	
	28 TDK	
	29 muRata	
	30 PHILIPS	

Era of Electronics · PC

- ④ So many Japanese appliance company
- ④ Trend of the computer industry also move to personal computer
- ④ IBM opened specification of PCs
- ④ Apple kept their own PC spec.
- ④ MS developed the OS for IBM PCs

1. Top 30 IT companies in 2000

2000년

★	1	CISCO SYSTEMS	
	2	Microsoft	
★	3	NOKIA	
	4	intel	
	5	ORACLE	
	6	IBM	
	7	EMC ²	
★	8	NORTEL	
	9	Sun	
★	10	ERICSSON	
	11	TEXAS INSTRUMENTS	
	12	SONY	
	13	HEWLETT PACKARD	
★	14	ALCATEL	
	15	QUALCOMM	
	16	Panasonic	
	17	PHILIPS	
★	18	CORNING	
	19	DELL	
★	20	Lucent Technologies	
★	21	MOTOROLA	
	22	JDS Uniphase	
	23	ADP	
★	24	JUNIPER	
	25	ST	
	26	VERITAS	
	27	YAHOO!	
	28	APPLIED MATERIALS	
	29	Canon	
	30	NEC	

Era of Dot Com

- ⌚ Internet access using PC to search or get information became popular
- ⌚ Network Device and component companies appeared

1. Top 30 IT companies in 2010

2010년		
★	1	Apple
	2	Microsoft
	3	Google ★
	4	IBM
	5	ORACLE
★	6	SAMSUNG
	7	intel
	8	CISCO
	9	HEWLETT PACKARD
	10	amazon.com ★
★	11	QUALCOMM
	12	Canon
	13	tsmc
	14	SAP ★
	15	TATA CONSULTANCY SERVICES
	16	EMC ²
	17	Infosys
	18	Tencent 腾讯
	19	FOXCONN
	20	TEXAS INSTRUMENTS
	21	NOKIA
	22	Nintendo
	23	ERICSSON
	24	vmware
	25	ebay ★
	26	SONY
	27	Baidu 百度
	28	accenture
★	29	BlackBerry
	30	CORNING

Era of Mobile Computing

- ① The internet access devices changed from PC to mobile devices
- ① Apple appeared again with iPhone
SAMSUNG rose to Top 30 IT Co.
- ① SW companies providing Internet service began getting powerful

1. Top 30 IT companies in 2015

2015년

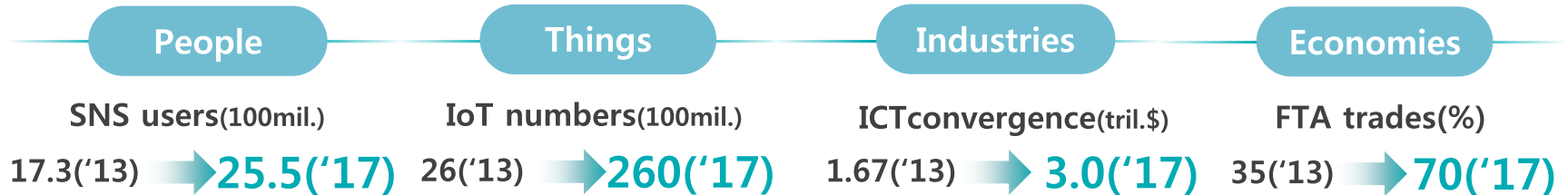
1	Apple	USA
2	Alphabet	USA
3	Microsoft	USA
4	amazon.com	USA
5	facebook	USA
★ 6	Alibaba.com	China
★ 7	Tencent 腾讯	China
8	intel	USA
9	SAMSUNG	South Korea
10	ORACLE	USA
11	CISCO	USA
12	IBM	USA
13	tsmc	Taiwan
14	SAP	Germany
15	QUALCOMM	USA
16	TATA CONSULTANCY SERVICES	India
17	accenture	USA
★ 18	Baidu 百度	China
19	TEXAS INSTRUMENTS	USA
20	salesforce	USA
21	EMC	USA
22	Adobe	USA
23	AVAGO TECHNOLOGIES	USA
24	ADP	USA
25	ASML	Netherlands
26	FOXCONN	Taiwan
27	Infosys	India
28	Cognizant	USA
29	BROADCOM	USA
30	KEYENCE	Japan

Era of ICBM

- ⌚ ICBM is no longer InterContinental Ballistic Missiles
- ⌚ ICBM is now IoT, Cloud, Big data and Mobile
- ⌚ ICBM is the leading trend in SW technology
- ⌚ The rapid growth of Chinese SW Companies is the notable features

2. Hot IT Key words in 2015 - Hyper-connected Society, ICBM

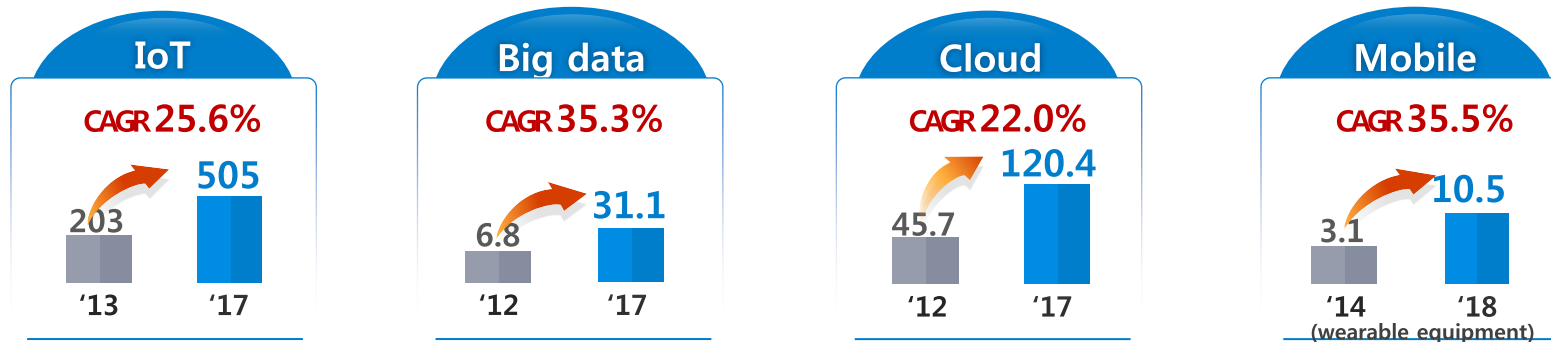
Hyper connectivity



- Why do we call it hyper-connected?
- We are in an era of a completely new level of connection

Data economy on ICBM

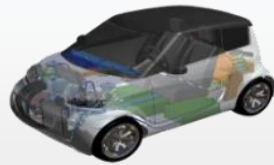
Size of Global market (billion \$)



- ICBM market will grow about 30% each year
- H-connected Society will make new opportunities and BM, Sharing E, O2O

2-1. Another Hot IT Key words in 2015 - Sharing Economy

Collaboration Production/Development



* Joint Participation of 50 Companies in Design/Engineering

Distribution



Mi Store



* Minimization of stock, O2O smart delivery service

Sharing Consumption



* Consumption by collaboration of existing products = Sharing

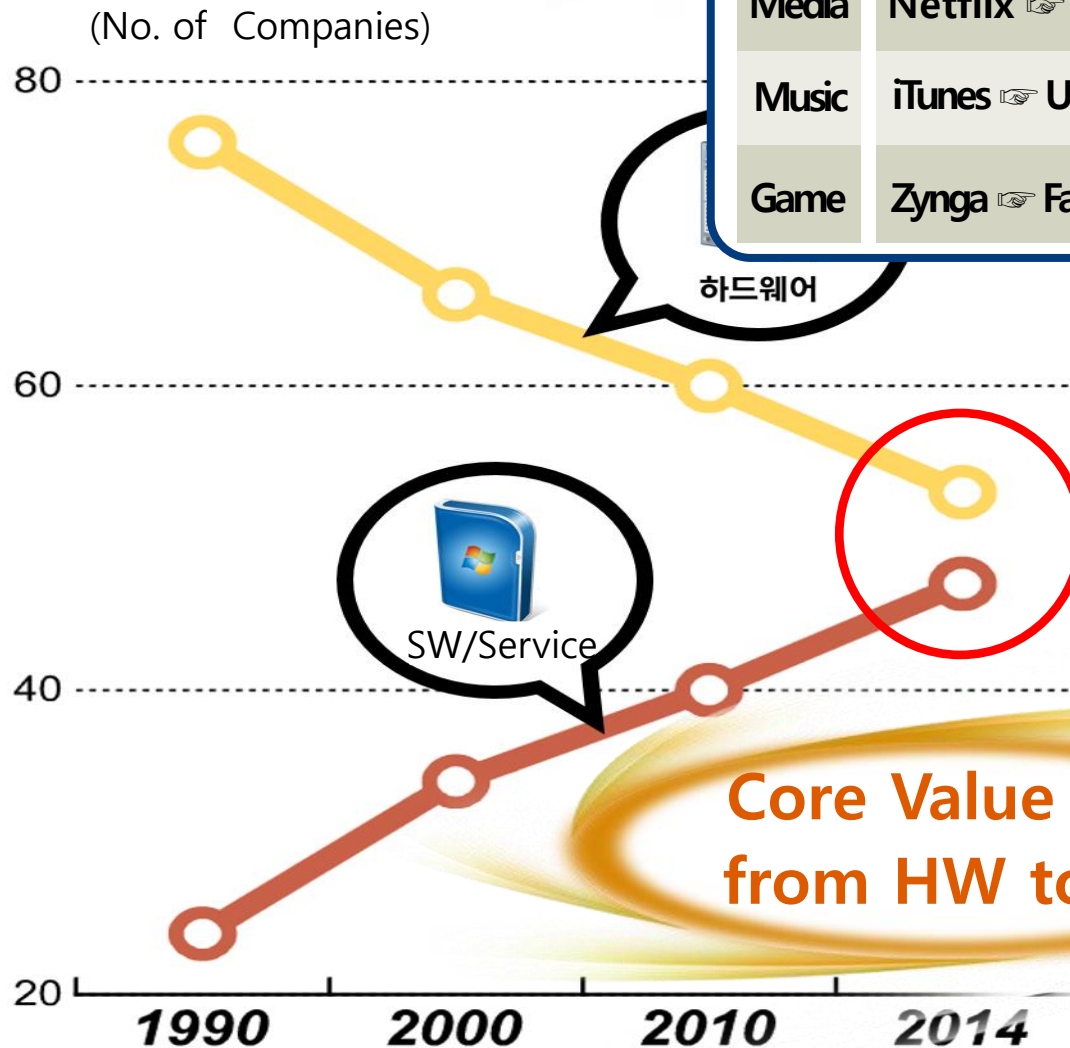
Investment



* Progress of project by attracting small-sized sponsorship and investment

- unbundling core business areas of existing large corporations.
 - Hyper-connected society, ICBM, Sharing economy, Transition to SW
 are the major IT trends of 2015 , New paradigm to lead the world

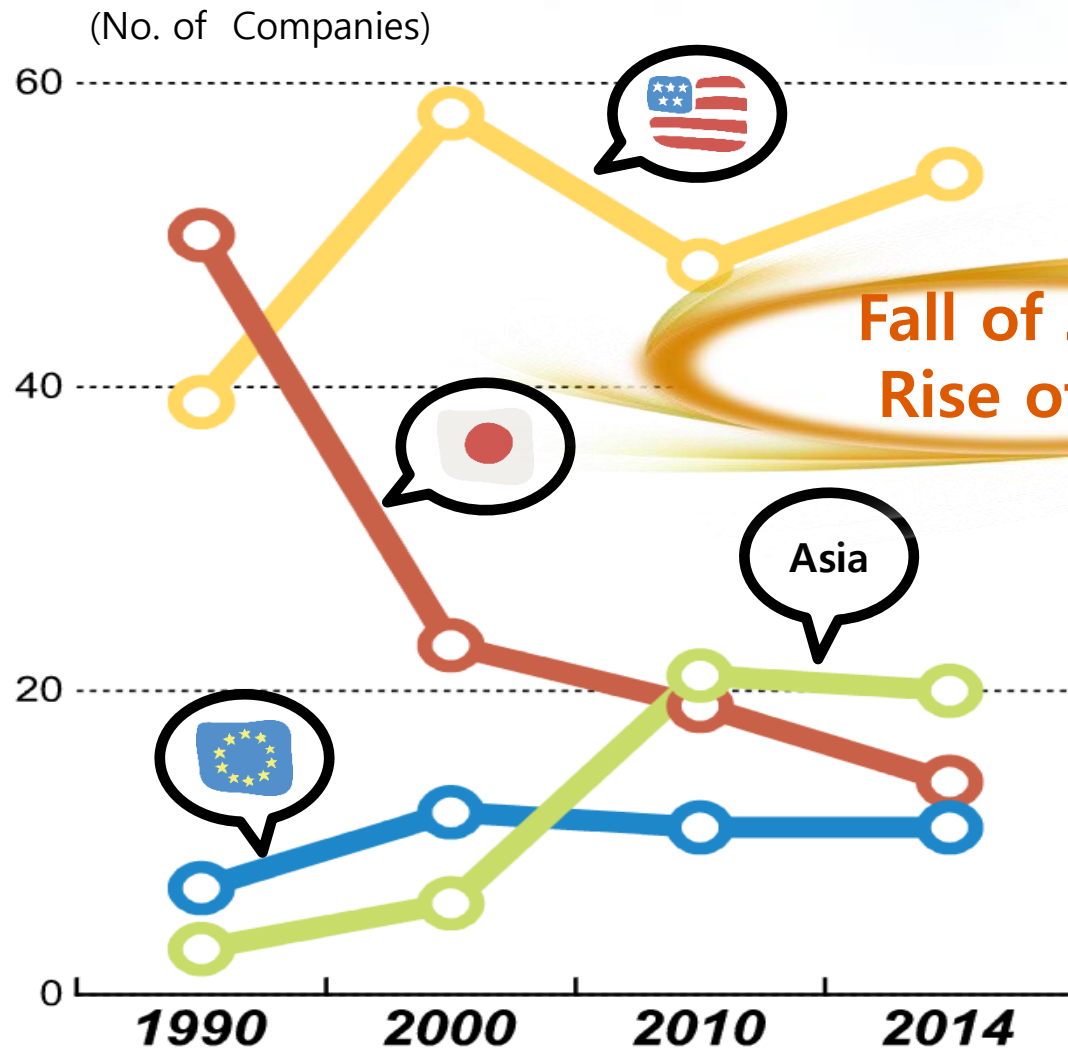
3. Trend of HW/SW Industry



Fall of HW based Company with the Emergence of SW company

Books	Amazon → Bankruptcy of Borders
Media	Netflix → Bankruptcy of Blockbuster
Music	iTunes → Universal weakened
Game	Zynga → Fall of EA, Nintendo

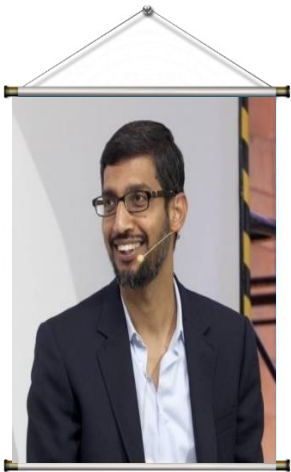
4. Major countries in Top 100 ICT companies



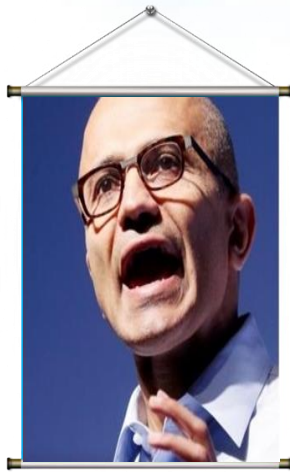
4-1. Status changes of Asian companies

1980년	1990년	2000년	2010년	2015년
1 IBM	1 IBM	1 CISCO SYSTEMS	1 Apple	1 Apple
★ 2 HEWLETT PACKARD	★ 2 HITACHI	2 Microsoft	2 Microsoft	2 Alphabet
★ 3 Panasonic	★ 3 Panasonic	3 NOKIA	3 Google	3 Microsoft
4 xerox	4 ALCATEL	4 intel	4 IBM	4 amazon.com
5 digital	★ 5 NEC	5 ORACLE	5 ORACLE	5 facebook
★ 6 SONY	★ 6 SONY	6 IBM	★ 6 SAMSUNG	★ 6 Alibaba.com
7 TEXAS INSTRUMENTS	★ 7 FUJITSU	7 EMC ²	7 intel	★ 7 Tencent 腾讯
★ 8 HITACHI	★ 8 Nintendo	8 NOKTEL	8 CISCO	8 intel
9 MOTOROLA	★ 9 FUJIFILM	9 Sun	9 HEWLETT PACKARD	★ 9 SAMSUNG
★ 10 UNISYS	★ 10 SHARP	10 ERICSSON	10 amazon.com	10 ORACLE
11 intel	★ 11 SANYO	11 TEXAS INSTRUMENTS	11 QUALCOMM	11 CISCO
12 Apple	12 Microsoft	★ 12 SONY	★ 12 Canon	12 IBM
13 HARRIS	★ 13 KYOCERA	13 HEWLETT PACKARD	★ 13 tsmc	★ 13 tsmc
★ 14 SANYO	14 HEWLETT PACKARD	14 ALCATEL	14 SAP	14 SAP
★ 15 NEC	15 intel	15 QUALCOMM	★ 15 TATA CONSULTANCY SERVICES	15 QUALCOMM
★ 16 FUJITSU	★ 16 Canon	★ 16 Panasonic	16 EMC ²	★ 16 TATA CONSULTANCY SERVICES
★ 17 PHILIPS	17 MOTOROLA	17 PHILIPS	★ 17 Infosys	17 accenture
★ 18 Canon	18 NOKTEL	18 CORNING	★ 18 Tencent 腾讯	★ 18 Bai 百度
★ 19 SHARP	19 ERICSSON	19 DELL	★ 19 FOXCONN	19 TEXAS INSTRUMENTS
20 Tektronix	20 digital	20 Lucent Technologies	20 TEXAS INSTRUMENTS	20 salesforce
21 FUJIFILM	★ 21 Pioneer	21 MOTOROLA	21 NOKIA	21 EMC ²
22 CORNING	22 Apple	22 JDS Uniphase	★ 22 Nintendo	22 Adobe
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28 ADP	★ 28 TDK	28 APPLIED MATERIALS	28 accenture	28 Cognizant
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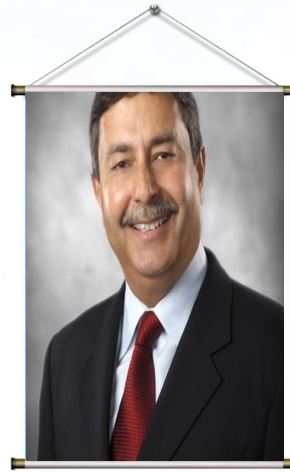
<Quiz> What is common about these people?



Google Sundar Pichai



Microsoft Satya Nadella



SanDisk Sanjay Mehrotra



NOKIA Rajeev Suri



SoftBank Nikesh Arora

India's Advantages and Attractions

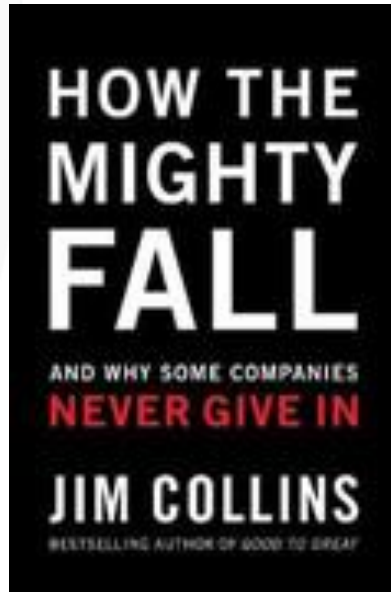


- English speaking (bachelors in India, graduate schools overseas)
- Numerical capability (spread the concept of zero '0' to westerns)
- Good character (future-oriented, humble, professional)
- IT Activation Policies (Development of SW-specialized region(1980s))
- PM Narendra Modi : Make in India, Digital India, Start-up India



III. Fading stars and Shining stars

5. Fading stars and Shining stars



MOTOROLA

SONY

NOKIA

Nintendo

Kodak

FUJIFILM



5-1. Fading Falls without reading trends and preparing

1980년

2010년

2014년

1 IBM	1 IBM	2 Microsoft
2 HEWLETT PACKARD	2 HITACHI	3 Google
3 Panasonic	3 Panasonic	
4 xerox	4 ALCATEL	
5 digital	5 NEC	
6 SONY	6 SONY	
7 TEXAS INSTRUMENTS	7 FUJITSU	
8 HITACHI	8 Nintendo	
9 MOTOROLA	9 FUJIFILM	
10 INSY	10 SHARP	
11 intel		
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MOTOROLA

1928 : Establishment

From radio to semiconductor, TVs, wireless devices with most advanced technology

Develop. World's 1'st cellular phone

Market share in Mobile ('94) 60% → ('98) 35% → ('14) 3%

Sold MMI to Google(2011)
Resold to Lenovo(2014)



SONY

1946 : Establishment

Leader in electronics with Walkman, Play station, TV (80s to 90s)

2007 : World's first OLED TV

- Leading CRT, Projection TV
- Getting behind with Flat TV



NOKIA

1965 : Establishment

Nickname for Finland

Sales of 2006 is higher than Finnish gov. budget,

2007 : 50% share of global mobile phone

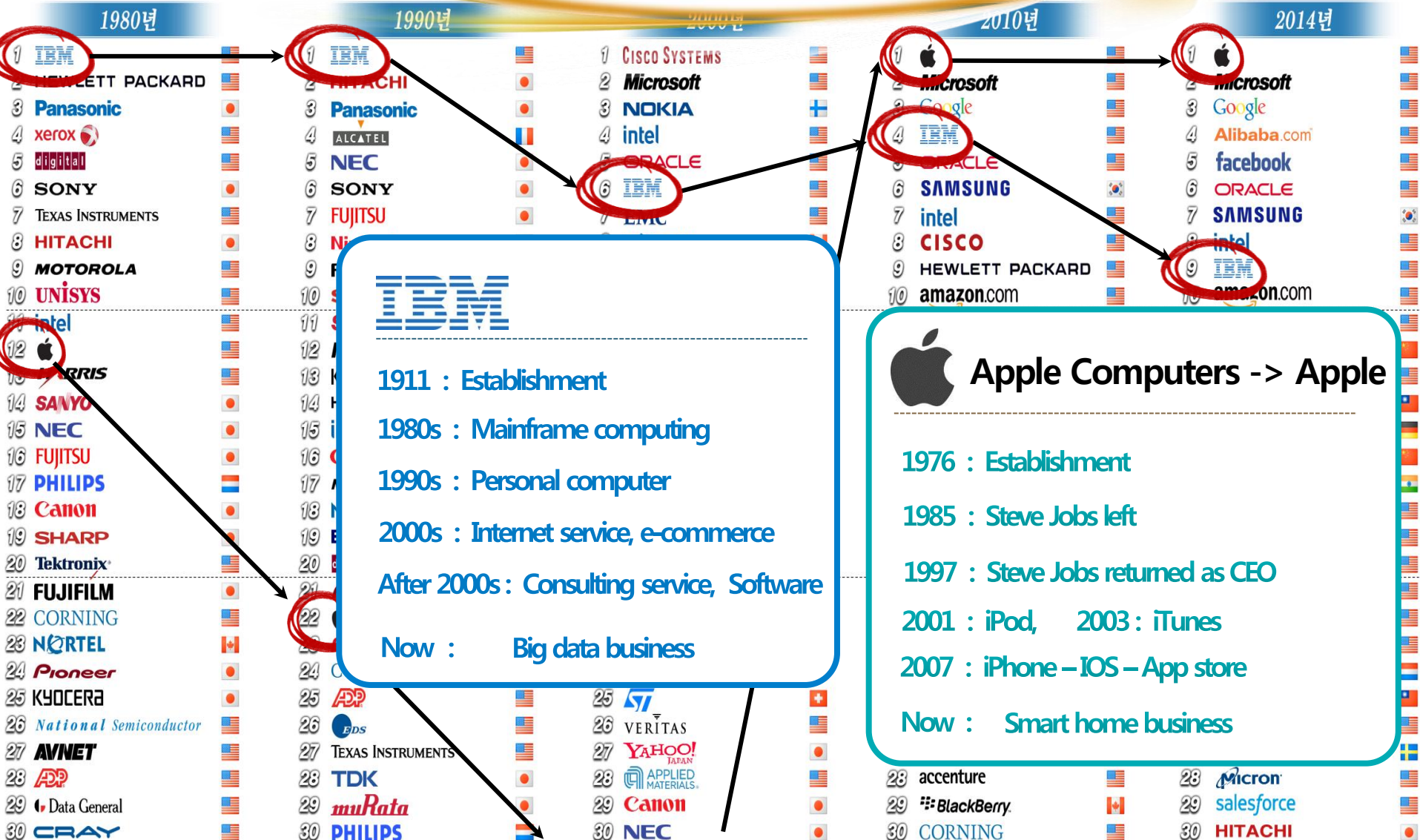
Fail to realize smart phone revolution power

- Expansion of feature phone line
- 2013 : Sold to Microsoft



20 TEXAS INSTRUMENTS	20 EMC ²
21 NOKIA	21 TEXAS INSTRUMENTS
22 Nintendo	22 accenture
23 ERICSSON	23 YAHOO!
24 vmware	24 ASML
25 ebay	25 FOXCONN
26 SONY	26 ADP
27 Baidu	27 ERICSSON
28 accenture	28 Micron
29 BlackBerry	29 salesforce
30 CORNING	30 HITACHI

5-2. Shining Endless Transformation



5-3. Struggling To survive

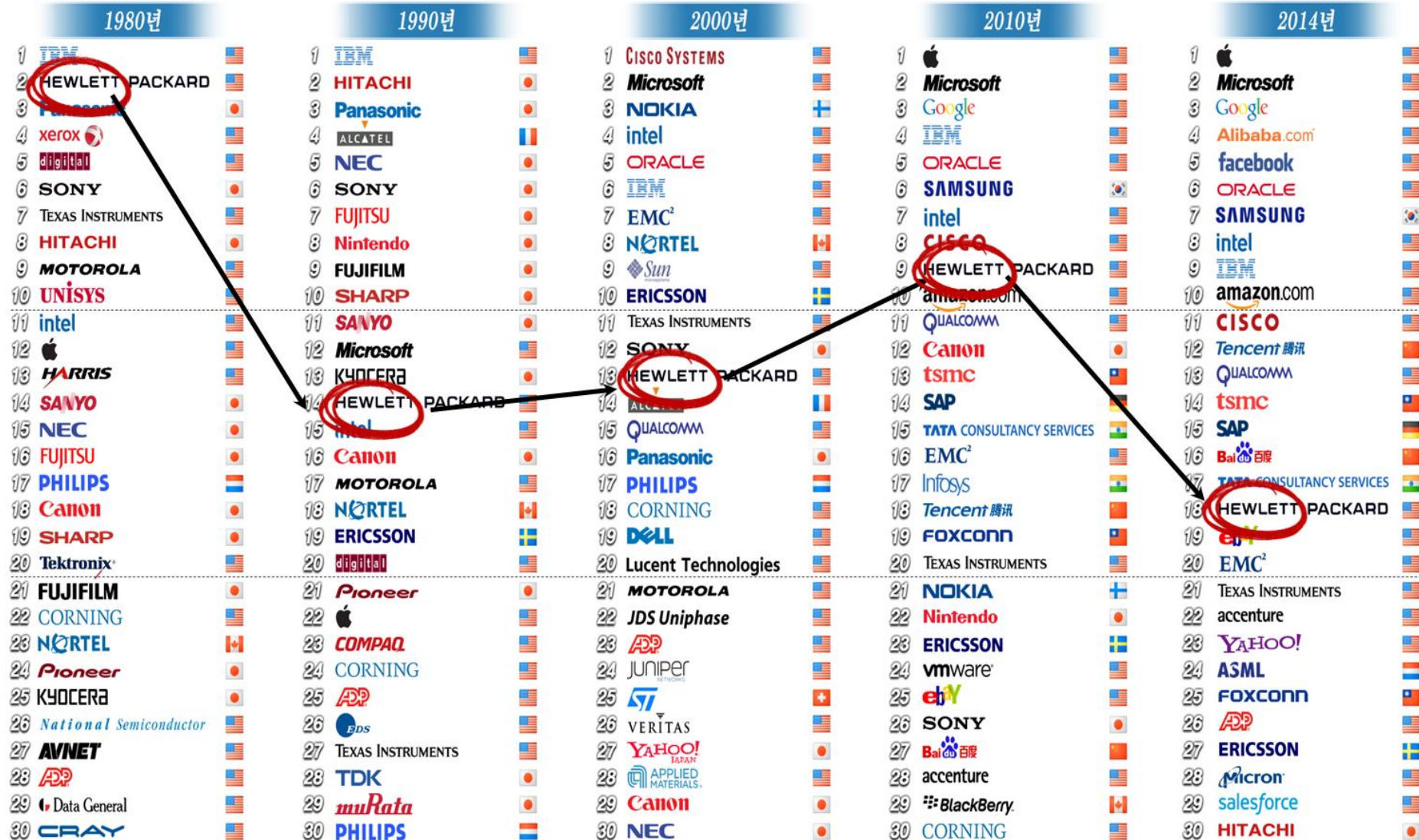


Jeff Immelt GE CEO

Manufacturer GE : Transform to SW company (Sep, 2015)

- A representative manufacturer, with 100 years of history in the USA (1878)
 - Edison, electronics, jet engine, oil drilling device and more
- CEO Jeff Immelt declared to transform into a SW company
 - Manufacturing company w/o SW power is like a computer w/o a CPU
 - **Aiming to become Top 10 SW company**, competing against IBM, SAP
- **Transformation into a SW company**
 - Large-scale investment in IoT field, integration with SW (5 years ago)
 - Contender in the area of factory efficiency software, utilizing big data
 - Develop **Predix, the platform** of SW development and for **Industrial Internet**

5-4. Struggling To survive



5-4. Struggling To survive



Split of HP(Nov 2015)



- **1st successful start-up in Silicon Valley (1939)**
 - developed 100 thousand high-tech products
 - Computers, radio controller, Printers, fax machines, medical devices and etc
- Selected as the "Company of the Year" in 1995,
- **leadership problem & strategic failures** since the late 90s
 - While IBM sold its dying PC division, HP took over Compaq
 - Exhaustion from competing against China's successful Lenovo
- **Split the company!**
 - HP Inc : traditional electronics such as PC, Printers
 - HP Enterprise : information service company in SW and Infrastructure construction

IV. Rising stars?

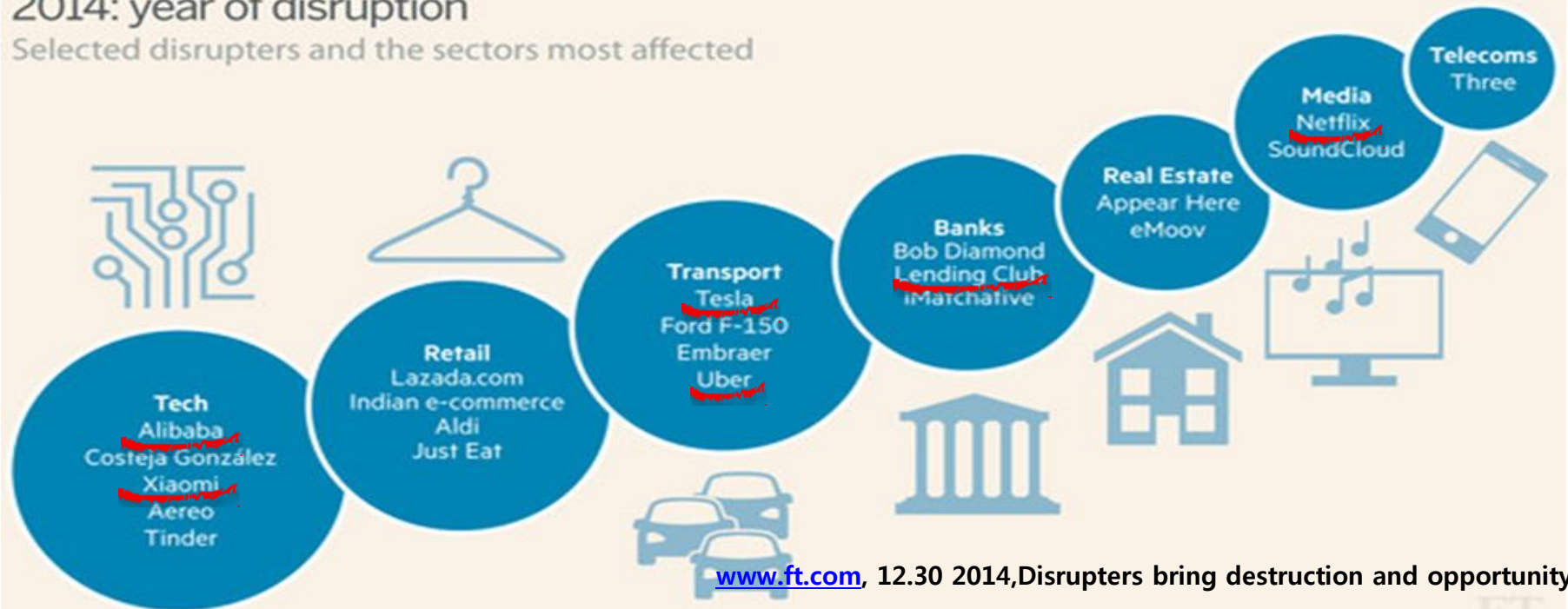
- Financial Times
- MIT Tech Review
- BCG Survey

6-1. Market Disrupters with New Concepts and Technologies

➤ Top 21 “Disrupters” in different industries (Financial Times, Dec, 2014)

2014: year of disruption

Selected disrupters and the sectors most affected



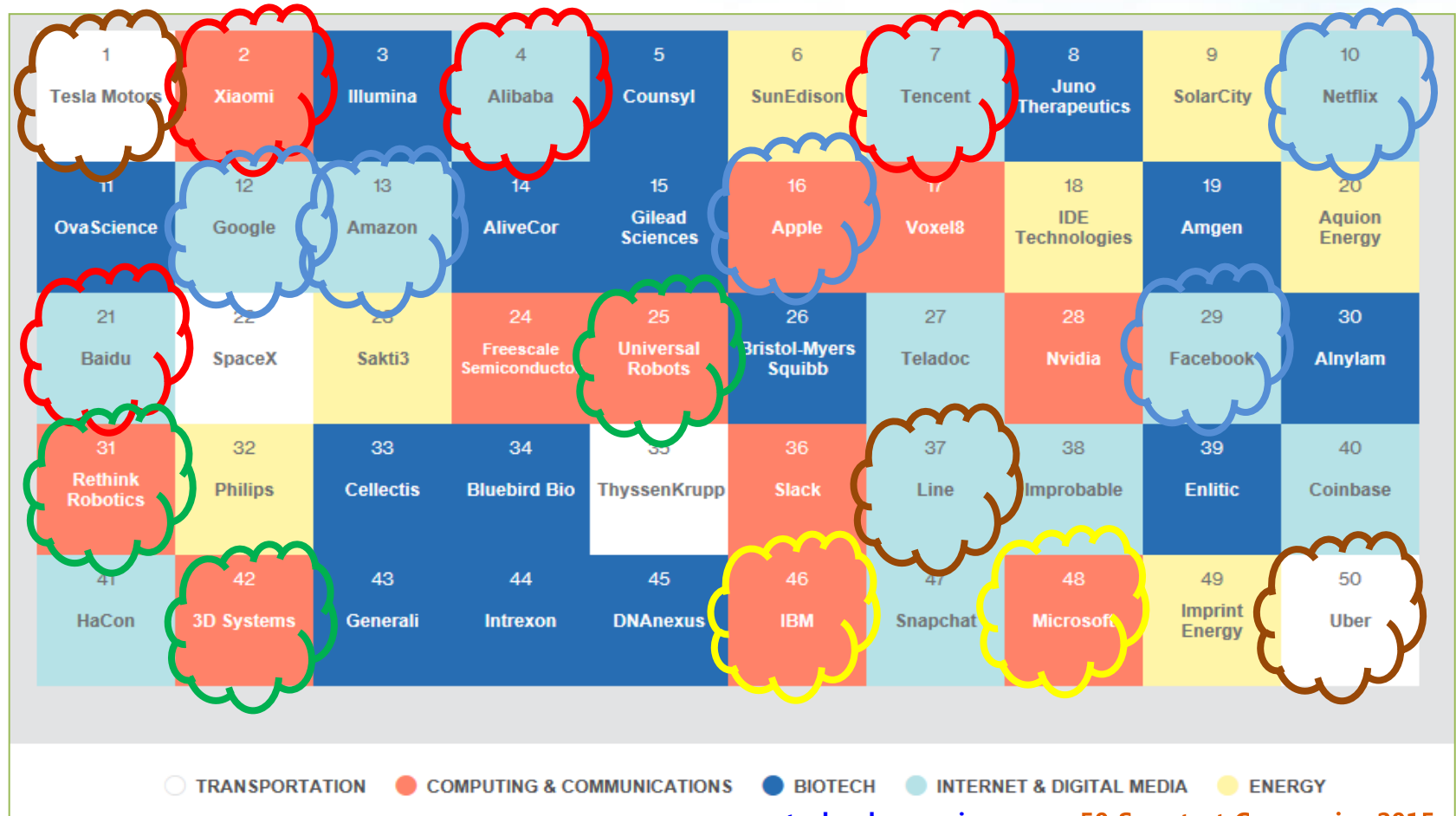
✓ Market disrupters will force the existing companies out of business and put people out of jobs with their new idea and technology

✓ Phenomenon destroyers also present huge opportunities for customers and others

‘Destruction’ is other words for ‘Innovation’

6-2. 50 Smartest Companies 2015 - MIT Tech Review

> Creative Technology, innovation of business model as selection criteria



www.technologyreview.com, 50 Smartest Companies 2015

✓ 50 Smartest Companies can transform the fundamental frame of the market

6-3. The most innovative companies 2015 – BCG survey .

EXHIBIT 2 | 2015 Most Innovative Companies

1. Apple	18. The Walt Disney Company	35. Volkswagen
2. Google	19. Marriott International	36. Visa
3. Tesla Motors	20. Johnson & Johnson	37. DuPont
4. Microsoft Corp.	21. Netflix	38. Hitachi
5. Samsung Group	22. AXA	39. Roche
6. Toyota	23. Hewlett-Packard	40. 3M
7. BMW	24. Amgen	41. NEC
8. Gilead Sciences	25. Allianz	42. Medtronic
9. Amazon	26. Tata Motors	43. JPMorgan Chase
10. Daimler	27. General Electric	44. Pfizer
11. Bayer	28. Facebook	45. Huawei
12. Tencent	29. BASF	46. Nike
13. IBM	30. Siemens	47. BT Group
14. SoftBank	31. Cisco Systems	48. MasterCard
15. Fast Retailing	32. Dow Chemical Company	49. Salesforce.com
16. Yahoo!	33. Renault	50. Lenovo
17. Biogen	34. Fidelity Investments	

Source: BCG Global Innovation Survey, 2015.

✓ Emphasis on speed

✓ Well-run R&D process

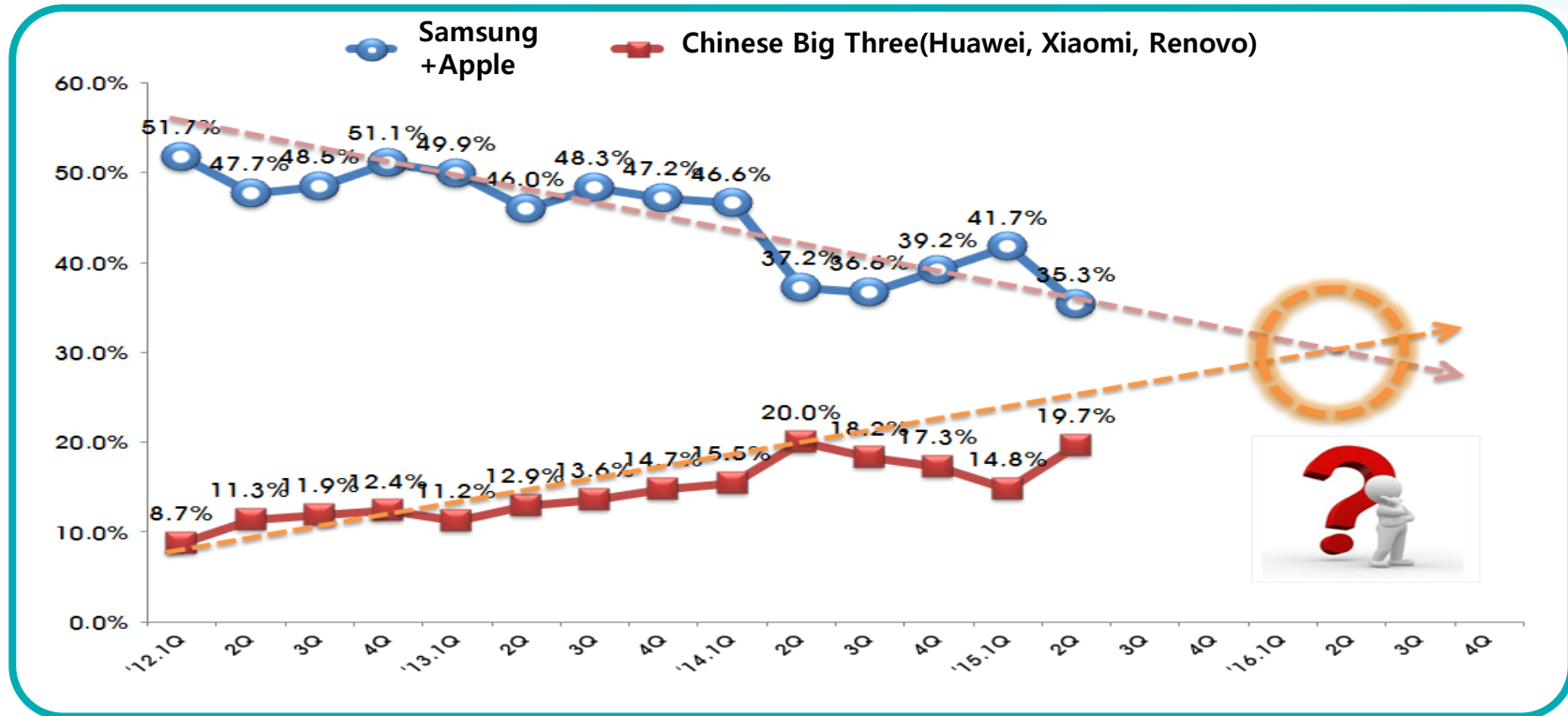
✓ Use of Tech. platform

✓ Systematic exploration of adjacent markets

6-4. What will be the candidates in IT TOP 30 in 2020?



<Quiz> Can Apple remain at the Top?



- Chinese Big Three can catch up Samsung and Apple soon
- 60% of Apple's Sales are from iPhone
- Efforts to finding Alternative Growth Momentum

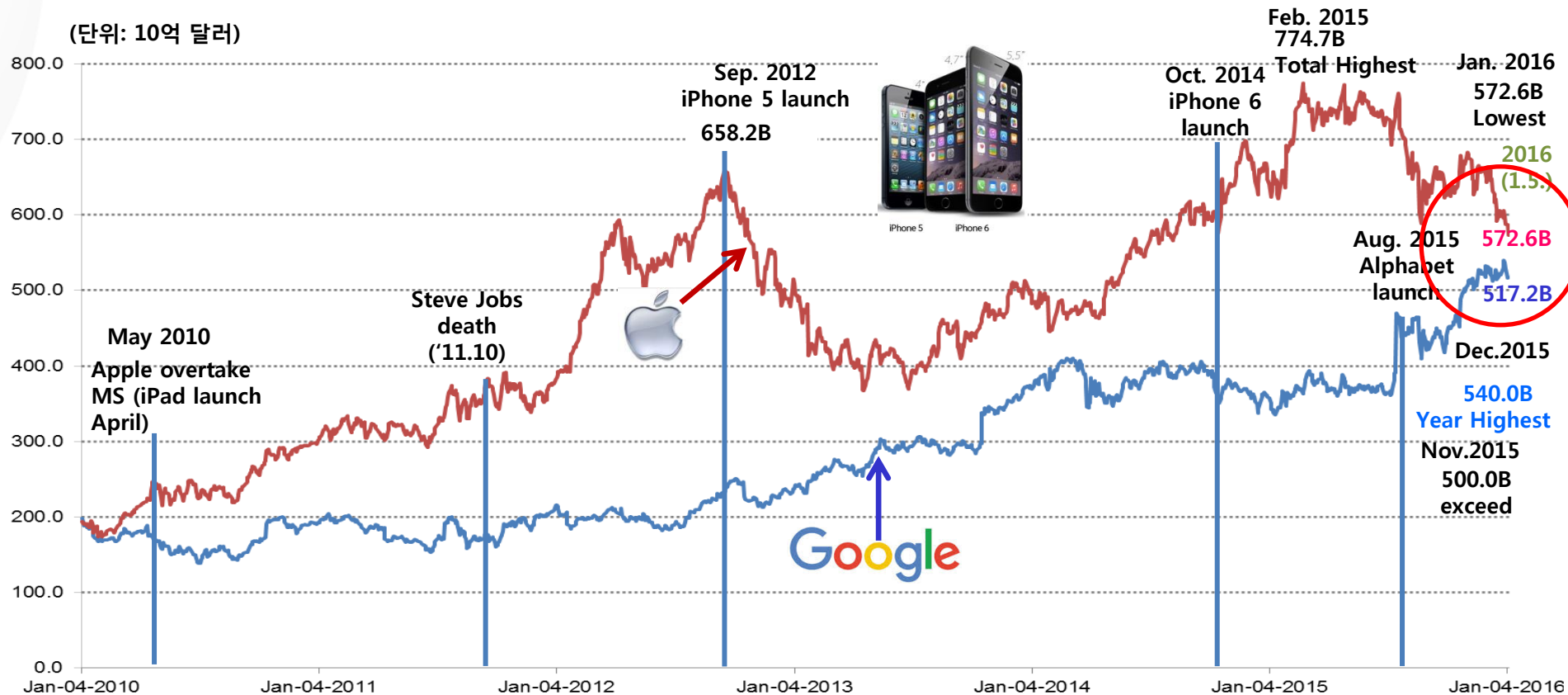
<Quiz> Can Apple remain at the Top?

Market capitalization comparison of Apple and Google

Apple : **774.7B\$** ('15.2.23, Total Highest Point), Downtrend

Google: **540.8B\$** ('15.12.29, Year Highest Point), Uptrend

(단위: 10억 달러)



(자료) S&P Capital IQ

<Quiz> Does Finland go bankrupt after Nokia goes broke?

- **Nokia is another name of the Finland (Nokialand), 2006**
 - 50% share of the world mobile phone market by 2007
- **Nokia's pain becomes Finland's pain, 2011.06 (The WSJ)**
 - Nokia sold its cellphone division to Microsoft in 2013
- **Nokia's loss becomes Finland's gains, 2015.09 (The WSJ)**
 - Former Nokia engineers bring Start-Up Boom (Rovio, Supercell)



V . Lessons from Looking Back

Lessons from looking back?

1 Shorter Tech Trend... Overconfidence, the Seed of Failure

- Overconfidence → Greed → Denial of Risk → Finding Saver → Eventually Fall
- Just like a baton pass in a relay race, players must always be running

HOW THE MIGHTY FALL
AND WHY SOME COMPANIES NEVER GIVE IN
JIM COLLINS
BESTSELLING AUTHOR OF GOOD TO GREAT

2 Destructive Creativity to lead the new world

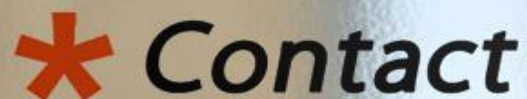
- Motorola and Nokia fell to the destructive creativity of Apple
- Not 'Think Differently', But 'Think Different'

3 Importance of IT Policies of government for Start-ups

- Support Start-ups to become global companies (ex. Google / Facebook)
- Improve Fundamentals of IT industry for Start-ups with K-ICT Strategy(Mar, 2015)



Institute for Information &
communications Technology Promotion



President / Ph. D.

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