



# **Innovation & Technology Convergence: The Latest Developments in the ICT Industry**

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**Institute for Information Industry (III)**

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# Outline

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- Evolution of IT products/industry
- The global IT supply chain as innovator of IT product
- Future trends and challenges faced
- Innovation in the IT industry
- Multi-functionality of IT and IT-related products
- Discussion



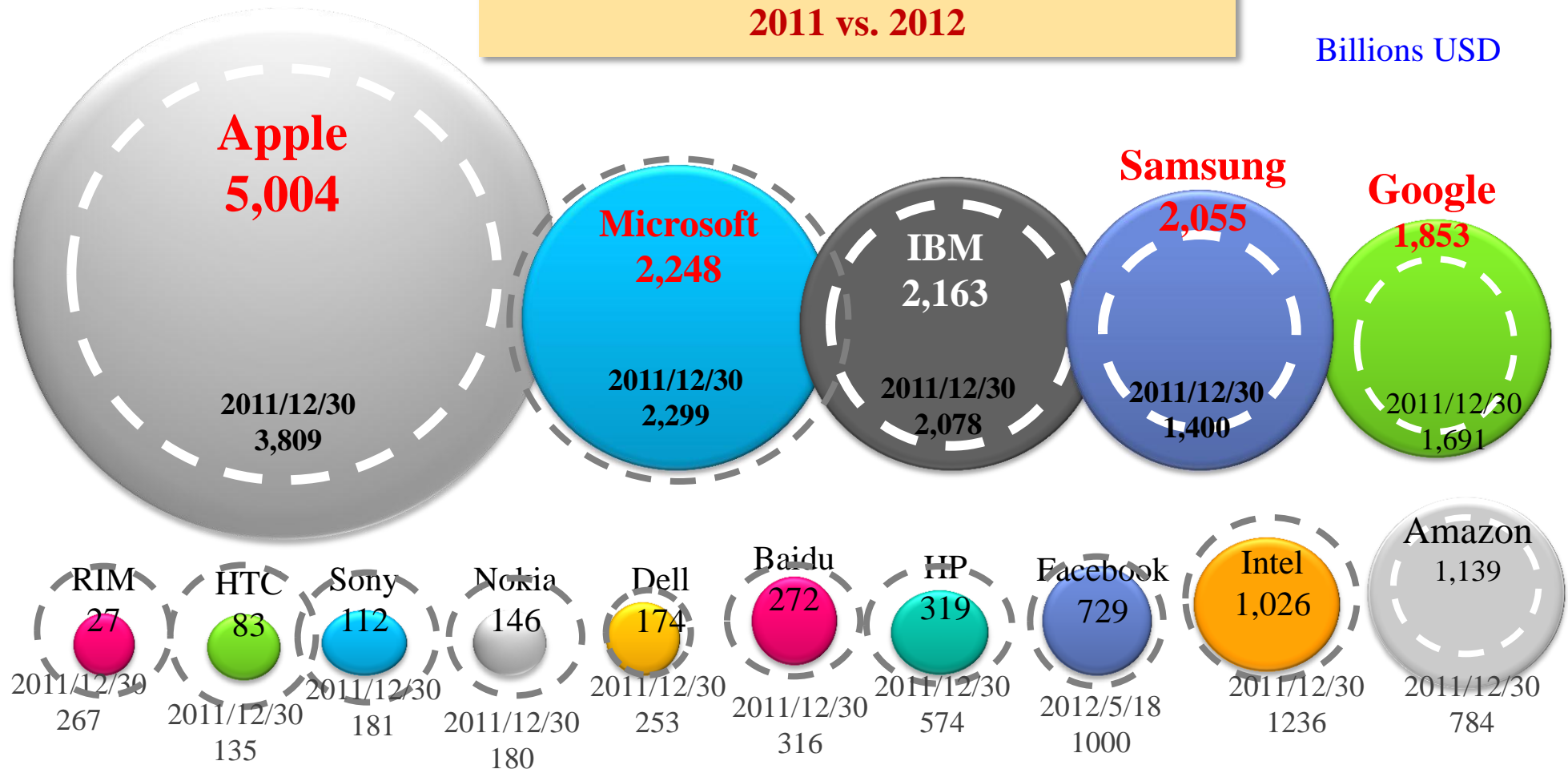
# Evolution of IT Products/Industry



# Global ICT giants are now reshuffling

## Market Caps of Global ICT Leaders 2011 vs. 2012

Billions USD



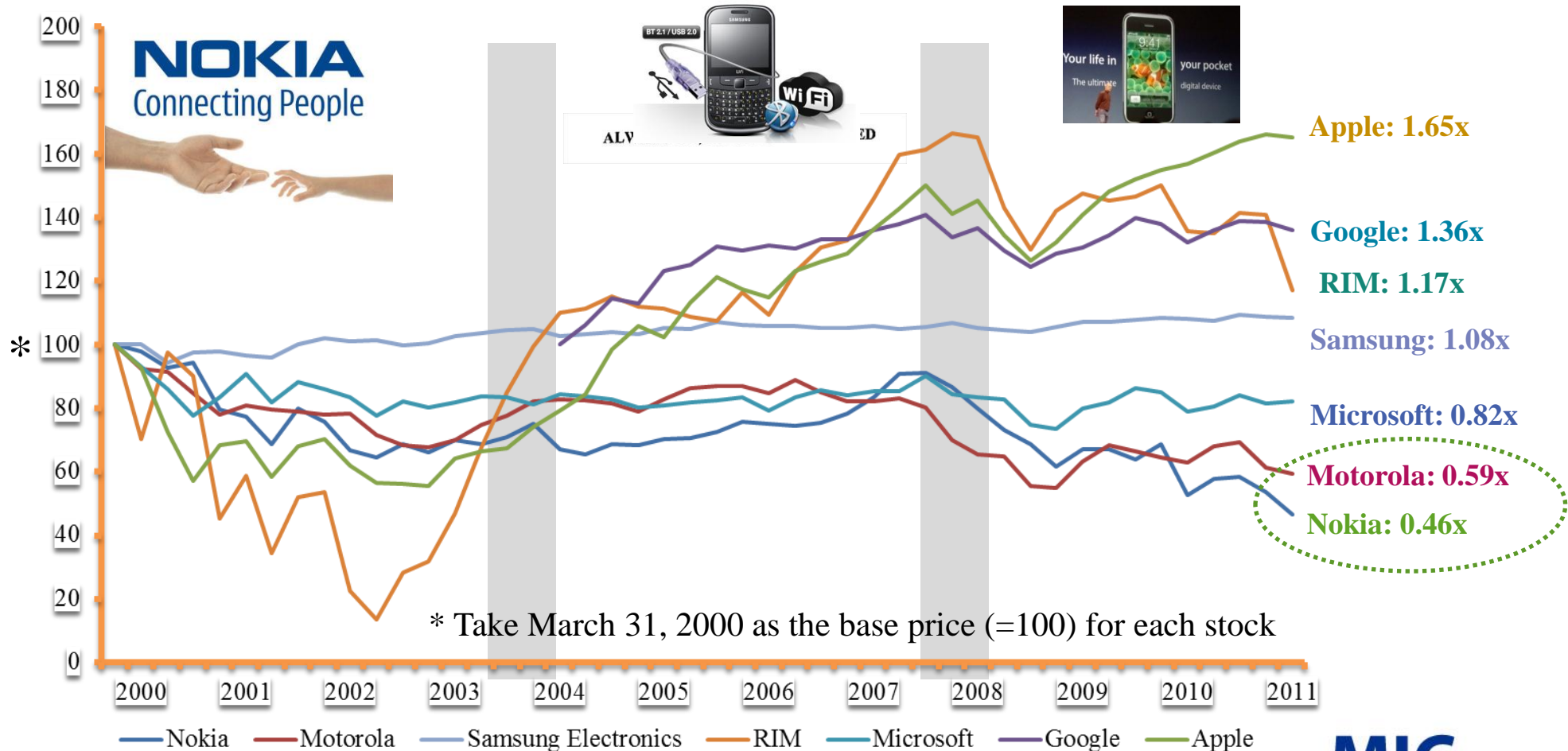
Source : Companies, Compiled by MIC, Jun. 2013

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# From “Connect People” to “ Enrich Life”

## The major global mobile phone vendors Stock Price Index 2000~2011



Source : Companies, Compiled by MIC, Jun. 2013

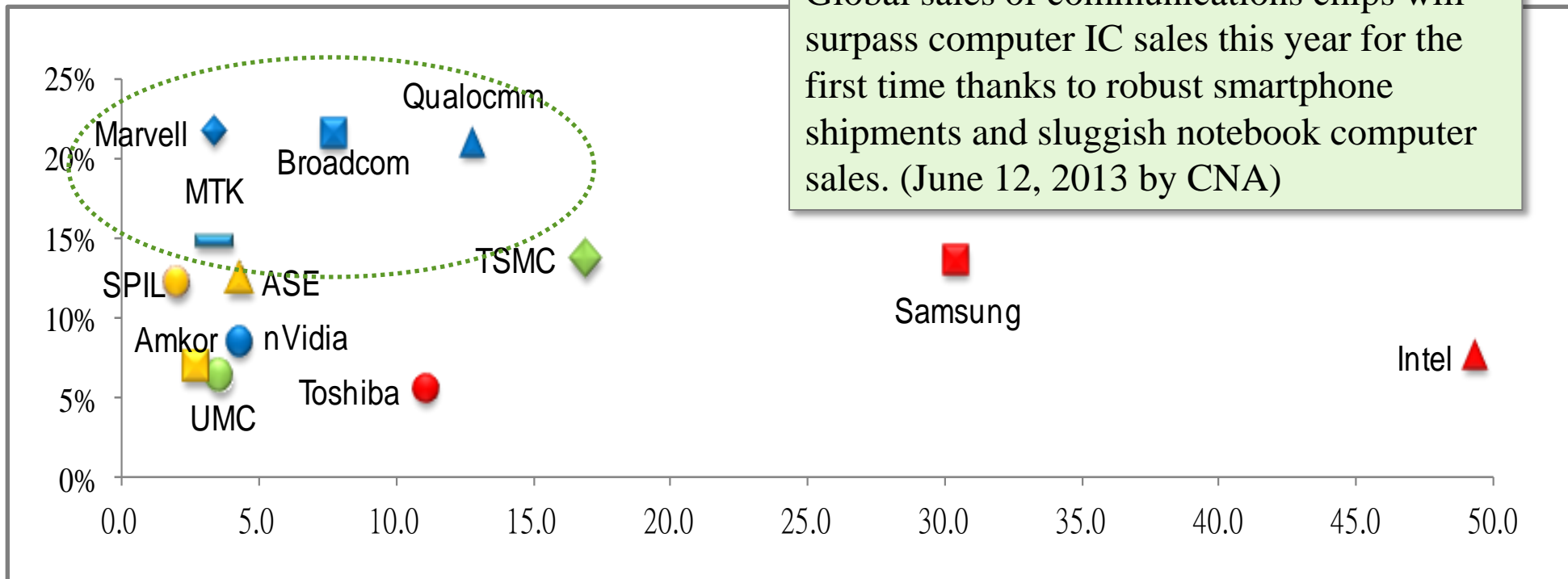
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# Global Leading IC vendors enjoy higher growth

**The major global semiconductor manufacturers revenue and growth rate 2002~2012**

CAGR (2002~2012)



■ Major Communications IC/chip makers enjoyed higher profits

Revenue (Billion USD)

Source: IC Insight, compiled by MIC, Jun. 2013

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# IT has continued to change over time...



**Social**

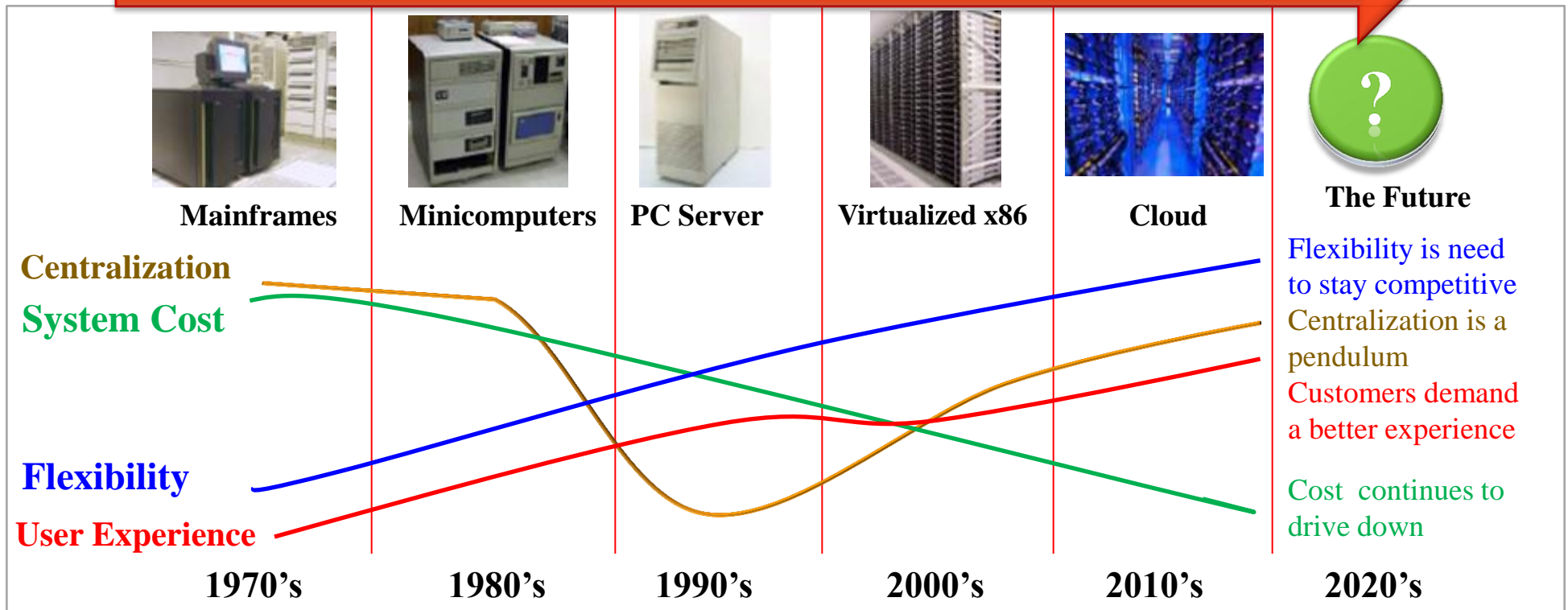


**Cloud**



**Mobility**

IT has continued to change over time, as different forces impact



- ❖ Mobile Computing accelerates the Cloud Computing implementation, while Cloud Computing increases the installation of Mobile Computing (devices).

Source : AMD, Compiled by MIC, Jun. 2013

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# ICT Industry at the moment : The formation of new ecosystem

- All computing devices communicate
- All communication devices compute,
- All devices and content are going digital...

**Office  
Company  
Wired  
Premise  
Suites**



**Mobility**

**Personal**

**Wireless**

**Cloud**

**Store**



Source: MIC, Jun. 2013

















# The global IT supply chain as innovator of IT product



# The Production of Worldwide major ICT products

## The % of worldwide major ICT products made by Taiwan

IT Product	2012 Worldwide Market Share	Comm. Product	2012 Worldwide Market Share
Notebook PC 	89.0%	Cable CPE 	96.2%
Motherboard 	78.5%	WLAN NIC 	86.9%
Tablet Device 	68.9%	DSL CPE 	61.2%
Server (System/MB) 	54.6%	IP Phone 	62.8%
LCD Monitor 	67.8%	IP Set-top-box 	56.1%
Desk-top PC 	45.7%	Digital Still Camera 	41.2%

Source: MIC, Jun. 2013.

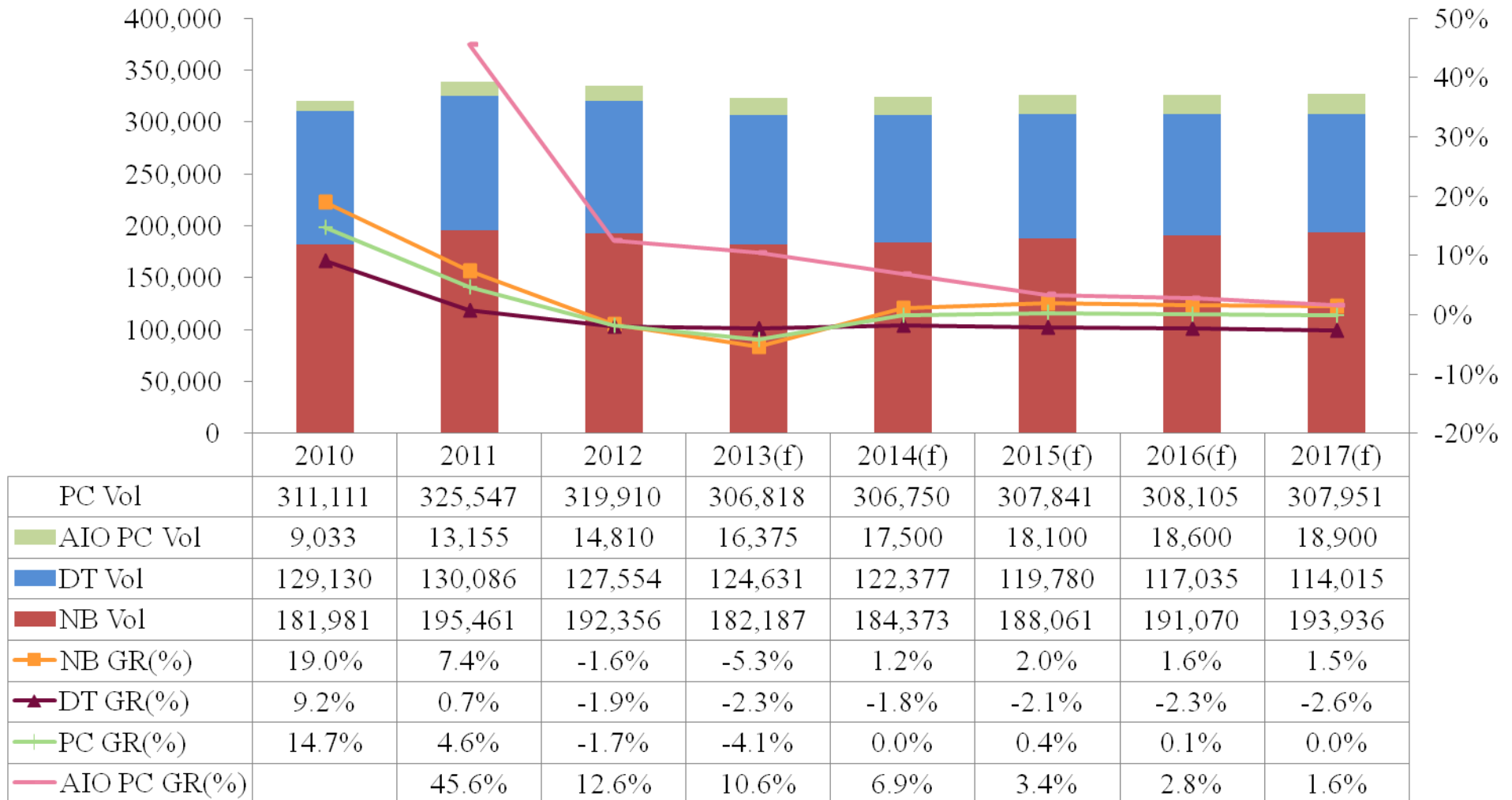
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# Worldwide PC Market Prediction

Shipment Unit (k)

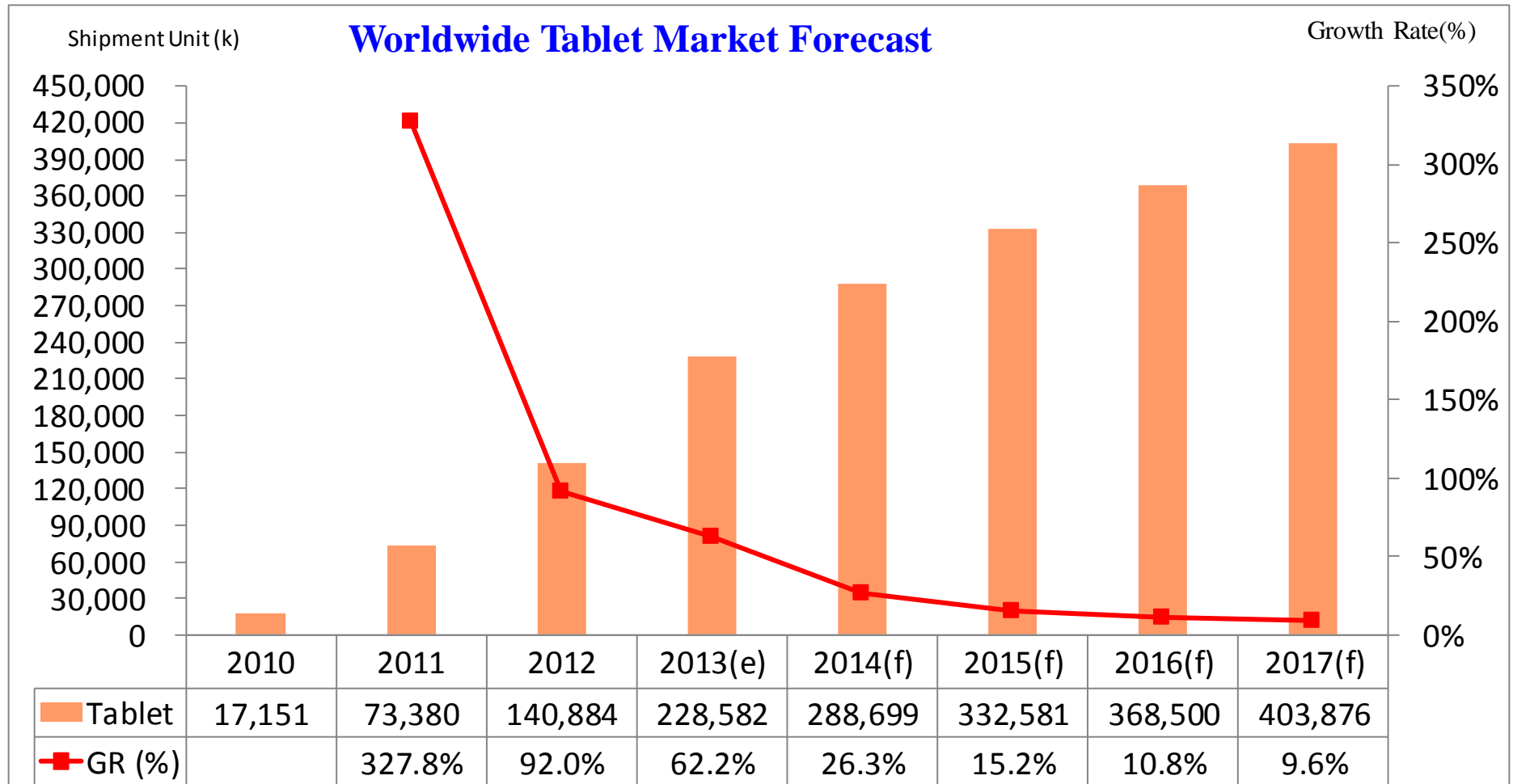
Growth Rate (%)



Source: MIC, Jun. 2013



# Worldwide Media Tablet Market Prediction



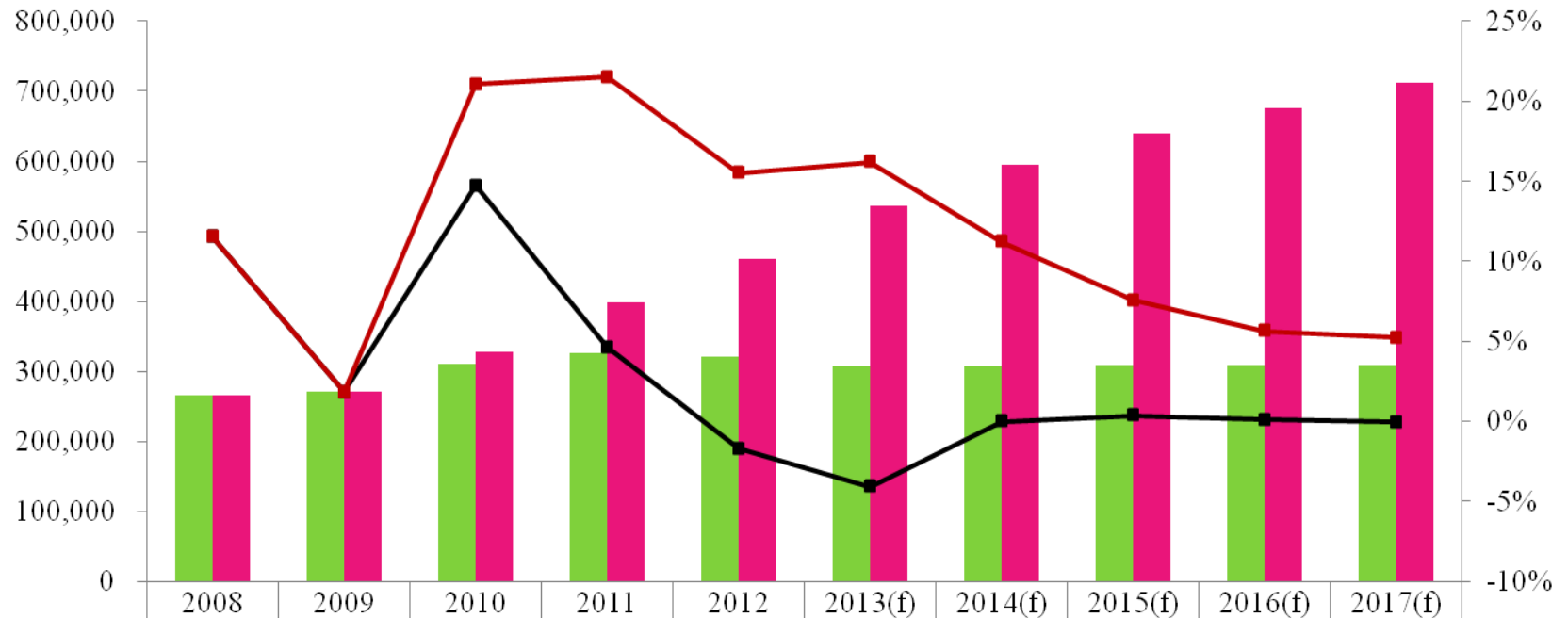
Source: MIC, Jun. 2013



# Worldwide PC Growth Prediction(w/Tablet)

Shipment Unit (k)

Growth Rate (%)



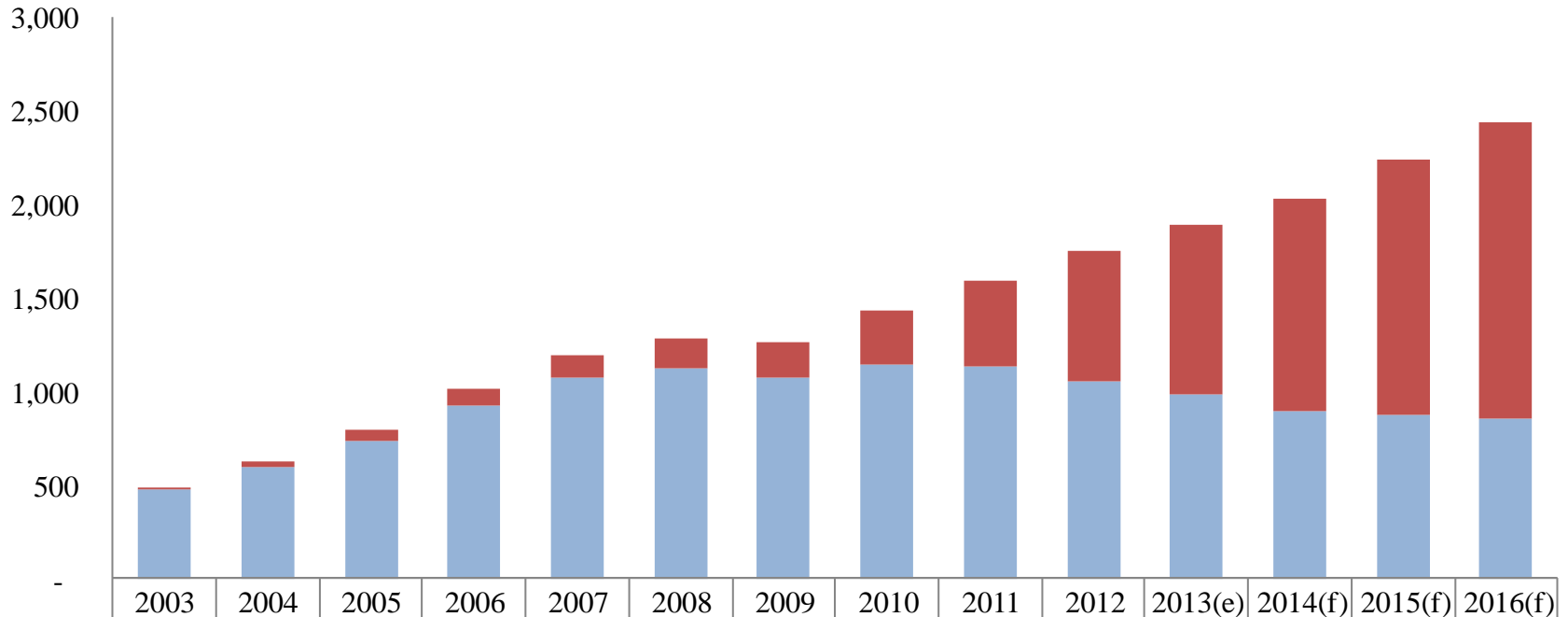
PC Vol (不含Tablet)	266,358	271,188	311,111	325,547	319,910	306,818	306,750	307,841	308,105	307,951
PC Vol (含Tablet)	266,358	271,188	328,262	398,927	460,794	535,400	595,449	640,422	676,605	711,827
PC GR (%) (不含Tablet)	11.5%	1.8%	14.7%	4.6%	-1.7%	-4.1%	0.0%	0.4%	0.1%	0.0%
PC GR (%) (含Tablet)	11.5%	1.8%	21.0%	21.5%	15.5%	16.2%	11.2%	7.6%	5.6%	5.2%

Source: MIC, Jun. 2013



# Worldwide Mobile Phone Market Prediction

Unit: Million



Smartphone	15	31	57	93	123	157	190	290	466	698	905	1,135	1,367	1,589
Basic/Feature Phone	474	598	739	925	1,069	1,126	1,077	1,147	1,129	1,054	985	892	874	851
Total	489	629	796	1,018	1,192	1,283	1,267	1,437	1,595	1,752	1,890	2,027	2,240	2,441
Smartphone Penetration	3.1%	4.9%	7.2%	9.1%	10.3%	12.2%	15.0%	20.2%	29.2%	39.9%	47.9%	56.0%	61.0%	65.1%

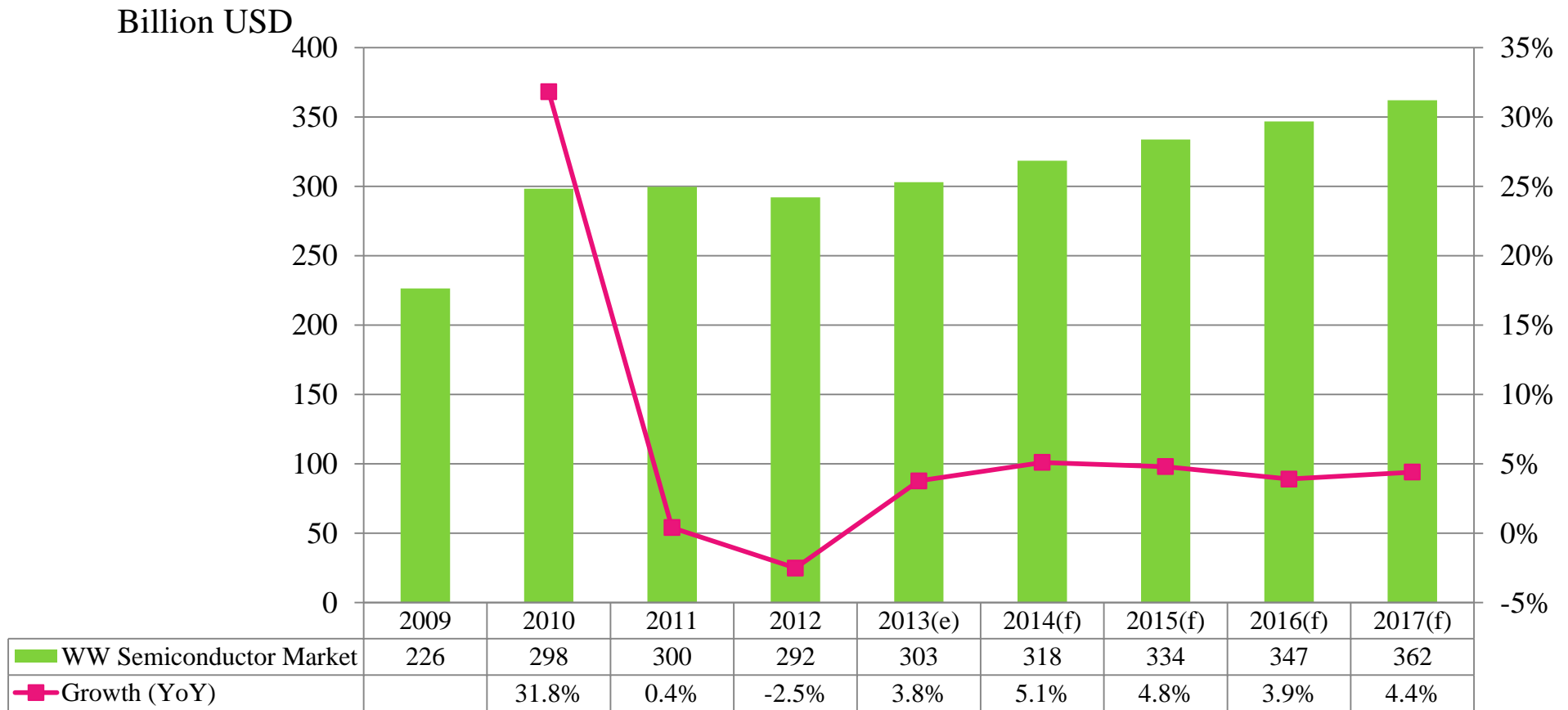
■ Global smartphone shipments will surpass Basic/Feature phone in 2014

Source: MIC, Jun. 2013

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# Worldwide Semi-com Market Prediction



■ Recovered from 2009~2011 crisis, the scale of worldwide semiconductor market will maintain steady growth.

Source: WSTS, compiled by MIC, Jun. 2013

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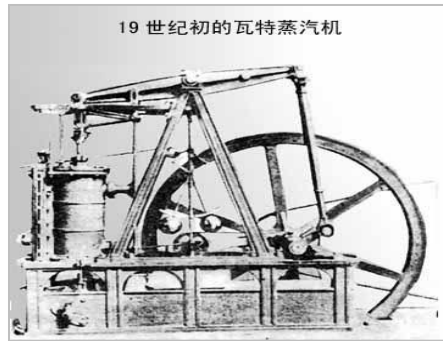




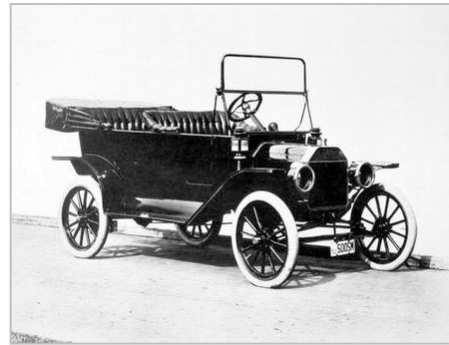
Future trends and challenges faced:  
New IT related technology products



# The 3rd Industrial Revolution



The 1st Industrial Revolution



The 2nd Industrial Revolution



The 3rd Industrial Revolution

## Digital Manufacturing

### Digital Manufacturing

Digital manufacturing (DM) is an enterprise initiative that aims to define and validate manufacturing process models founded on a collaborative platform involving business intelligence from multiple enterprise disciplines.

Source: Frost & Sullivan, Apr.2013.

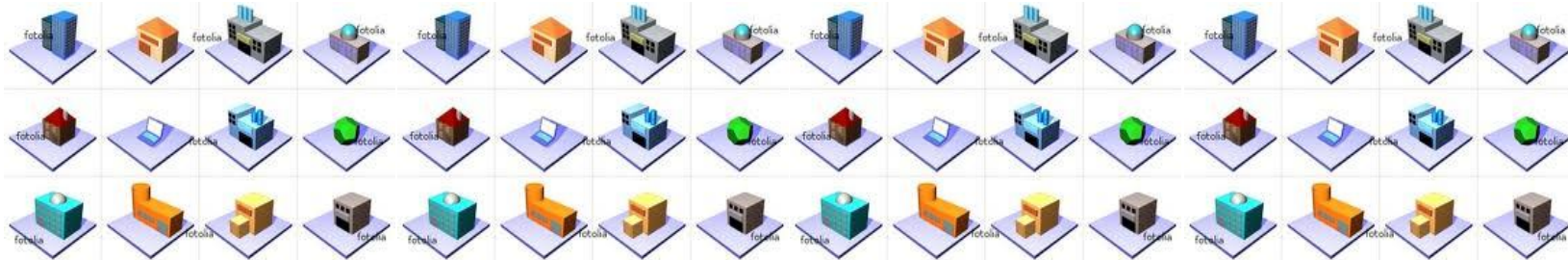
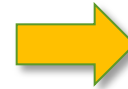


**The digitization of manufacturing will transform the way goods are made and change the politics of jobs too.**  
(The Economist, 2012)

Source : The Economist, Apr, 2012.



# Change the work and life style too.....



Source: MIC, Jun..2013.

Innovation, Compassion, Effectiveness

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# 3D Printer vendors and products illustration



■ ProJet 1500  
Personal  
Color 3D  
Printer-3D  
Systems



■ ZPrinter 150 -  
3D Systems



■ Objet30  
OrthoDesk -  
Stratasys



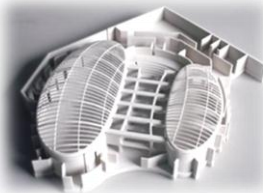
3D printed dental  
model in MED690  
material-Stratasys



3D Printed Architecture  
Display Model in Rigid Blue  
3D Printing Materials



Mechanical Part



Sample Part



Automobile Part



■ ZPrinter® 850 -Z  
Corporation



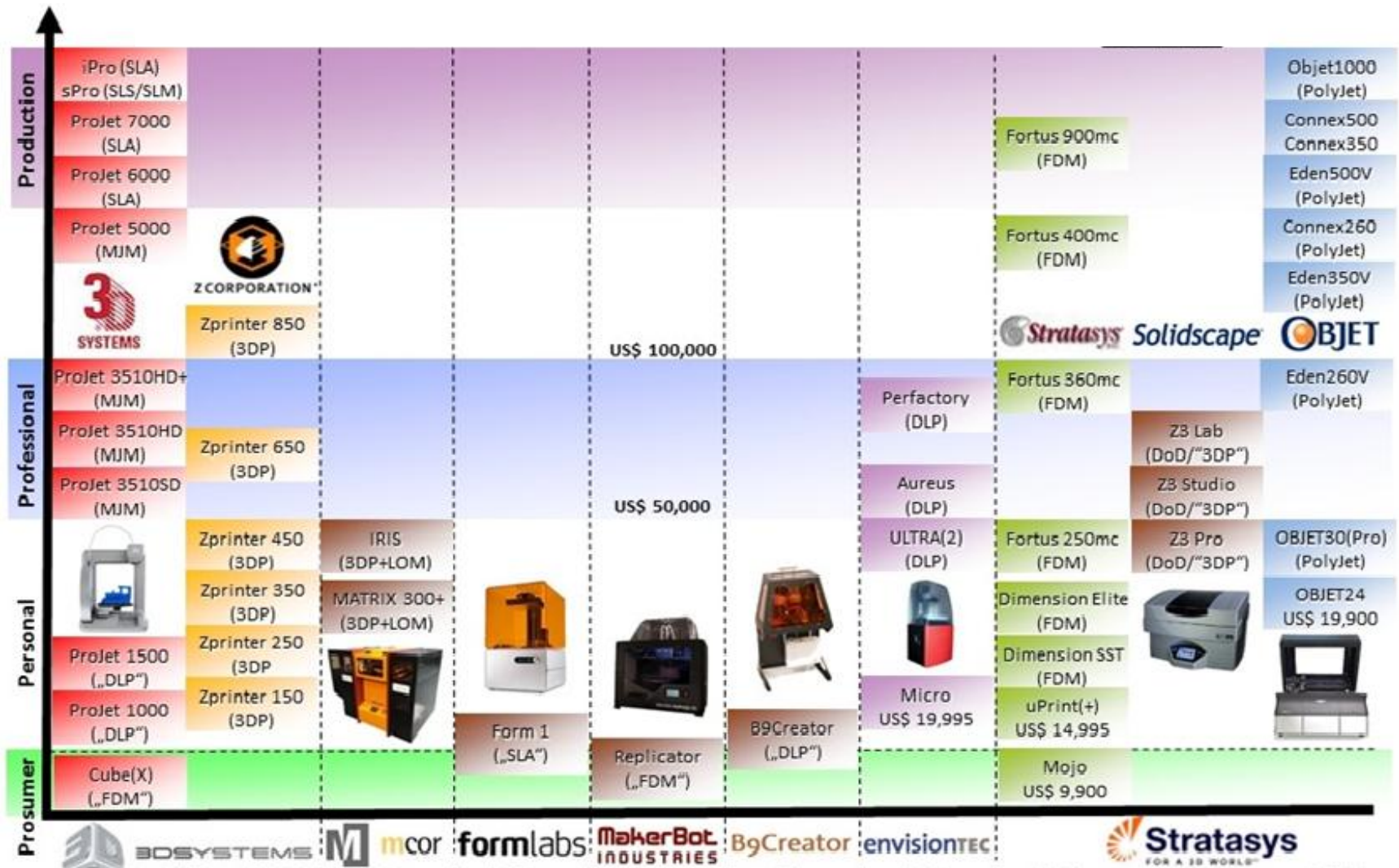
■ FORTUS 900mc 3D  
Production System -  
Stratasys

Source: 3D Systems , Stratasys, Z Corporation, Compiled by MIC, Jun. 2013.





# 3D Printing: wide range of applications



Source: TranPham , Feb. 2013



# Innovation in the IT industry

## Multi-functionality of IT and IT-related products



# Talking about Innovations...



Source: CEA, Feb. 2013





# What if...a tea table is NOT a tea table



Touch Table PC. Designed primarily for cafes and restaurants and even public places like hospitals, hotels and airports.

## Computer Hardware

## Smart Home System



### GreenWave Reality

Integrated Home Systems & Multi-Room Audio-Video Connected Lighting Solution

Provides advanced home indoor lighting solutions that enable mobile phone, tablet, computer or remote control device to control any LED or CFL lamps at home



Designed specifically for the deaf, where the user can detect the surrounding environment, via an alert sheet to protect the safety of the deaf.

## Smart Care System

Source: Moneual, Greenwave Reality, CES, Jan. 2013

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# If a mobile phone can use regular battery...

## ❖ XPAL Power Inc SpareOne

<http://www.SpareOne.com>

- ❖ Up to 10 hours of talk time means you have plenty of connectivity hours to last you your whole trip on one battery. Keeps its charge for up to 15 years. SpareOne can hold its charge, if unused, for up to 15 years.



The SpareOne is a mobile phone that can be powered by a single AA battery, and will deliver up to 15 years – not hours, but years – of battery life when left alone, or if needed for us, works for 10 hours.



# The vision of future display products



## Flexible Panel

Corning、Microsoft、Nokia、  
Samsung...



## Wearable Display

Google、Nokia、  
Microsoft、Samsung...



## 3D Projector

NTT DoCoMo、Microsoft、  
Samsung...



## Transparent

Corning、Microsoft、  
Samsung、TI...



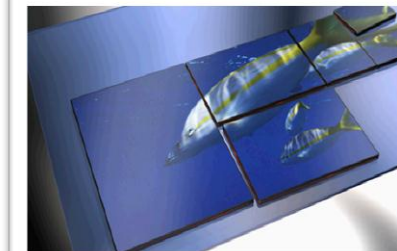
## Augmented Reality

NTT DoCoMo、Microsoft、  
Nokia、Samsung...



## Multi-touch

Nokia、Microsoft、  
RIM、Samsung...



## Seamless Display

Corning、Google、  
Microsoft、Nokia、  
RIM、Samsung...



## Gesture Control

Nokia、NTT DoCoMo、  
Qualcomm...

Source : Companies, Compiled by MIC, Jun. 2013

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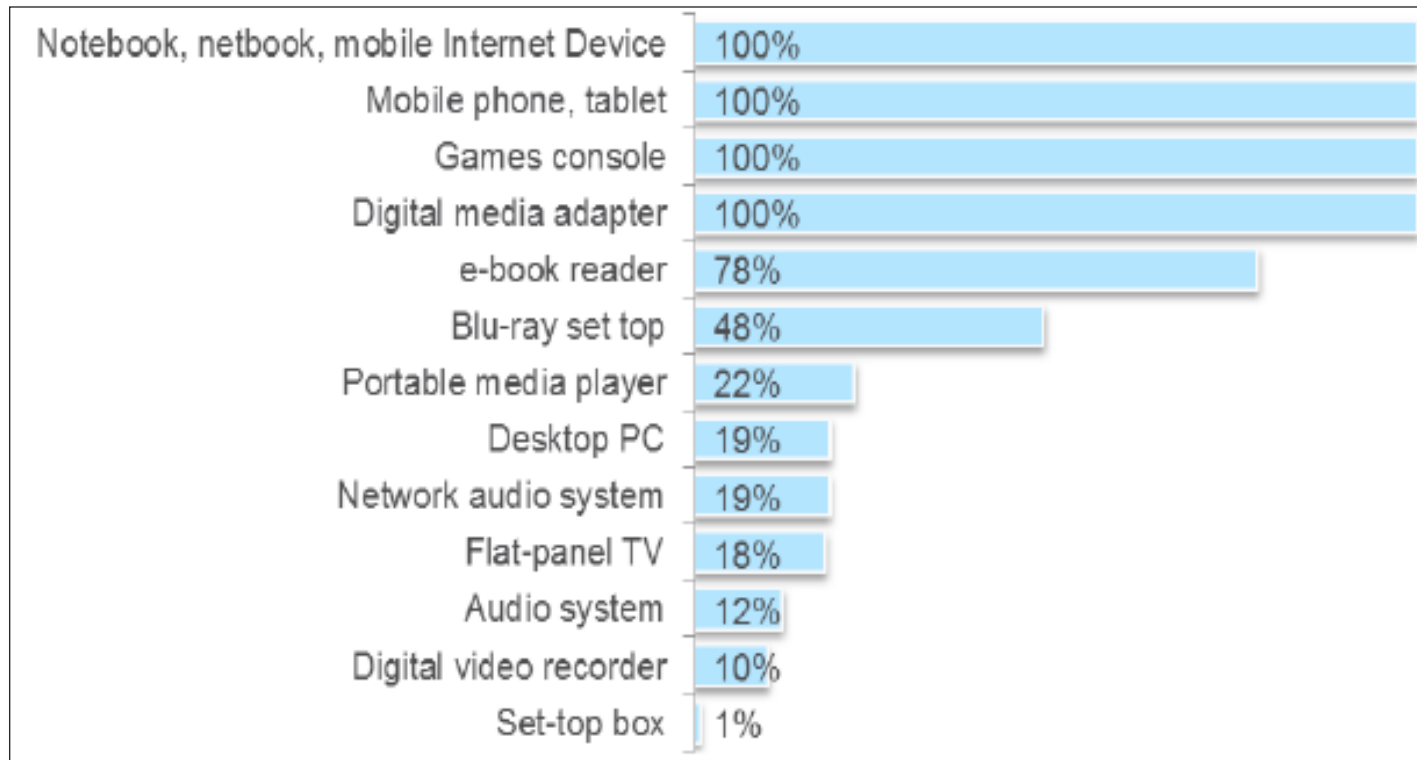


# Multi-functionality of IT and IT related products



# Are these IT or Non-IT products?

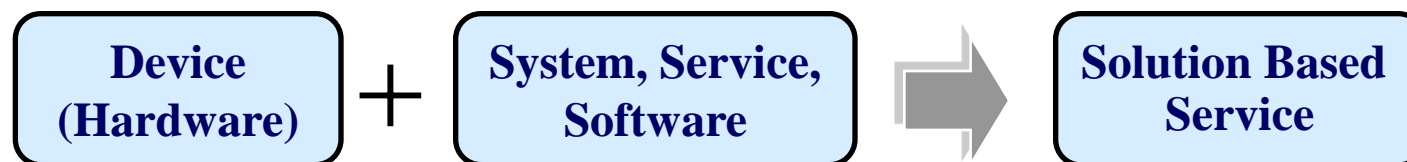
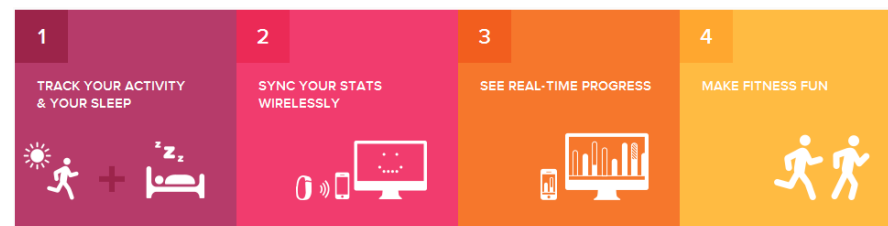
## Percentage of IT and Consumer Electronic devices with embedded Wi-Fi sold in 2012



Source: Wi-Fi Alliance, Jun. 2013



# Relies on Applications & Service to complete...

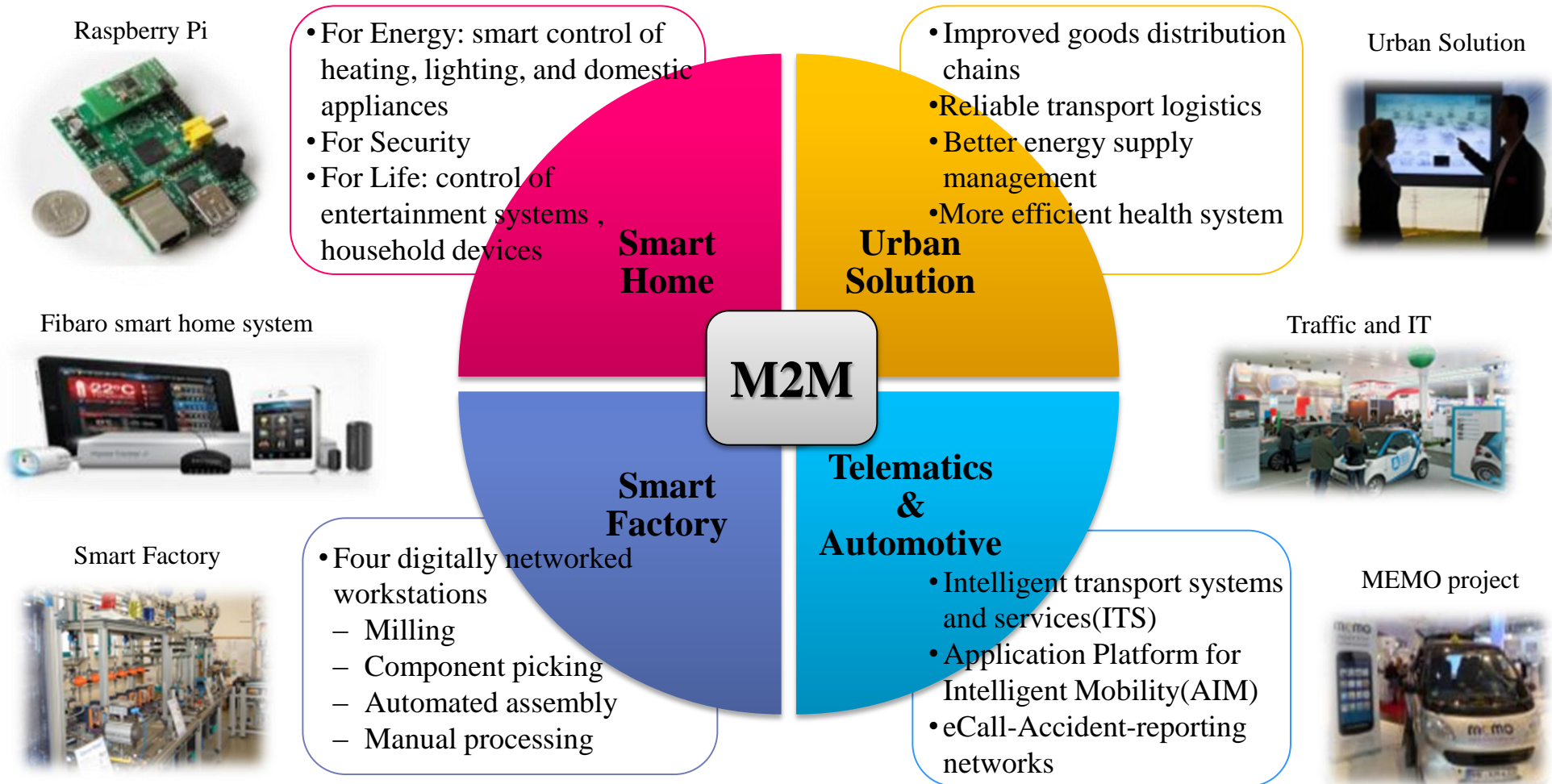


Source: Fitbit flex, Jun. 2013





# M2M applications become the key solutions



Source : Companies, Compiled by MIC, Jun. 2013





# Conclusion: The ICT Convergence and ITA

After 15 years, it's delight to see many WTO members to join the ITA Agreement expansion negotiation.

As product coverage for ITA expansion, it is recommended that ITA expansion should consider the evolution of the ICT-related products and applications, a proper (shorter) time frame to review or update the product list is crucial and necessary.





## Appendix: Next 10 Tech Markets That Will Be Worth \$1 Billion Or More



# The Next 10 Tech Markets That Will Be Worth \$1 Billion Or More

**Mobile Payment Services** are poised to bring thousands of businesses into the 21st century.



**Near Field Communication** promises frictionless information sharing.



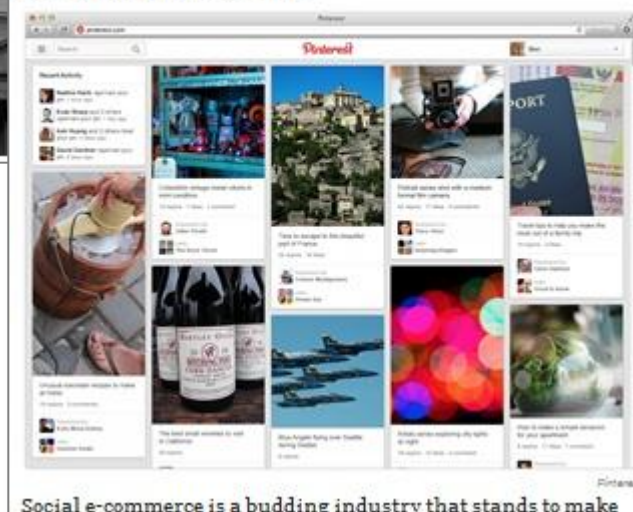
**Government information transparency** could revolutionize democracy.



**Mobile Education** is poised to transform the way we learn.



**Social E-Commerce** is changing the shopping landscape.



Source: Kevin Smith/Business Insider, Mar. 2013  
<http://www.businessinsider.com/the-next-1b-markets-in-tech-2013-3?op=1>



# The Next 10 Tech Markets That Will Be Worth \$1 Billion Or More

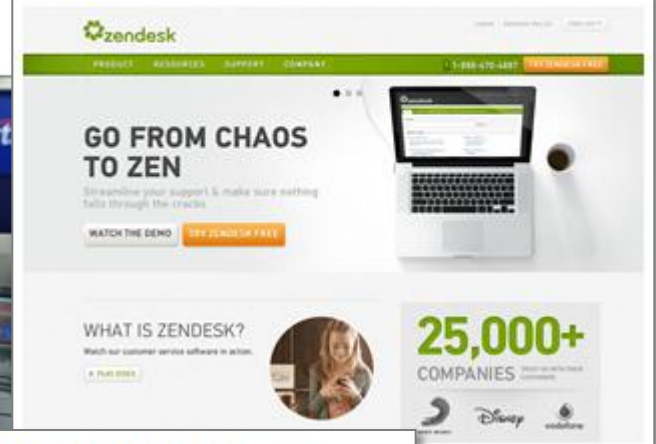
**Mass automation in human resources.**



**A new way to receive your online purchases.**



**Support services and products for mobile workers.**



**Artificial intelligence could end boring, service-job drudgery.**



**Mobile technology in the health care industry is changing how patients are diagnosed.**



Source: Kevin Smith/Business Insider, Mar. 2013  
<http://www.businessinsider.com/the-next-1b-markets-in-tech-2013-3?op=1>







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