

INFORMATION & COMMUNICATION TECHNOLOGY - GLOBAL ECONOMIC OPPORTUNITIES

Information & Communication Technology (ICT)

Content providing
Digital media
Ads, social network



PDA, smart phone



computer

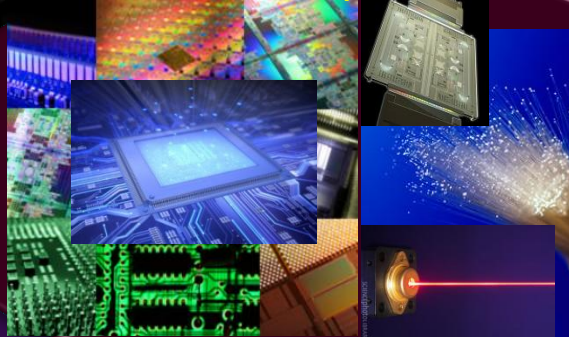


Telecommunications
Mobile computing

Entertainment



Semiconductor Optoelectronics



Data center



Network equipment



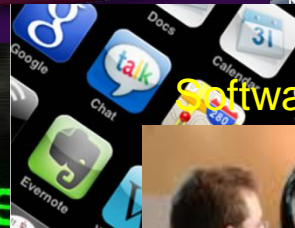
Call center



Cloud computing



Software engineering



IT service



e-commerce
Electronic Transaction
e-trading
Online Shopping



Information and Communication Technology



ICT

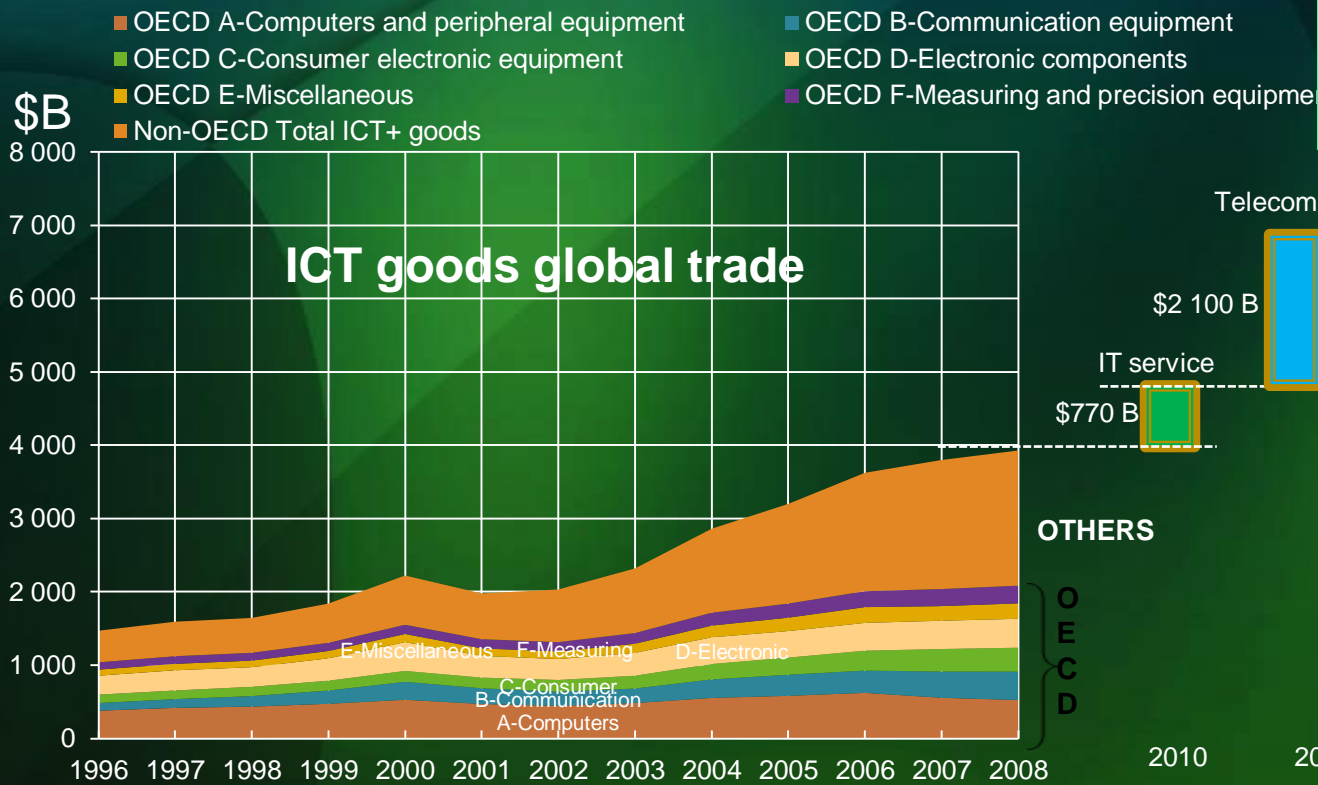
ICT goods and service industry

- Semiconductors/optoelectronics/electronics
- Computing devices, networking equipment, entertainment equipment (TV, game)
- Telecommunication (devices, system & service)
- Servers for data center, cloud computing
- Software, IT service (BPO)

ICT-enabled/ICT-driven industries

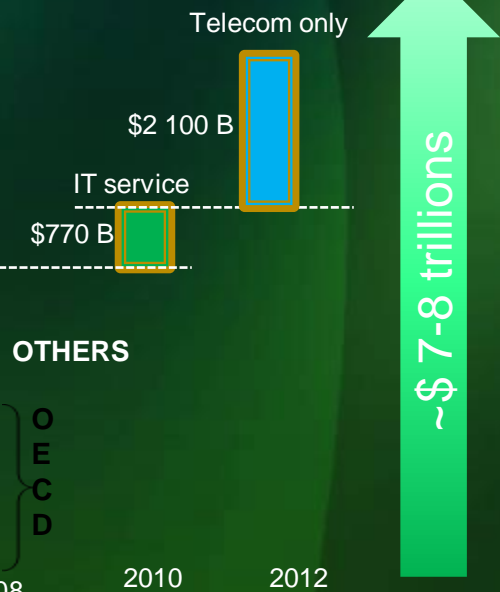
- Business process, productivity improvement
- e-commerce: online retailing, business transactions
- Advertisement, entertainment, gaming, digital content distribution
- Health care, education/training, social
- Energy, resource, environmental management for sustainability ("green" IT)

ICT Global Trade



Source: OECD Information Technology Outlook 2010; Gartner (for IT service); Insight Research Corp. (telecom)

Est. global ICT business



Not including ICT-enabled or ICT-driven economy

INTERNET TRENDS

D10 CONFERENCE

5/30/2012

Mary Meeker

KPCB

KLEINER
PERKINS
CAUFIELD
BYERS

1.1B Global Mobile 3G Subscribers, 37% Growth, Q4 – @ Only 18% of Mobile Subscribers

Rank	Country	CQ4:11 3G Subs (MM)	3G Penetr ation	3G Sub Y/Y Growth	Rank	Country	CQ4:11 3G Subs (MM)	3G Penetr ation	3G Sub Y/Y Growth
1	USA	208	64%	31%	16	Canada	16	62%	34%
2	Japan	122	95	9	17	Taiwan	14	48	17
3	China	57	6	115	18	South Africa	13	21	49
4	Korea	45	85	10	19	Turkey	13	20	62
5	Italy	44	51	25	20	Portugal	13	78	19
6	UK	42	53	25	21	Vietnam	12	11	358
7	Brazil	41	17	99	22	Mexico	11	11	55
8	India	39	4	841	23	Malaysia	10	27	7
9	Germany	38	36	23	24	Sweden	10	73	25
10	Spain	33	57	21	25	Philippines	10	11	45
11	France	30	45	35	26	Saudi Arabia	10	19	17
12	Indonesia	29	11	27	27	Netherlands	9	44	34
13	Poland	28	57	17	28	Egypt	8	10	60
14	Australia	22	76	21	29	Austria	7	58	24
15	Russia	17	8	45	30	Nigeria	6	6	51

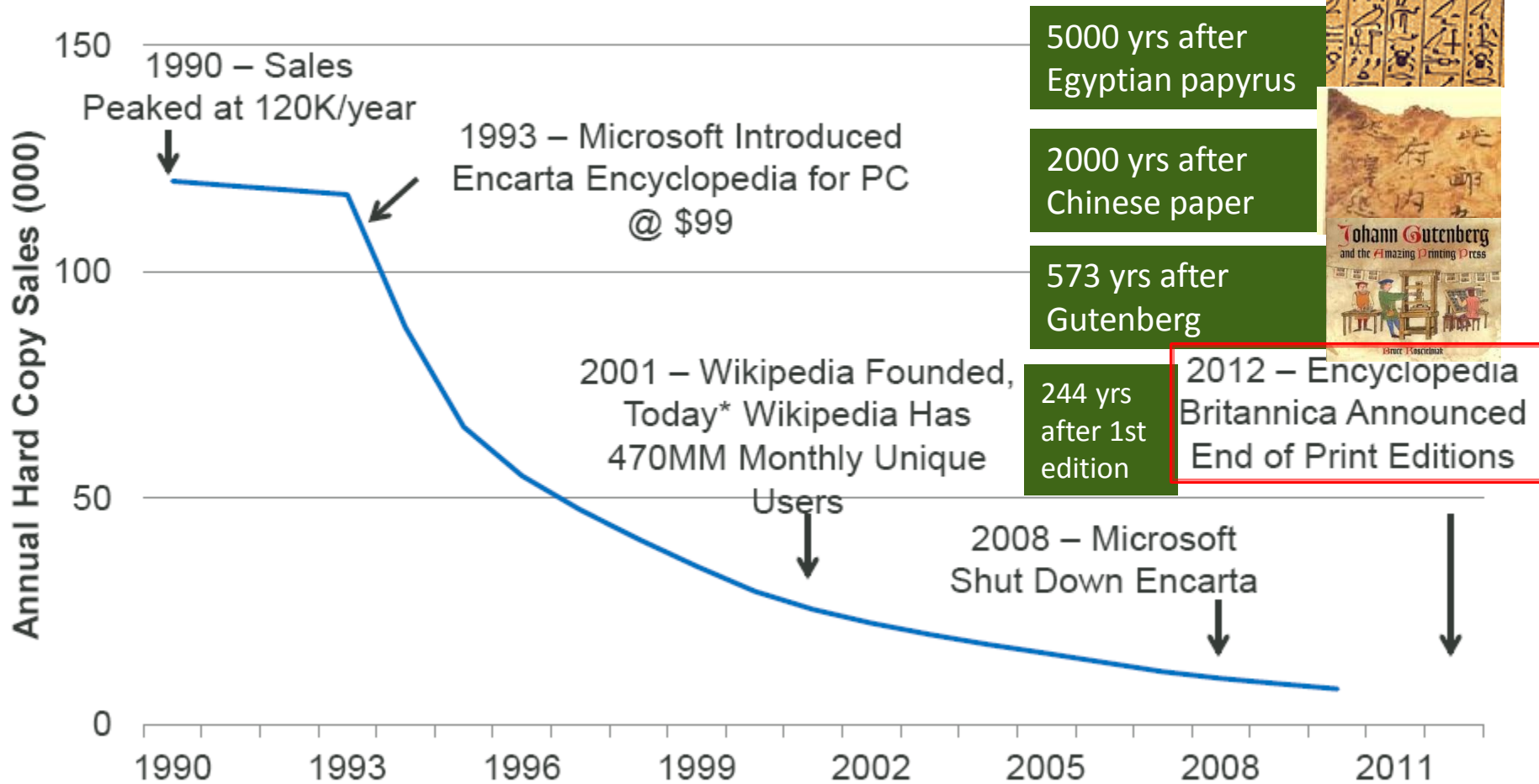
Global 3G Stats: Subscribers = 1,098MM Penetration = 18% Growth = 37%

Note: *3G includes CDMA 1x EV-DO and Rev. A/B, WCDMA, HSPA; One user may have multiple mobile subscriptions and may be counted as multiple subscriber. Source: Informa WCIS+.

**RE-IMAGINATION OF NEARLY
EVERYTHING* –
POWERED BY NEW DEVICES +
CONNECTIVITY + UI + BEAUTY –
WHERE WE ARE NOW...**

First Generation of Re-Imagination – After 244 Years, Encyclopedia Britannica is Going Out of Print in 2012

Encyclopedia Britannica Hard Copy Sales, 1990 – 2011



Re-Imagination of Books...

THEN...



NOW...

(Amazon Kindle / Apple iBooks)



Re-Imagination of Window Shopping...

THEN...



KPCB

NOW...
(One Kings Lane / Fab)
Click & Buy

ONE KINGS LANE

WELCOME JESSIE (Log Out) | JESSIE (Home, Get Help) | My Account | Shopping Cart (0)

ALL SALES | UPCOMING SALES | *Get Inspired*

The Foyer
SALE STARTS IN 2 Days, 12 Hours | [View Deal](#) | [Share this sale](#) | [Facebook](#) | [Twitter](#)

FIVE ROOMS IN FIVE DAYS
The Foyer
Your foyer is the first impression of your home. You need it to set the stage. Read on to learn how the right pieces and some simple style tweaks can create a warm welcome to your entryway.
Want an elegant greeting? A classic console table flanked by romantic sconces and paired with a stately gilded mirror conveys a sophisticated, traditional elegance, yet extends a warm welcome to all who enter.

SHOP NOW! MOVE YOUR CURSOR OVER ANY DOT TO PURCHASE THE ITEMS YOU LOVE IMMEDIATELY.

Fab.com

Art | Furniture & Lighting | Gifts & Cards | Home | Fab | Kitchen & Dining | Home | Bed | Victoria

Sale Ends in 6 days and 14 hours | [Share this sale and earn cash](#) | [Facebook](#) | [Twitter](#) | [LinkedIn](#)

New! Shop With Your Facebook Friends | [Learn more](#)

Amitrani
Contemporary Home Furnishings
Amitrani's stylish and practical **chairs, storage units and home accents** are crafted in new and unusual shapes that satisfy both rational and emotional needs. Sourced from sustainably managed forests, each piece **balances visual impact and function** with environmental responsibility.

Roberto and Stefano Truccoillo

"Amitrani products combine great Italian handcraft quality and new manufacturing technologies. We try to shape wood in new and unusual ways that almost give it a sculptural character."

— Roberto and Stefano Truccoillo, Co-founders and Designers

Re-Imagination of Business Collaboration...

THEN...

Meetings / Whiteboards /
Teleconferences



NOW...

(Salesforce.com / Yammer / Jive...)
Online Working Groups / Data Sharing /
Instant Messages

Two screenshots of business collaboration software. The top screenshot shows the Jive interface, which includes a search bar, a navigation menu, and a main content area with a list of posts and a sidebar with a map and analytics. The bottom screenshot shows the Salesforce.com interface, specifically a group page for "NetSmart Competitive Group". It features a group profile, a list of members, and a feed of posts with images and text.

Re-Imagination of Personal Borrowing / Lending...

THEN...

Borrowers – Paper Application / Lengthy Approval Process / High Interest Rates
 Investors – Little Access For Retail Investors / No Customization Based on Risk Tolerance



NOW...

(Lending Club...)

Borrowers – Online Application / Funded in Days / Lower Interest Rates
 Investors – Easy Customization / Diversification / Better Returns



Apply
online in minutes



Get Funded
in a few days



Make
fixed monthly
payments

LendingClub Investing Personal Loans How It Works About Us

Browse Notes 173

Please sign in to set the investment amount per note.

Investment	Rate	Term	PCOB	Amount	Why I Picked	% Funded	Amount / Days / LTV
credit card payoff	8.02%	36	356,379	\$10,080	Credit Card Refinancing	89%	\$25 / 0 days
Moving Loan	6.65%	36	706	\$9,698	Credit Card Refinancing	98%	\$258 / 0 days
Assisted Living Business	8.40%	36	356,379	\$6,698	Small Business	90%	\$298 / 0 days
Major Purchase	7.62%	36	714,349	\$2,090	Major Purchase	98%	\$196 / 0 days
My New Loan	12.12%	36	679,712	\$12,080	Debt Consolidation	62%	\$819 / 0 days
CENTRAL AC	7.8%	36	679,712	\$2,698	Home Improvement	85%	\$625 / 7 days
Home Improvement	12.11%	36	679,712	\$10,080	Home Improvement	87%	\$658 / 7 days

Re-Imagination of Education...

THEN...

Classrooms / Lectures / Reading Materials



NOW...

(Codecademy / Coursera / Khan Academy...)
Interactive / Online / Accessible by
Anyone Anywhere Anytime

The screenshot shows the Codecademy website. At the top, there's a navigation bar with 'Codecademy' and links for 'Courses', 'Creators', 'Jobs', 'Sign In', and 'Create Account'. The main content area features a coding exercise with a text prompt: 'Hey! Let's get to know each other. What's your name? Type it with quotes around it like this "Ryan" and then press enter on your keyboard.' Below the prompt is a code editor with a cursor. To the right, there's a 'Learn to code' section with a 'Get Started' button. Below this, there are three columns of content: 'Program Websites and More' with a code snippet, 'Learn with Friends' with icons for 10, 25, and 50 users, and 'Track and Share Your Progress' with a progress bar showing 37% completion.

```
var codeblocker = false;
if (codeblocker == false) {
  alert("Use Codecademy to start on \
the path to becoming a better \
programmer" );
} else {
  alert("Some good skills or help teach \
the craft" );
}

```

Learn to code
Codecademy is the easiest way to learn how to code. It's interactive, fun, and you can do it with your friends.

Get Started
It's free!

Program Websites and More
Learning with Codecademy will put you on the path to building great websites, games, and apps.

Learn with Friends
Keep tabs on your friends' progress and make sure you're learning more - faster!

Track and Share Your Progress
Start learning - and don't stop. See how fast you're learning and stay motivated.

Re-Imagination of Healthcare Access...

THEN...

Call to Make Appointments / Days or Weeks to See Doctors



NOW...

(ZocDoc / Teladoc)

On-Demand Access to Doctors in Minutes or Same Day / In Person or Via Phone Video Call



Re-Imagination of Calling a Cab...

THEN...

Long Lines During Rush Hours /
Rain / Some Areas May Not
Have Taxis Roaming on Streets



NOW...

(Uber)
One-Tap Taxi Call /
Location-Aware / Electronic Payment



Re-Imagination of Navigation + Live Traffic Info...

THEN...

You're lost. Should have turned left back there

No... I'm not. Gonna be OK

Yes you are. Stop at the next gas station and ask for direction



NOW...

(Waze)

User-Generated Digital Map / Live Crowd-Sourced Traffic Data



Magnitude of Upcoming Change Will be Stunning - We are Still in Spring Training

- **Nearly Ubiquitous High-Speed Wireless Access in Developed Countries**
- **Unprecedented Global Technology Innovation**
- Ultra Competitive Markets for Mobile Operating Systems + Devices
- Broadly Accepted 'Social Graphs' / Information Transparency
- **Fearless (& Connected) Entrepreneurs**
- Difficult 'What Do I Have to Lose' Economic Environment for Many
- **Available (& Experienced) Capital**
- **Fearless (& Connected) Consumers**
- **Inexpensive Devices / Access / Services (Apps)**
- **Ability to Reach Millions of New Users in Record (& Accelerating) Time**
- 'Social Emerging as Starting Distribution Point for Content,' (Brian Norgard, Chill)
- Aggressive (and Informed) 'On My Watch' Executives at 'Traditional' Companies
- Unprecedented Combo of Focus on Technology AND Design
- Nearly 'Plug & Play' Environment For Entrepreneurs – Marketplaces / Web Services / Distributed Work / Innovative Productivity Tools / Low 'Start Up' Cost
- Beautiful / Relevant / Personalized / Curated Content for Consumers

Addressable Market For Re-Imagination – Aggregate Market Cap of Global Public Companies = \$36+ Trillion*

ICT-enabled, ICT-driven industries

	2012 Market Cap (\$B)	2011 Revenue (\$B)	2011 EBITDA (\$B)	Top Companies by Mkt Cap
Financials	\$6,855	\$4,647	\$1,035	ICBC, China Construction Bank, Wells Fargo
Consumer Staples	4,386	3,972	543	Wal-Mart, Nestle, P&G, Coca-Cola
Information Technology	3,966	2,298	422	Apple, Microsoft, IBM, Google, Samsung
Energy	3,926	6,652	1,068	Exxon Mobil, PetroChina, Shell, Chevron
Consumer Discretionary	3,734	4,734	624	Toyota, Amazon.com, McDonald's, Walt Disney
Health Care	3,380	2,204	455	Johnson & Johnson, Pfizer, Roche, Novartis
Industrials	3,198	4,407	608	General Electric, Siemens, UPS
Materials	3,129	2,607	712	BHP Billiton, Rio Tinto, Vale
Telecommunication Services	2,572	2,045	699	China Mobile, AT&T, Telefonica, Vodafone
Utilities	1,188	1,501	315	GDF Suez, National Grid, E.ON, EDF
Total	\$36,335	\$35,066	\$6,483	~\$ 30.7 trillions

Est. global
ICT
business

~\$ 7-8 trillions

~ 4 X

Note: *Based on 3,000 global publicly traded companies as defined by Morgan Stanley Research's coverage universe. **EBITDA is earnings before interest, tax, depreciation and amortization. Source: Morgan Stanley Research. Data as of 5/23/12.



Content providing
Digital media
Ads, social network

PDA, smart phone



computer



Telecommunications
Mobile computing



Entertainment

Semiconductor
Optoelectronics



Network
equipment



Call center

Data center



Cloud
computing

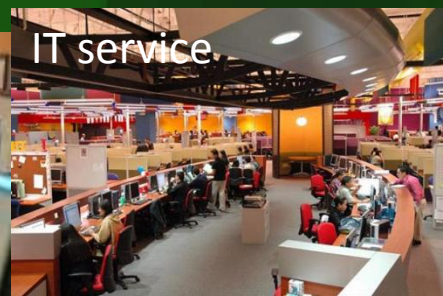


Commerce
Electronic Transaction
e-commerce
e-trading
Online Shopping

Software
engineering



IT service



Information and Communication Technology

ICT

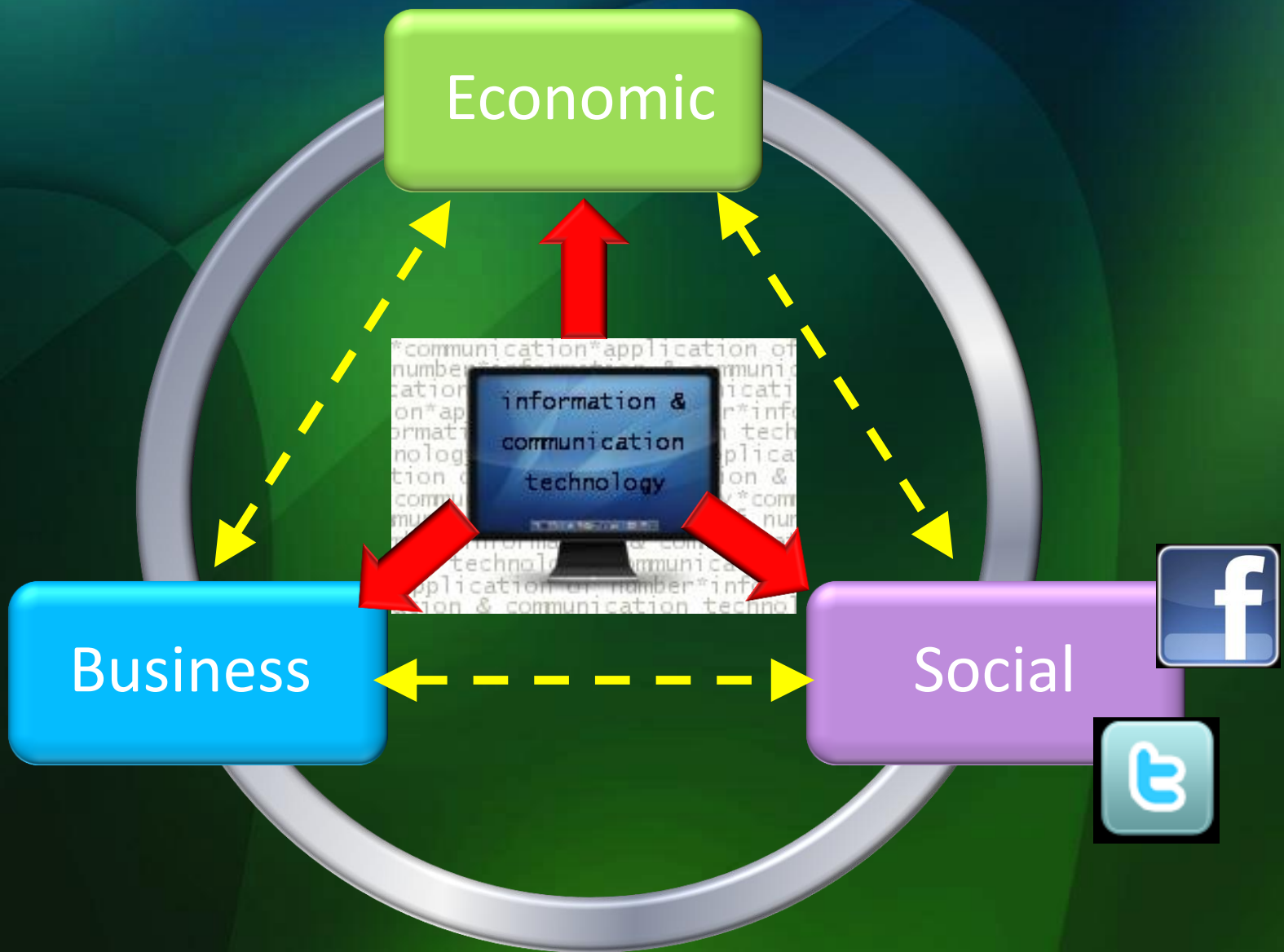


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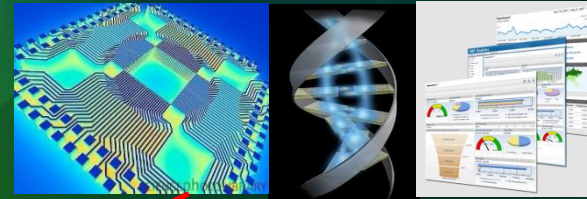


ICT AND THE KNOWLEDGE ECONOMY

Resources of knowledge economy



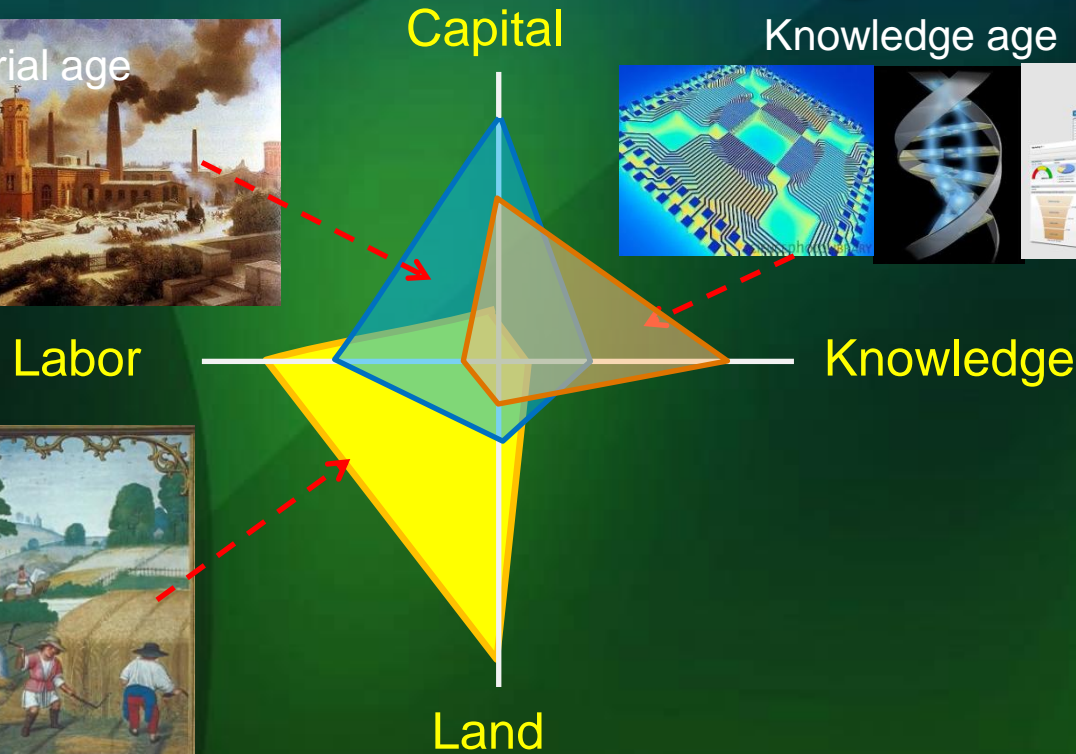
Industrial age



Knowledge age



Agricultural age

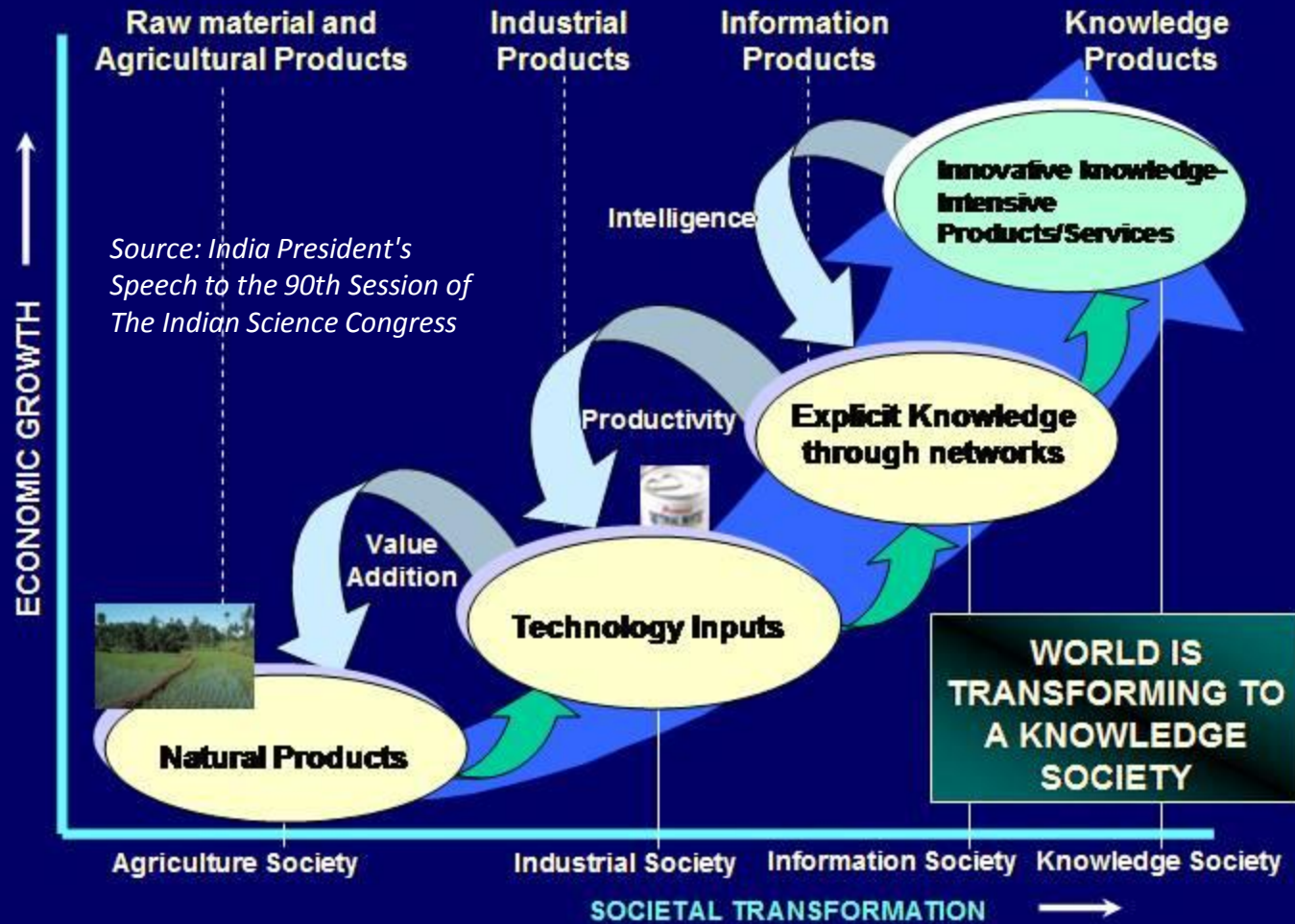


- Knowledge has become the main resource

Source: Prof. Katsuhiro Umemoto JAIST

From: *The knowledge economy and society* - Andre Saito

SOCIETY & ECONOMIC GROWTH



Virtually every developed economy embraces an industrial policy for its digital economy (since ~ mid-1990's to present)

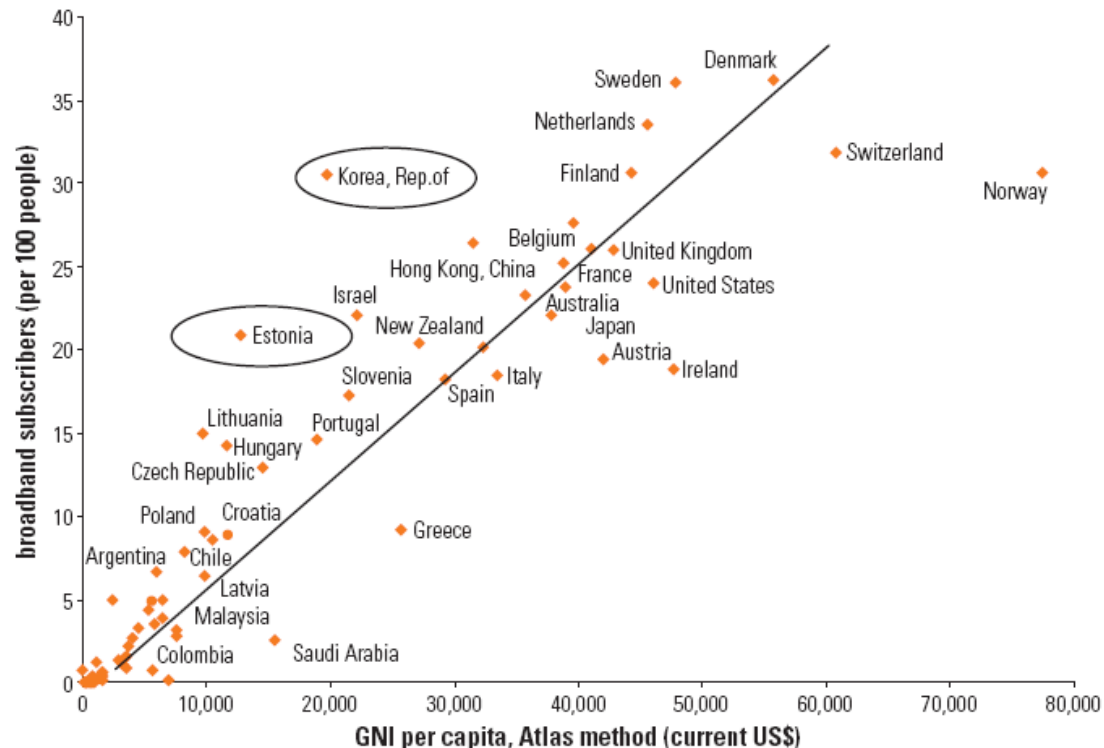
World Bank: Every 10% increase of broadband produces 1.2-1.4% rise in GDP

Key Trends in ICT Development

David A. Cieslikowski, Naomi J. Halewood, Kaoru Kimura, and Christine Zhen-Wei Qiang

WB IC4D (2009)

Figure 6 Broadband Penetration and Gross National Income in Various Economies, 2007



Sources: ITU, World Telecommunication/ICT Indicators Database; World Bank, World Development Indicators Database.



OXFORD
ECONOMICS

June 2011

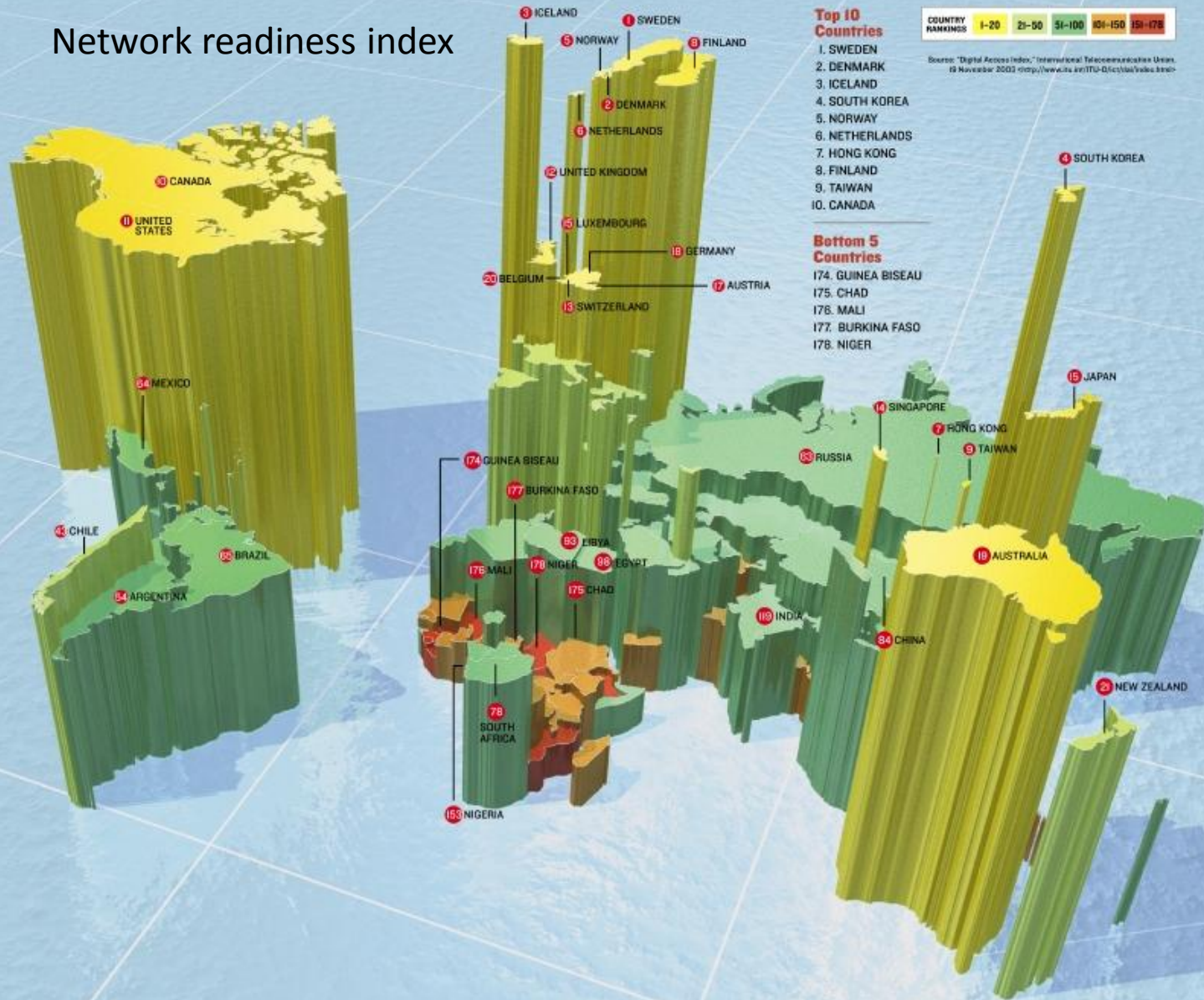
The New Digital Economy

How it will transform business

- 1 The global digital economy comes of age.** The internet has set in motion a third wave of capitalism that will transform many aspects of the global
- 2 Industries undergo digital transformation.** As a result of the maturing digital economy, companies across a range of industries have seen their business models upended as they contend with the twin forces of technology and
- 3 The digital divide reverses.** With economic power shifting to the East, cash-rich companies in the developing world are now investing heavily in technology—often outpacing their counterparts in developed markets. CEOs
- 4 The emerging-market customer takes center stage.** Rapid economic growth, along with rising populations and income levels, are putting emerging markets at the center of corporate growth strategies. Customers in emerging
- 5 Business shifts into hyperdrive.** The ever-changing global marketplace, fuelled by fast-growth economies and new technology, has accelerated the
- 6 Firms reorganize to embrace the digital economy.** To operate on the global

A research paper produced in collaboration with AT&T, Cisco, Citi, PwC & SAP

Network readiness index



i-Japan Strategy 2015 Striving to Create a Citizen-Driven, Reassuring & Vibrant Digital Society

Vision of Japan in 2015

- Create a society in which digital technologies will be accepted like air and water, create a condition of digital inclusion throughout the economy and society, enrich lives and connections among people
- Digital technology and information will lead to digital innovation and new vitality throughout the economy and society where individuals and society as a whole can use this vitality to undertake spontaneous creation and innovation that generate new value

Perspectives for Achieving the Future Vision

- Make the strategy for a digital society in which human-centric digital technologies are as easy to use as water and air and are accepted universally by citizens
- A digital strategy from four new perspectives:
 - Easy to use digital technologies
 - Breaking down the barriers that hinder the use of digital technologies
 - Ensuring security when using digital technologies
 - Creating a new Japan by diffusing digital technologies and information throughout the economy and society

Main Aspects of the Strategy

Electronic Government and Local Government

- Create structures to implement electronic government (appoint government CIOs, etc.), follow up on prior plans and establish PDCA structures
 - Broadly expand the National e-PO Box* (tentative name) to provide one-stop administrative services and make government more transparent
- * National e-PO Box are to be established by fiscal year 2013 and considered integration with the Social Security Number & Card (tentative name) to facilitate the use of existing systems; the basic concept is to be adopted this fiscal year.

Three Major Fields

Healthcare and Health

- Address issues including shortages of doctors in rural areas
 - Use telemedicine technologies
 - Maintain and enhance skills of doctors and others
 - Implement cooperation among regional healthcare facilities
- Implement Japanese EHR* (tentative name)
 - Reduce medical errors and provide continuous treatment throughout individuals' lives
 - Use electronic prescriptions and drug dispensing information
 - Use anonymous health-related information for epidemiological purposes

* Electronic Health Records

Education and Human Resources

- Encourage the use of digital technologies in classrooms and raise children's desire to learn, academic abilities and ability to use information
 - Raise the teaching abilities of teachers using digital technologies
 - Establish easy-to-understand classes that use digital equipment such as electronic blackboards
- Develop highly-skilled digital human resources stably and continuously
 - Broadly establish and improve practical educational bases
 - Improve and expand national center functions through collaboration among industry, academia, and government

Revitalizing Industry and Local Communities and Nurturing New Industries

Use digital technologies and information to transform structures in all industries and revitalize local communities and enhance the international competitiveness of Japanese industries.

- Develop business foundations for small and medium businesses
- Promote green IT and ITS
- Establish new business types in local industry
- Increase the number of teleworkers (double teleworkers who work from home)
- Create new creative markets

Development of Digital Infrastructure

Support advances in the use of digital technologies in all fields and promote growth

- Establish broadband infrastructure (in excess of 100 Mbps for mobile and 1 Gbps for fixed)
- Establish information security countermeasures
- Promote development of digital fundamental technologies
- Develop infrastructure for distribution and utilization of digital information

Issues That Require Further Investigation

- Priority Inspection of Regulations, Systems, Practices, etc.: Drastic reviews of regulations, systems, and practices that hinder the use of digital technologies and information will be performed and an initial priority inspection will be conducted in 2009. Based on the results, the government will take necessary measures and continue implementation in the future.
- Adoption of the Digital Global Vision (tentative name): The Digital Global Vision will be adopted by the end of fiscal 2009 concerning reinforcement of the international competitiveness of Japan's digital technologies and related industries.

DIGITAL BRITAIN

Final Report

JUNE 2009





Foreword



As we made clear in our industrial strategy *Building Britain's Future: New Industry, New Jobs* – we believe Britain needs an active industrial policy if we are to maximise the benefits from the digital revolution. Doing nothing or leaving everything to the market would leave Britain behind. We need a clear and effective approach which is

Chapter 1

Executive Summary

“Only a Digital Britain can unlock the imagination and creativity that will secure for us and our children the highly skilled jobs of the future. Only a Digital Britain will secure the wonders of an information revolution that could transform every part of our lives. Only a Digital Britain will enable us to demonstrate the vision and dynamism that we have to shape the future.”

Rt Hon. Gordon Brown MP, Prime Minister

**AMBITION: TO SECURE THE UK'S POSITION AS ONE OF THE WORLD'S
LEADING DIGITAL KNOWLEDGE ECONOMIES**

An example of innovation

Evolution of the phone

Electromechanical rotary



Electronic desktop



Cell phones



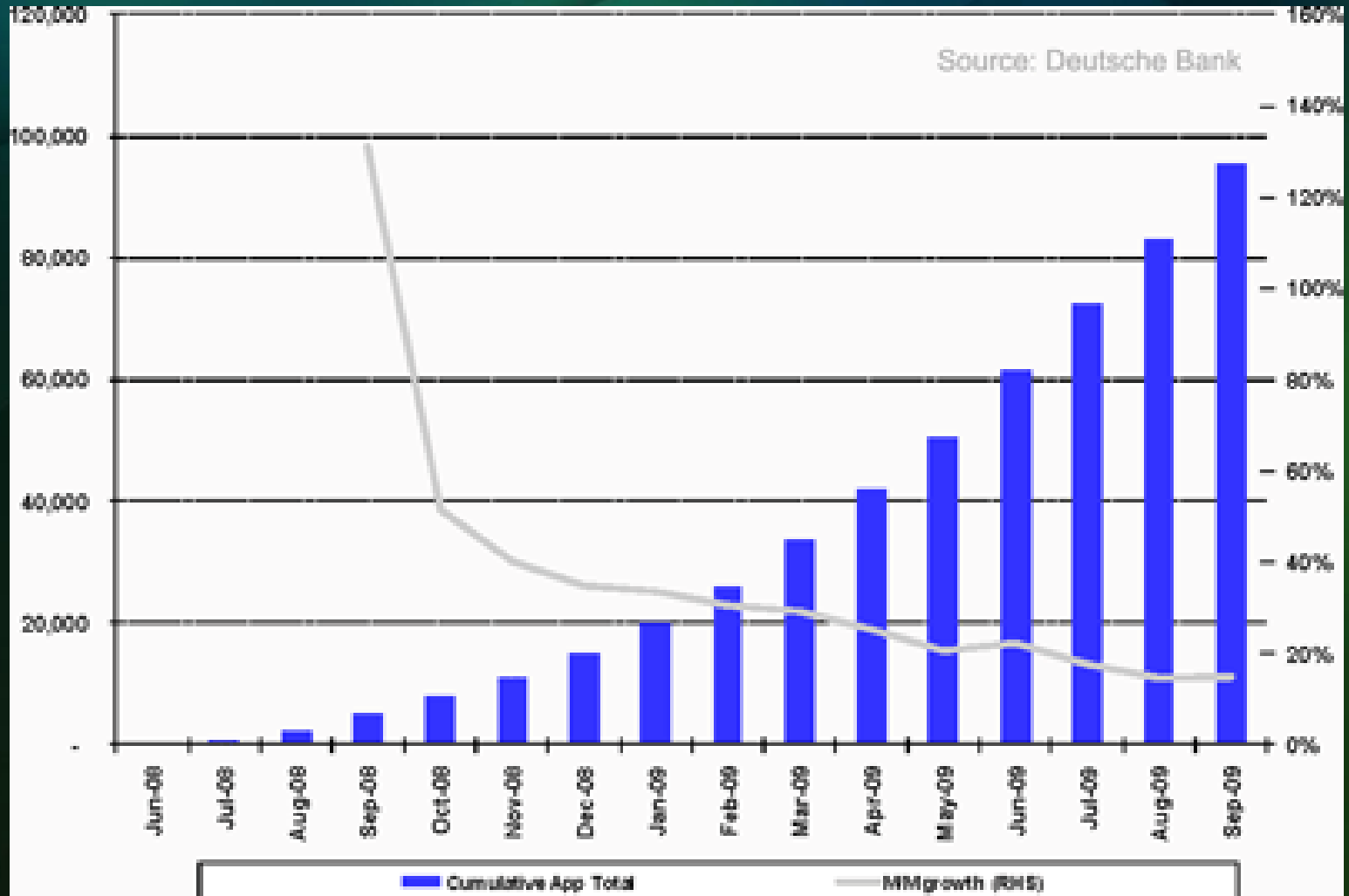
Cell phone evolution



Just when you thought there is nothing left to innovate in cell phone



Growth of smart phones



Enter name(s) or symbol(s)

GET CHART

COMPARE

EVENTS ▾

TECHNICAL INDICATORS ▾

CHART SETTINGS ▾

RESET

Week of Feb 27, 2012: ■ APL 545.18 ■ MSFT 32.08



AAPL - Apple

MSFT - Microsoft

Mobile Internet Next Major Computing Cycle

**Mainframe
Computing
1950s**



**Mini
Computing
1960s**



**Personal
Computing
1980s**



**Desktop Internet
Computing
1990s**



**Mobile Internet
Computing
2000s**



Technology Cycles - Wealth Creation / Destruction

New Companies Often Win Big in New Cycles

**Mainframe
Computing
1950s**

Winners

IBM
NCR
Control Data
Sperry
Honeywell
Burroughs

**Mini
Computing
1960s**

Winners

Digital Equipment
Data General
HP
Honeywell
Prime
Computervision
Wang Labs

**Personal
Computing
1980s**

Winners

Microsoft
Cisco
Intel
Apple
IBM
Oracle
EMC
Dell
HP
Compaq

**Desktop Internet
Computing
1990s**

Winners

Google
AOL
eBay
Yahoo!
Yahoo! Japan
Amazon.com
Tencent
Alibaba
Baidu
Rakuten

**Mobile Internet
Computing
2000s**

?