MALAYSIAN ICT SECTORAL OUTLOOK:
Trends, Challenges and Prospects

ASOCIO Presentation and Discussion

Kathmandu, Nepal

19th May 2012

PIKOM in Brief:
Voice of ICT Industry in Malaysia

PIKOM

Membership : 1986-2011

Formed in 1986

Commands 80 % of ICT industry
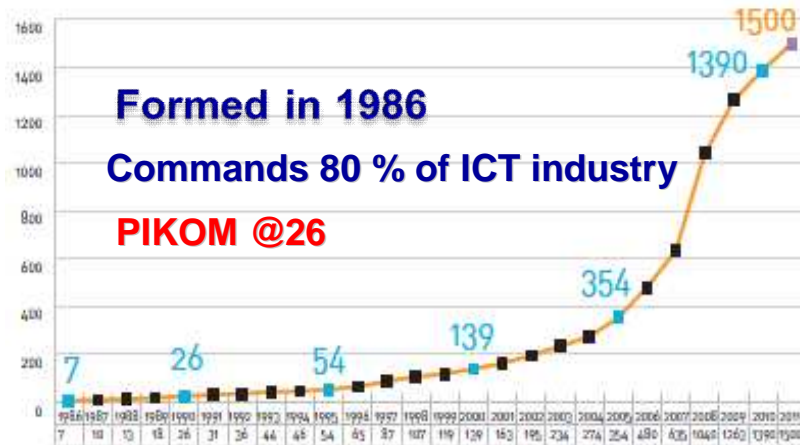
PIKOM @26

Wisma PIKOM : 2012

PIKOM Annual Events

International Affiliations

About Malaysia

PIKOM

Population	**28.3 million**
Total Fertility Rate (TFR)	**2.2** *(below replacement level)*
Per Capita income	**USD7,760 (RM25,866)**
Pre-crisis GDP growth	**5.7% (2006-2008)**
Revised GDP Growth	**2.0% (2009-2010)**
World Competitiveness	**10th position**
Unemployment rate	**3.6%** *(low unemployment)*
Consumer Price Index	**2.8%** *(low inflation)*
Literacy	**93.1%** *(high literacy)*

South China Sea

Sabah

MALAYSIA

Kuala Lumpur

Sarawak

QUALITY POPULATION THROUGH ICT

- *Research*
- *Development*
- *Innovation*
- *Knowledge worker*
- *Knowledge Economy*
- *Knowledge Society*
- *Innovative Economy*
- *Digital Economy*

New Economy Model Proposition: Higher Value Adding / Higher Income Nation

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GNI Per Capita (USD$)	1970	2009
Korea	260	21,530
Malaysia	380	6,760

2010 GNI per capita: RM26,420 (USD8,256)

2009 Household Income: RM4,025 (USD1,183)

By 2020 GNI per capita

2020 Target: USD21,834

10th MP (2011-2015) USD12,139

Developed Economy Benchmark: USD14,816

1995 GNI per capita: RM5,406

1995 Household Income: RM2,020

Until Mid 90's

1980 GNI per capita: RM1,820

1980 Household Income: RM692

Until Late 70's

Info-structure (ICT), science, R&D, knowledge capital, innovation skills, XY Generations, entrepreneurship and globalization

Infrastructure, Capital, Factory, Technical Skills and Semi-skilled Workforce

Land, labour and low skills

LOW INCOME – FACTOR DRIVEN ECONOMY

MIDDLE INCOME – FACTOR DRIVEN ECONOMY

HIGH INCOME – INNOVATION DRIVEN ECONOMY

Next Economic Major Thrust:
Endogenous Growth through New Transformation Policy

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Policy Framework	Model/Plan	Growth Phase
New Economic Model (NEM)	—	Endogenous Growth 2010-2020
Innovation Based Economy	ETP/GTP Model	—
National Vision Policy (NVP)	—	Resilient and Competitive Nation 2001-2010
Knowledge Based Economy	OPP3: 2001-2010	—
National Development Policy (NDP)	—	Balanced Development 1991-2000
Industry Based Economy	OPP2: 1991-2000	—
New Economic Policy (NEP)	—	Growth with Equity 1971-1990
Agro-industry Based Economy	OPP1: 1971-1990	—
Pre-NEP, 1957-70	—	Laissez-faire / exports; Economic & Dural Development

New Transformation Policy

FDI Driven Growth Periods

National Transformation Policy Strategies

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VISION 2020

Political Transformation Programme (PTP)

Rural Transformation Programme (RTP)

1 Malaysia	ETP	GTP	DTP
One Malaysia	Economic Transformation Programme	Government Transformation Programme	Digital Transformation Programme
Preservation and enhancement of unity in diversity	New Economy Model: A High Income, Inclusive & Sustainable Nation	Effective delivery of Government Services	Accelerate the Development of Digital Economy; Improve Quality of life
People First and Performance Now	131 Entry Point Projects; 60 Business Opportunities; 8 Strategic Reform Initiatives (SRI)	6 National Key Result Areas (NKRA)	25 Entry Point Projects; 28 business opportunities;

Tenth Malaysia Plan (10MP : 2011-2015) / Eleventh Malaysia Plan (11MP: 2016-2020)

NITC drives National ICT Agenda by Setting Strategic Policy Direction

EPU — New Sources of Growth	MKN — e-Sovereignty	EPU — Digital Social Inclusion
MDEC — ICT Industry Development	ICT Infrastructure Development	SME Development & ICT Usage
MAMPU — Development of ICT Initiatives by Government	Development of Human Capital in ICT	mosti — Development of Technology & Innovation Ecosystem

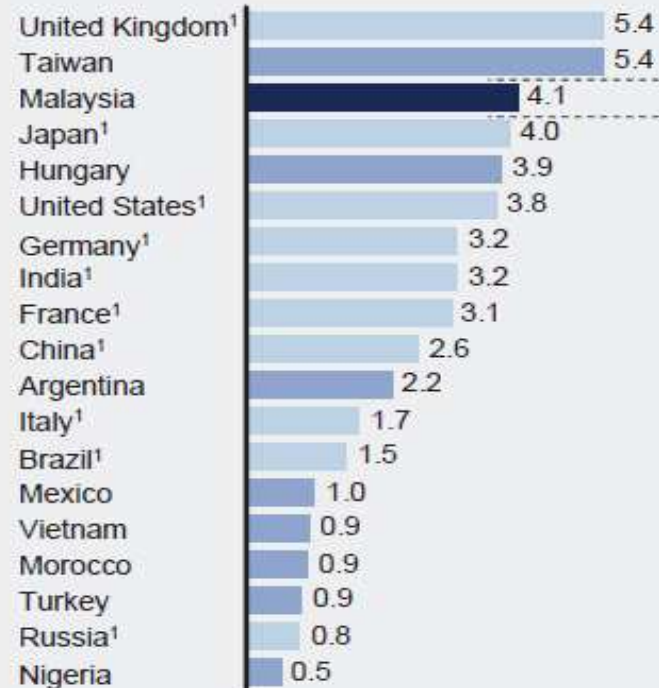# Contribution of ICT GDP mainly comes from private consumption of ICT Products

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Malaysia's ICT-related trade and private consumption are driving the Internet's strong impact on the economy
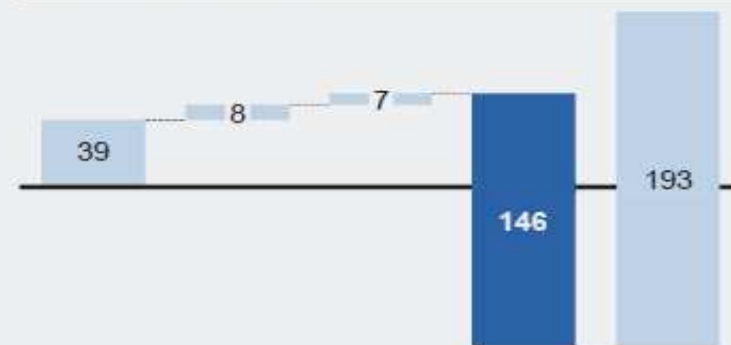
% contribution to GDP

Legend:
- Aspiring countries
- Malaysia
- Other

Peers
iGDP Index rank

Country	Value
United Kingdom[1]	5.4
Taiwan	5.4
Malaysia	4.1
Japan[1]	4.0
Hungary	3.9
United States[1]	3.8
Germany[1]	3.2
India[1]	3.2
France[1]	3.1
China[1]	2.6
Argentina	2.2
Italy[1]	1.7
Brazil[1]	1.5
Mexico	1.0
Vietnam	0.9
Morocco	0.9
Turkey	0.9
Russia[1]	0.8
Nigeria	0.5

Composition
% contribution to iGDP

39   8   7   146   193

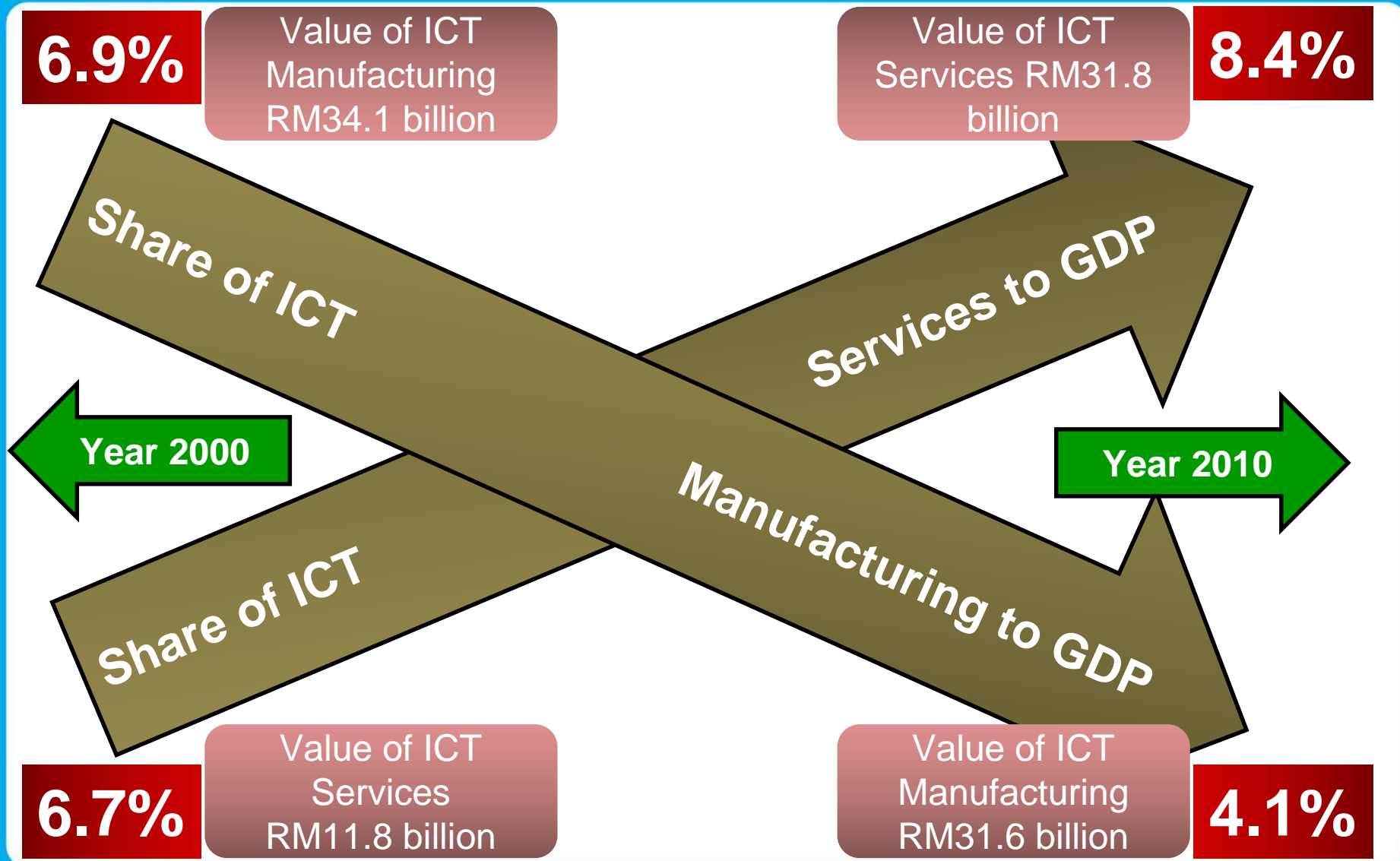|	Private consumption	Public expenditure	Private investment	Import	Export
Contribution to GDP[2] %	1.6	0.3	0.3	-6.0	8.0

1 2009.
2 Numbers may not sum due to rounding.

SOURCE: Gartner; Global Insight; OECD; ITU; IDC; WHO; ICD; iConsumer US 2010; Euromonitor; H2 Gambling Capital; World Travel and Tourism Council; PhoCusWright; Pyramid Research; UNESCO; McKinsey analysis
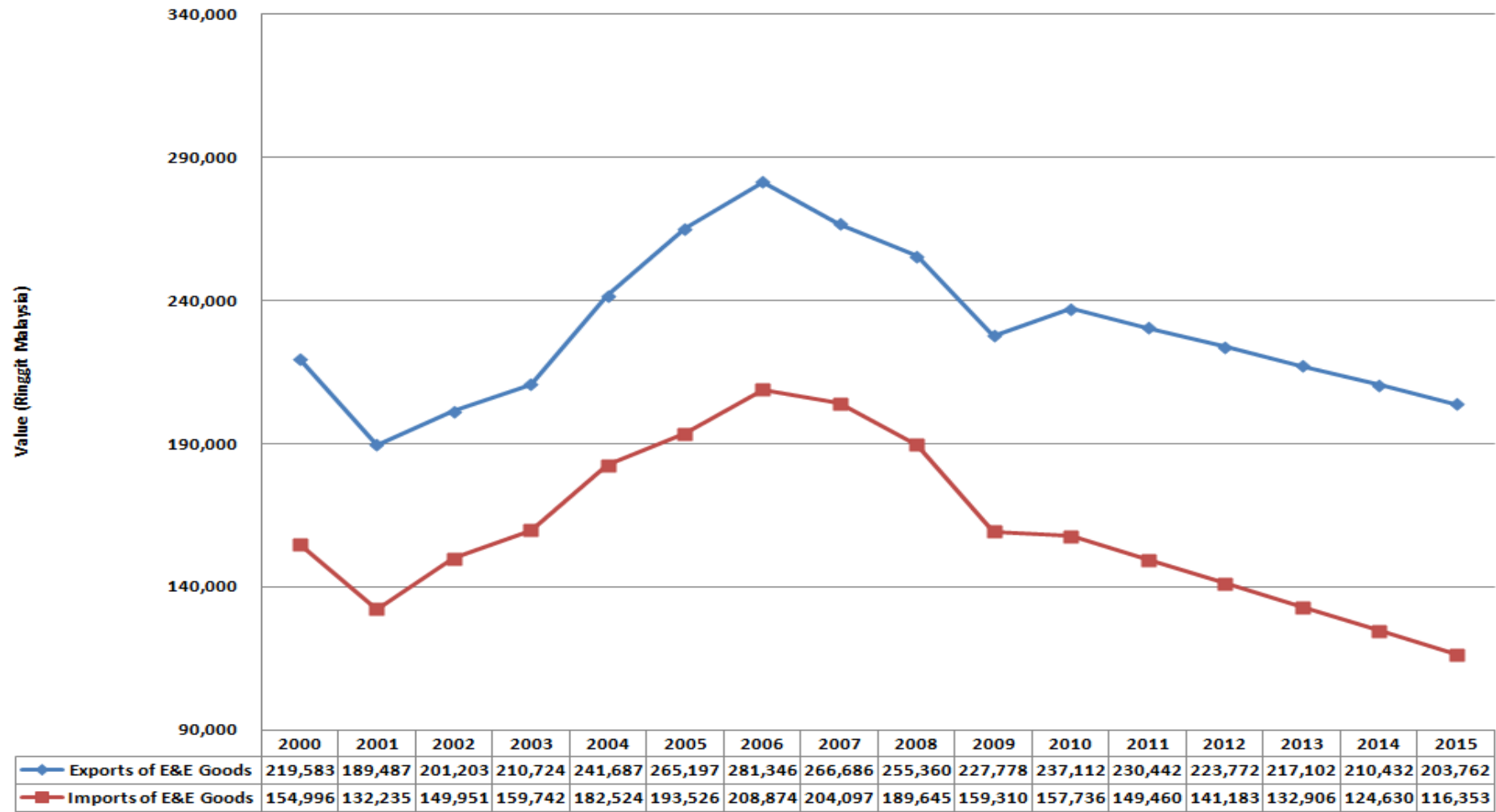
Trend # 1:
Structural changes in ICT Sector

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6.9% Value of ICT Manufacturing RM34.1 billion

Value of ICT Services RM31.8 billion **8.4%**

Share of ICT

Services to GDP

← Year 2000

Year 2010 →

Share of ICT

Manufacturing to GDP

6.7% Value of ICT Services RM11.8 billion

Value of ICT Manufacturing RM31.6 billion **4.1%**

Trend # 2:
ICT Trade grew during industrial era , now declining

Exports and Imports of Electrical and Electronics Goods: 2000-2015
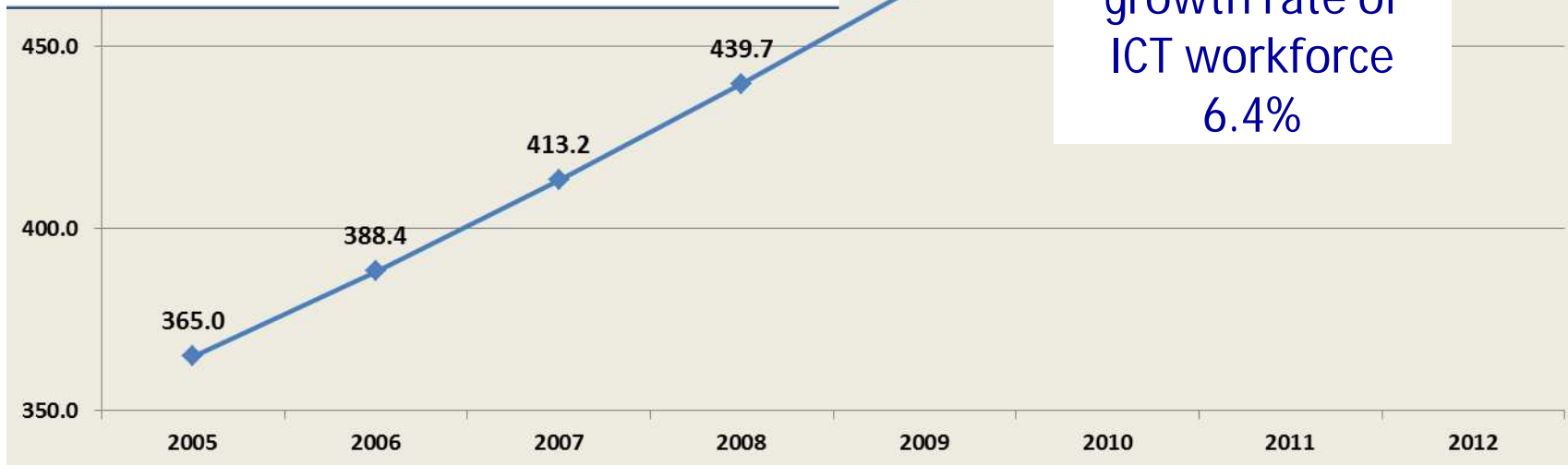*Ringgit Malaysia (million)*

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Exports of E&E Goods	219,583	189,487	201,203	210,724	241,687	265,197	281,346	266,686	255,360	227,778	237,112	230,442	223,772	217,102	210,432	203,762
Imports of E&E Goods	154,996	132,235	149,951	159,742	182,524	193,526	208,874	204,097	189,645	159,310	157,736	149,460	141,183	132,906	124,630	116,353

Trend # 3:
Share of Computer Professionals are increasing in
the ICT workforce

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Percentage Distribution (%)		
IT Managers	Computer Professionals	Electronics and telecommunication engineers
3.6	50.3	46.1
3.7	52.5	43.8
3.9	53.6	42.5
4.1	54.1	41.8
4.4	54.3	41.3
4.6	54.2	41.1
4.9	54.0	41.1
5.2	53.5	41.3
5.5	52.9	41.6

Source: PIKOM estimates from MLFS unpublished records

Average annual growth rate of ICT workforce 6.4%

365.0 (2005)
388.4 (2006)
413.2 (2007)
439.7 (2008)
467.8 (2009)
497.7 (2010)
529.6 (2011)
563.5 (2012)

Trend # 4:
3 out of 4 ICT Graduates employed in ICT User Industries

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	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number Employed in ICT Sector	56,049	56,220	58,208	62,010	67,629	75,062	84,311	95,375	108,255
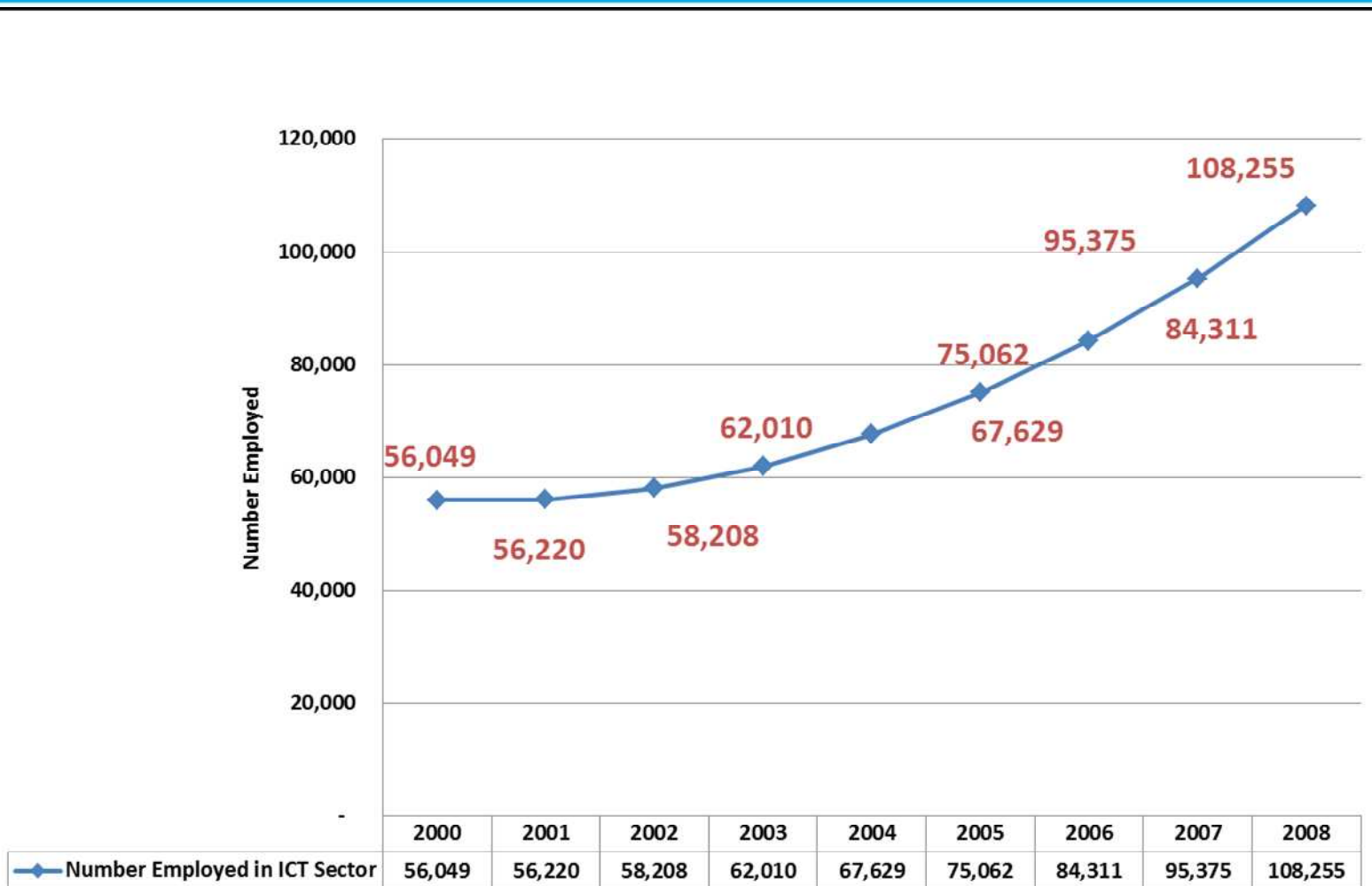
Trend # 5:
Professional workforce at 13% poised to expand

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Population of Malaysia 28.6 million

| Non-working age: 14 years and lower (32.2%) | Working age population: (15-64 years) (63.4%) | Non-working age 65 years and above (4.4%) |

Labor Force — **Outside Labor Force**

Employed — Labor Force Participation Rate: 63.2% — **Unemployed**

Unemployed Rate: 3.2%

Highest Certificate Attained

PMR/SRP/LCE : 13.8%
SPM/MCE... : 34.9%
SSTPM/HSC... : 3.1%
Certificate : 2.3%
Diploma : 7.1%
Degree : 7.4%
No cert / na : 31.6%

Occupation Status of Employed

Legislators, senior officials & managers	: 7.3%
Professionals	: 5.7%
Technicians & associate professionals	: 13.3%
Clerical workers	: 9.8%
Service, shop, market sales workers	: 6.2%
Skilled agriculture & fishery workers	: 12.9%
Craft and related trade workers	: 10.8%
Plant and machine operator & assemblers	: 12.8%
Elementary occupations	: 11.4%

Reason for not seeking work

Schooling	: 37.8%
Housework	: 49.0%
Further studies	: 1.5%
Disabled	: 1.8%
Not interested	: 0.6%
Retired	: 5.3%
Others	: 4.1%

Gender breakdown:
More than **70%** are women

Trend # 6:
New ICT Products are emerging in line with IDE

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	Device	Media & Processing	Storage	Distribution
ANALOGUE ERA				
DIGITAL ERA				
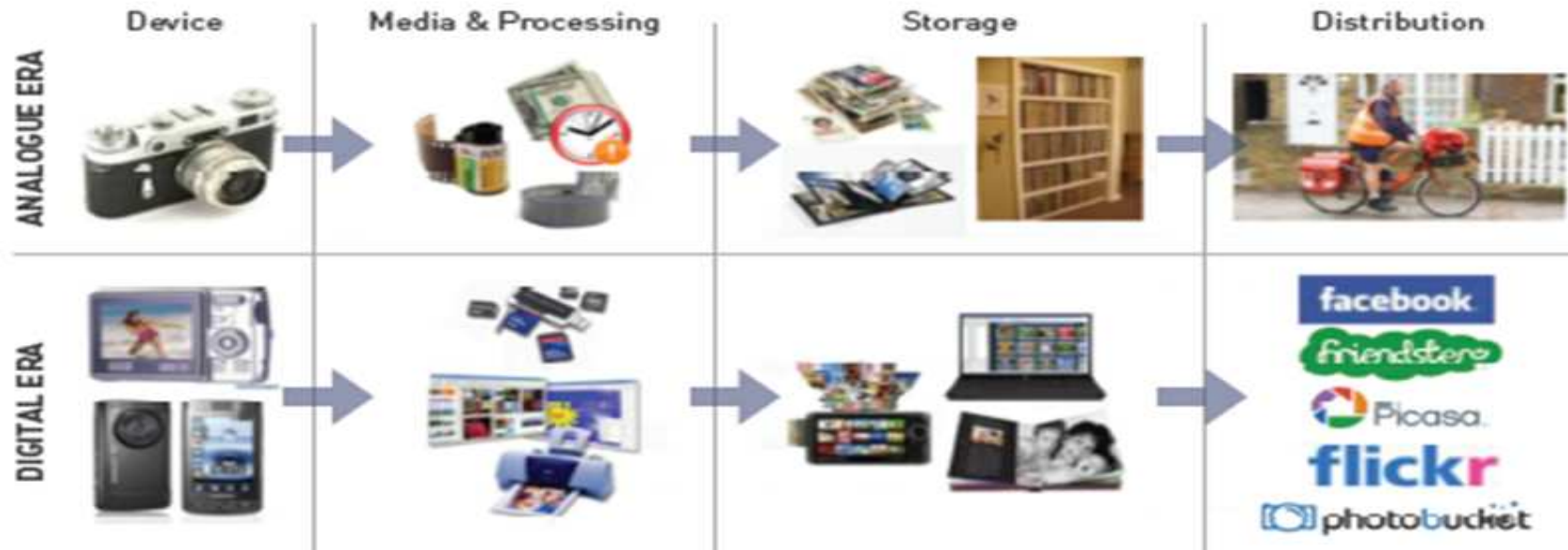
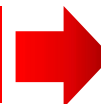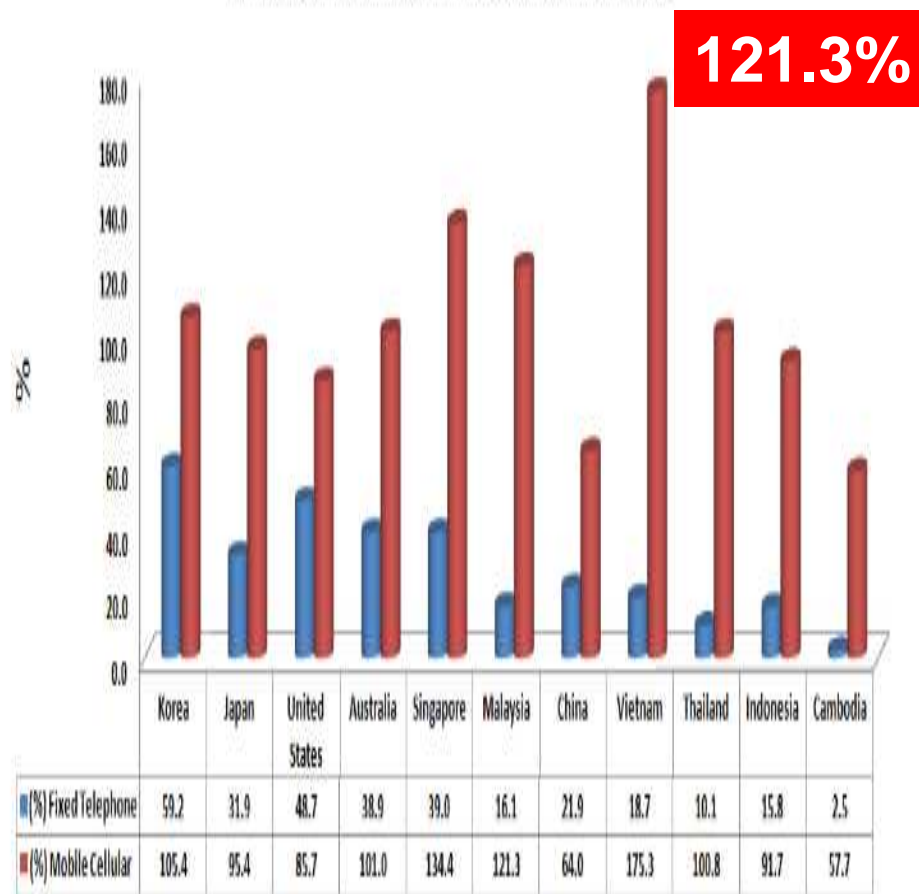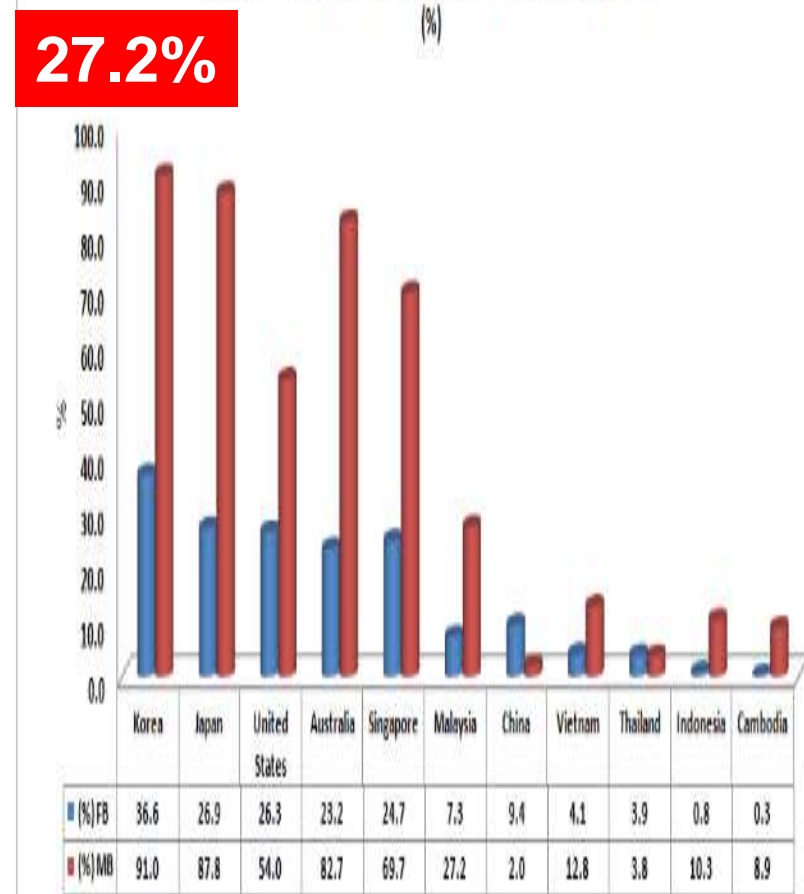| Digital contents can be created or captured or manipulated in various devices	Digital processes requiring shorter frame of time, cost effective and ease handling	Digital storage requires less physical storage, ease of storage and retrieval and longer shelf-life	Digital distribution easily done, cost effective, globally sharable and targeted mass

Fixed Telephone and Cellular Phone Subscriptions per 100 Inhabitants in 2010

	Korea	Japan	United States	Australia	Singapore	Malaysia	China	Vietnam	Thailand	Indonesia	Cambodia
(%) Fixed Telephone	59.2	31.9	48.7	38.9	39.0	16.1	21.9	18.7	10.1	15.8	2.5
(%) Mobile Cellular	105.4	95.4	85.7	101.0	134.4	121.3	64.0	175.3	100.8	91.7	57.7

121.3% ➡ **27.2%**

Fixed Broadband and Mobile Broadband Subscriptions per 100 Inhabitants (%)

	Korea	Japan	United States	Australia	Singapore	Malaysia	China	Vietnam	Thailand	Indonesia	Cambodia
(%) FB	36.6	26.9	26.3	23.2	24.7	7.3	9.4	4.1	3.9	0.8	0.3
(%) MB	91.0	87.8	54.0	82.7	69.7	27.2	2.0	12.8	3.8	10.3	8.9

Malaysian Internet users consume more media as a result of access to digital media[1]

Media time

Minutes per day[2]

	Without PC	With PC	Without home access	With home access	Mobile Internet
	239	313	441	495	558
Digital media	38	79	231	296	337
Mobile voice	17	16	19	22	24
Traditional	184	217	191	177	197
	Non-Internet users		**Internet users**		

+133%

14 million
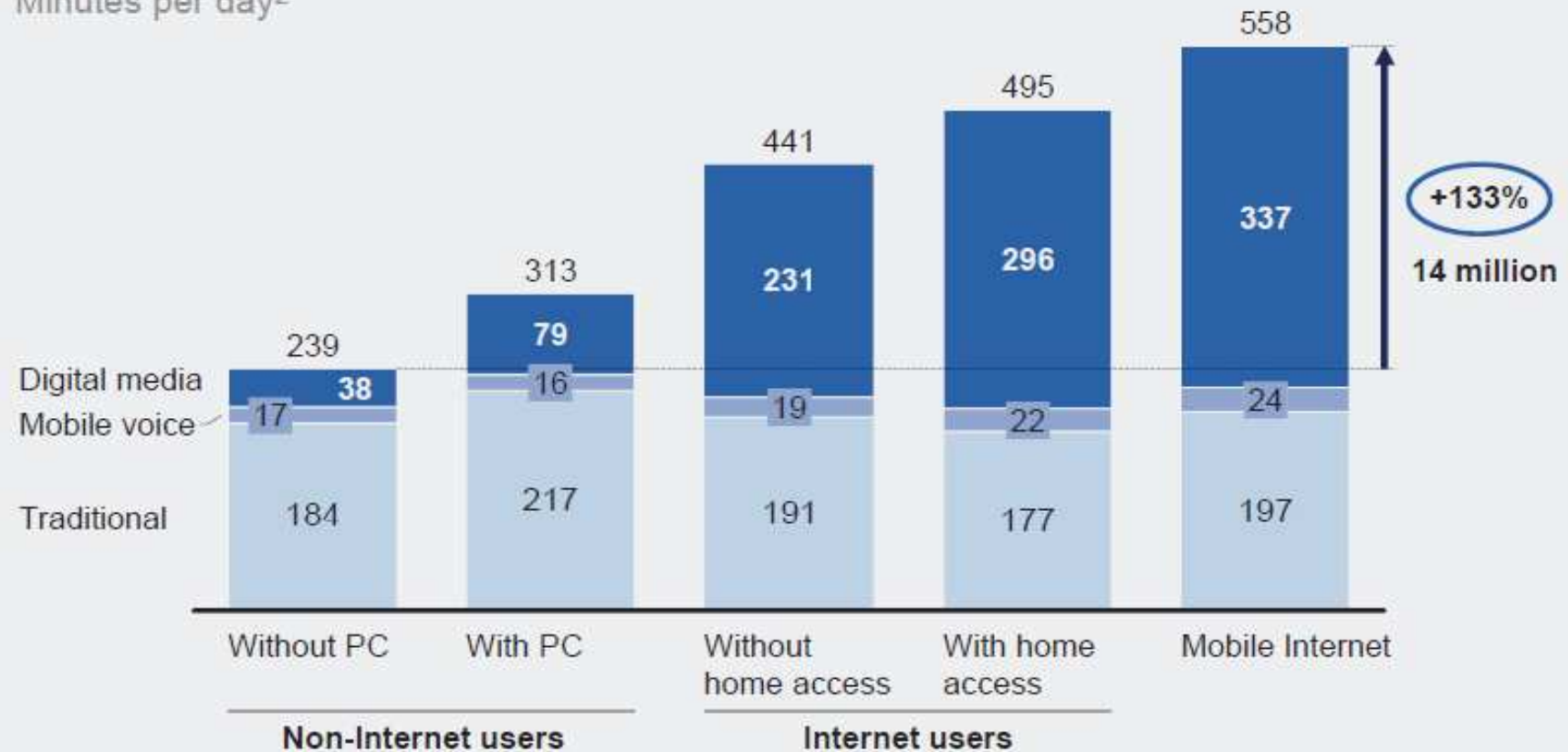
NOTE: Numbers may not sum due to rounding
1 Digital media consumption includes PC, DVD/CD, mobile, and so on; traditional includes print, TV, landline radio.
2 Overlap in time spent can occur in situations when consumers use two media at the same time.

Exhibit 69

Filing taxes is the most popular e-government service in Malaysia

% of respondents using each e-government online service in the last year.
Sample size for Malaysia = 311

Service	%
Filing taxes	66
Accessing other information about government	62
Contacting government officials	39
Researching official statistics or reports	37
Registering for official government documents	32
Logging civil complaints	32
Registering to vote	26
Voter registration	25
Accessing health services	15
None of the above	5
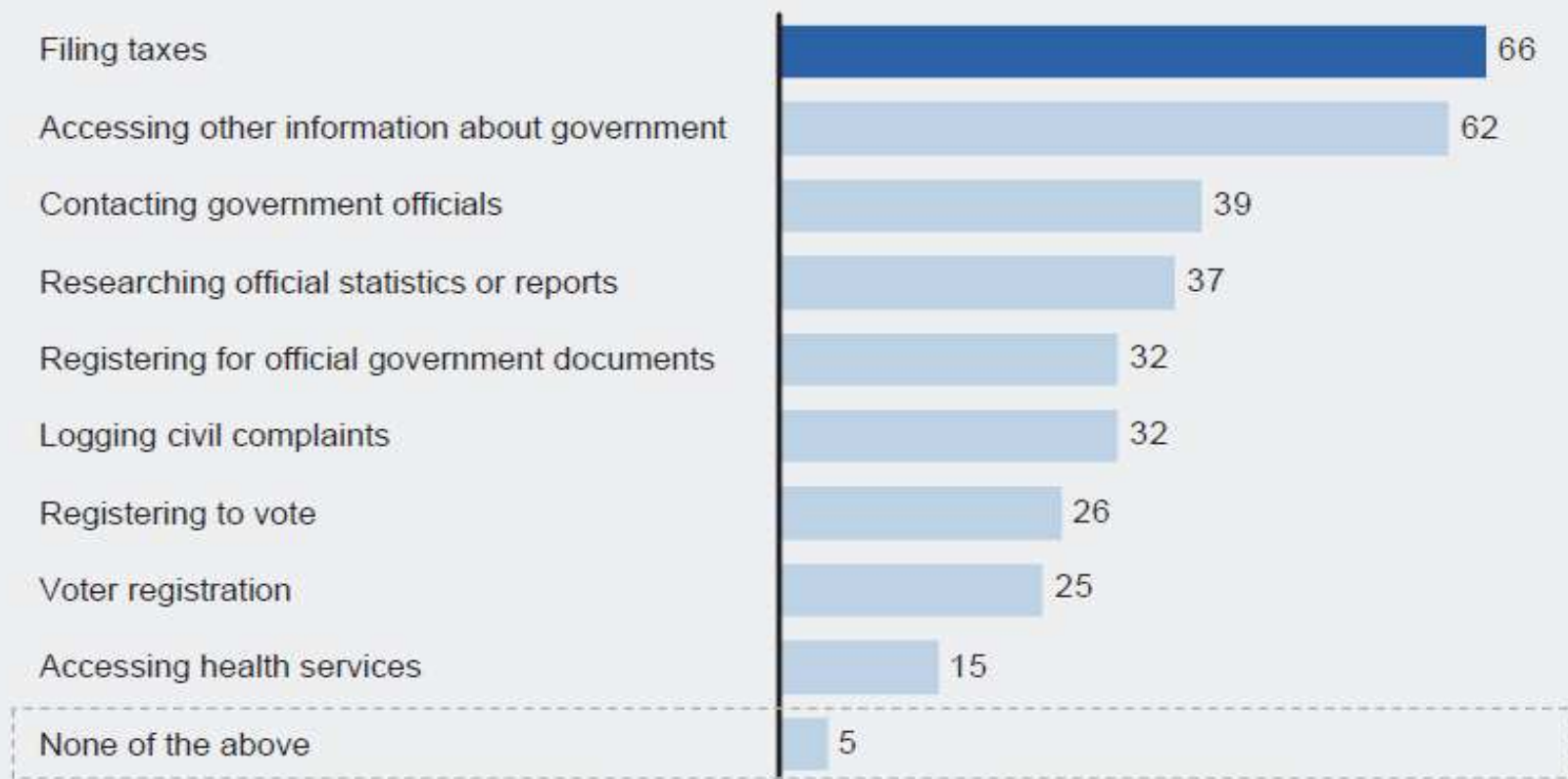
SOURCE: 2011 McKinsey survey of 311 SMEs in Malaysia; McKinsey analysis

Trend # 10:
R&D micro-electronics sector poised to introduce new ICT products and services in the market

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Nanotechnology

MEMS Technology

Semantic Technology

Convergence : 4G
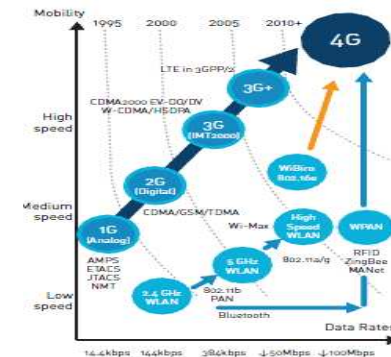
Grid Computing

Wireless Technology
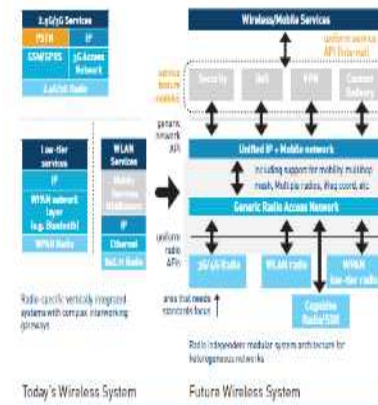
Biotechnology

ICT Road Map

Cyber security

Cyber Laws
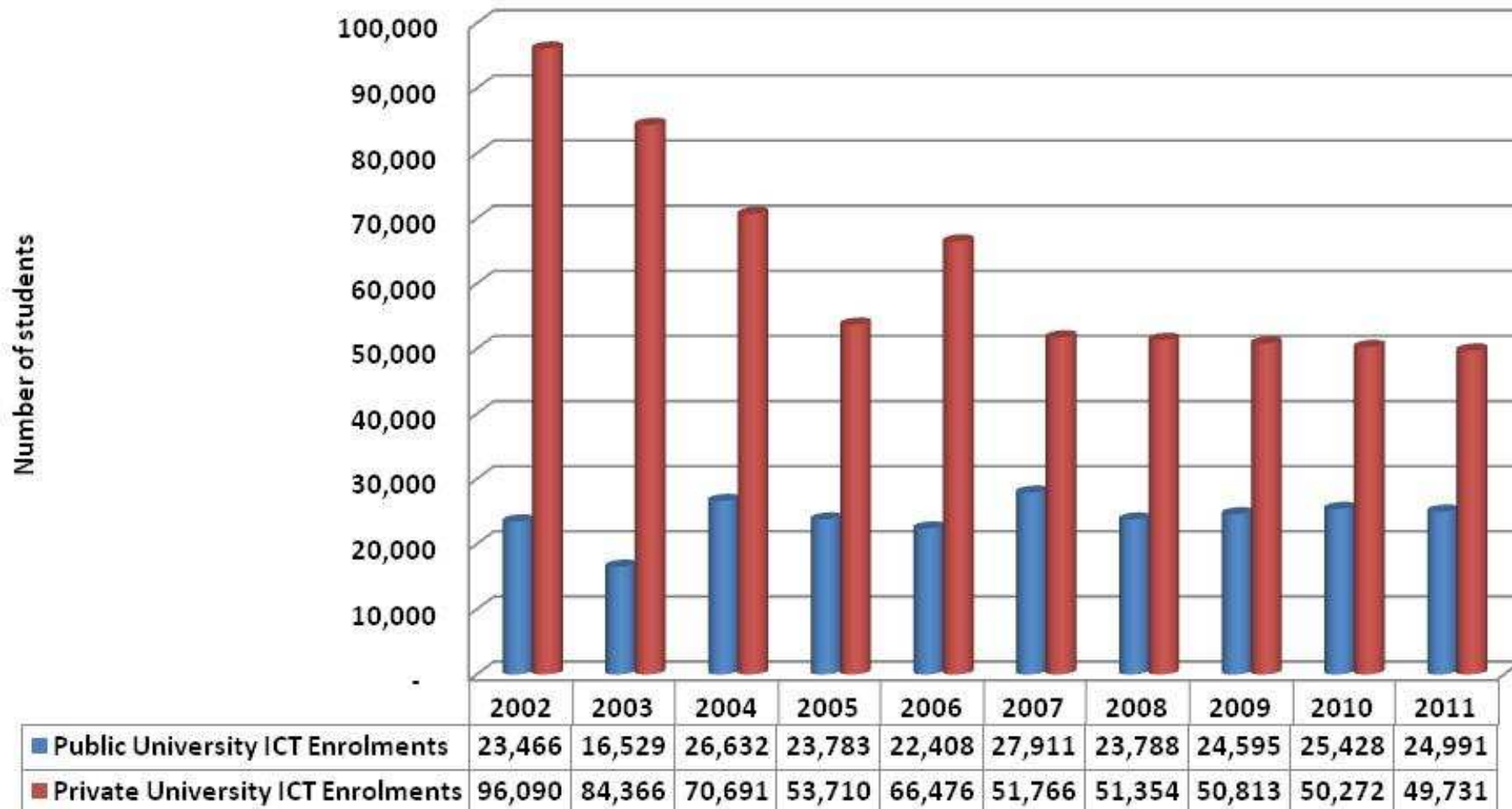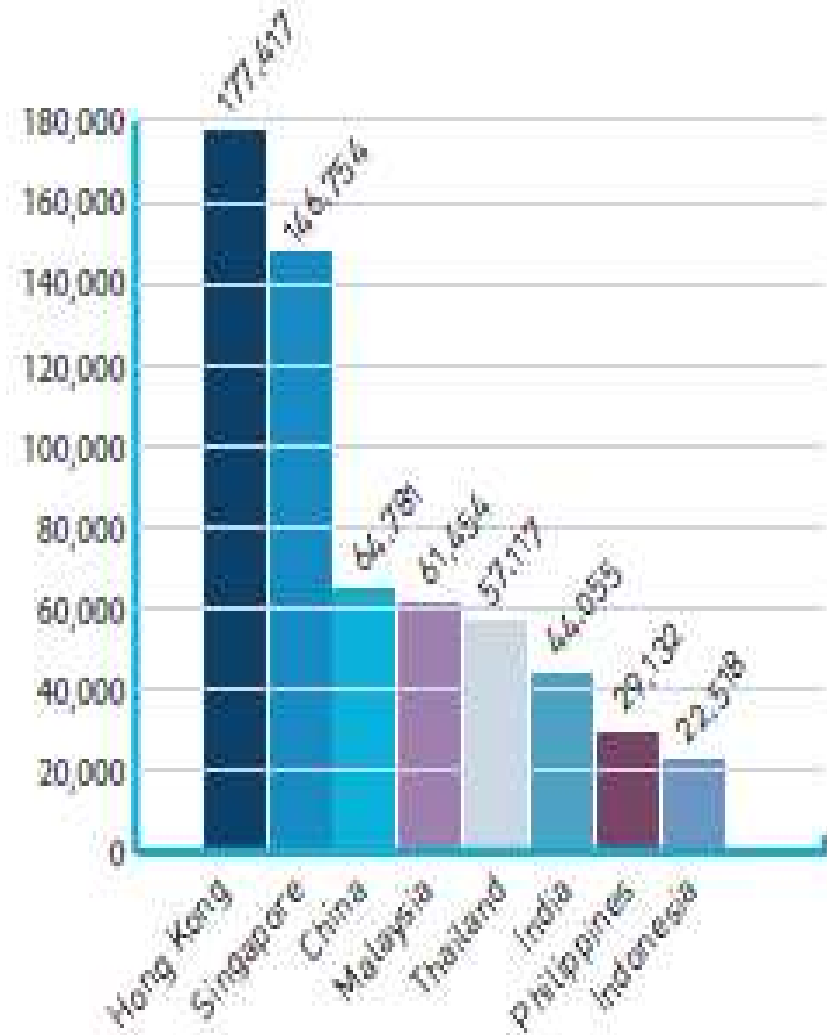
Open Source

ICT Enrolments in Public and Private Institutes of Higher Learning: 2000-2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Public University ICT Enrolments	23,466	16,529	26,632	23,783	22,408	27,911	23,788	24,595	25,428	24,991
Private University ICT Enrolments	96,090	84,366	70,691	53,710	66,476	51,766	51,354	50,813	50,272	49,731

Key Challenge 3
Highly skewed broadband provision

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Broadband Plan Descriptions	Capacity Quota (GB)	Monthly Fee	RM per GB	Download Speed Kbps	Download Speed Mbps	Cost per Mbps
FIXED BROADBAND						
GM	34.1	133.6	3.9	4365	4.4	30.6
Mean	48.5	145.5	4.6	6308	6.3	38.2
Maximum	120.0	249.0	11.8	20000	20.0	122.5
Minimum	5.0	49.0	2.1	400	0.4	12.5
Range	115.0	200.0	9.7	19600	19.6	110.1
Standard Deviation	36.0	55.8	3.1	4983	5.0	32.9
Coefficient of Variation (CV)	74.2	38.4	66.1	79	79.0	86.1
MOBILE BROADBAND						
GM	4.34	79.44	18.54	1773.89	1.77	44.7
Mean	5.97	88.96	20.88	3169.53	3.17	65.8
Maximum	16	248	60	7200	7.2	225.7
Minimum	0.5	30	6.6	384	0.384	6.7
Range	15.5	218	53.4	6816	6.816	219.0
standard deviation	4.66	47.32	11.02	3048.83	3.05	53.8
coefficient of variation (CV)	78.0	53.2	52.8	96.2	96.2	81.7
MOBILE INTERNET						
GM	2.1	63.2	30.9	2791.7	2.79	20.2
Mean	4.4	73.9	46.4	4309.1	4.31	39.2
Maximum	20.0	198.0	180.0	7200.0	7.2	125.7
Minimum	0.1	18.0	5.0	400.0	0.4	2.5
Range	19.9	180.0	175.1	6800.0	6.8	123.2
standard deviation	5.4	43.9	48.1	3046.5	3.05	44.9
coefficient of variation (CV)	124.0	59.4	103.6	70.7	70.7	114.4

Key Challenge # 4:
Lack global competitive edge in broadband leadership

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Key ICT / E-Commerce Parameters	Year 2000	Year 2010
Strong Political Will	√	√
Government Institutional Support	√	√
Education System / ICT Relevant Courses	√	√
Broadband Infrastructure	✕	√
Paradigm Shift to Cloud Computing	✕	√
Emergence of Social Media for Business	✕	√
Unified Communications / VOIP Technology	✕	√
Tablet Computing replacing PC	✕	√
Web 2.0 Technology	✕	√
M-Commerce / Mobile Banking / Pay Pal Payment	✕	√
Quality / Processes Methodology in Software development (CMMI/PCMM, etc)	✕	√
E-Commerce Killer Applications / Trend Setters (e.g. Air Asia)	✕	√
Critical mass XY technology savvy generation	✕	√

A number of parameters are in place in order for the nation to move up not through infrastructure alone but also through building human capital and harnessing the demands of YZ technology savvy generation

Thank You