



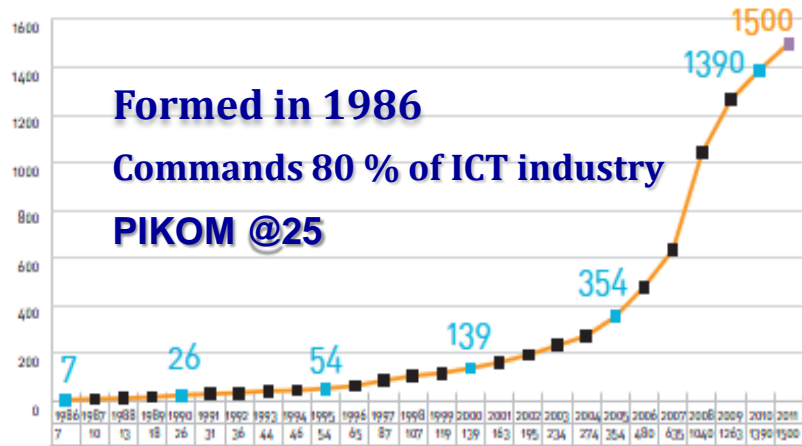
**US-ASEAN Dialogue :
Human Capital Development Challenges**

**Manila,
October 2011**

**Shaifubahrim Saleh
President**

The National ICT Association of Malaysia (PIKOM)

Membership : 1986-2011



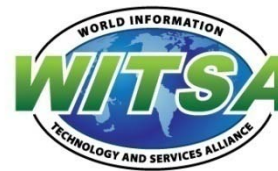
PIKOM Building : 2012



PIKOM Annual Events



International Affiliations



PIKOM@25: Voice of ICT Industry in Malaysia



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)

QUALITY POPULATION

- Research
- Development
- Innovation

- Knowledge worker
- Knowledge Economy
- Knowledge Society
- Innovative Digital Economy

About Malaysia

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 (USD 1,183)

By 2020 GNI per capita



1995 GNI per capita:
RM5406

1995 Household Income:
RM2020



2020 Target:
USD21,834

1980 GNI per capita:
RM1820

1980 Household Income:
RM692

Until mid 90's



10th MP (2011-2015)
USD12,139

Until late 70's

Developed Economy Benchmark:
USD14,818

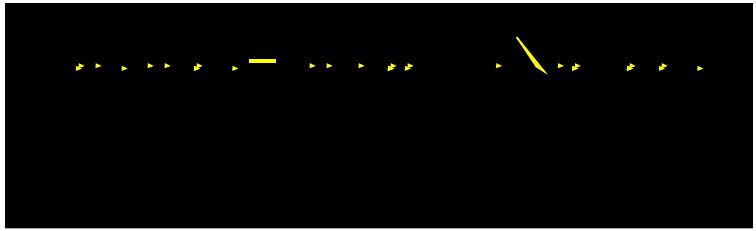


Info-structure (ICT), science, R&D, knowledge capital, innovation skills, XY Generations, entrepreneurship and globalization

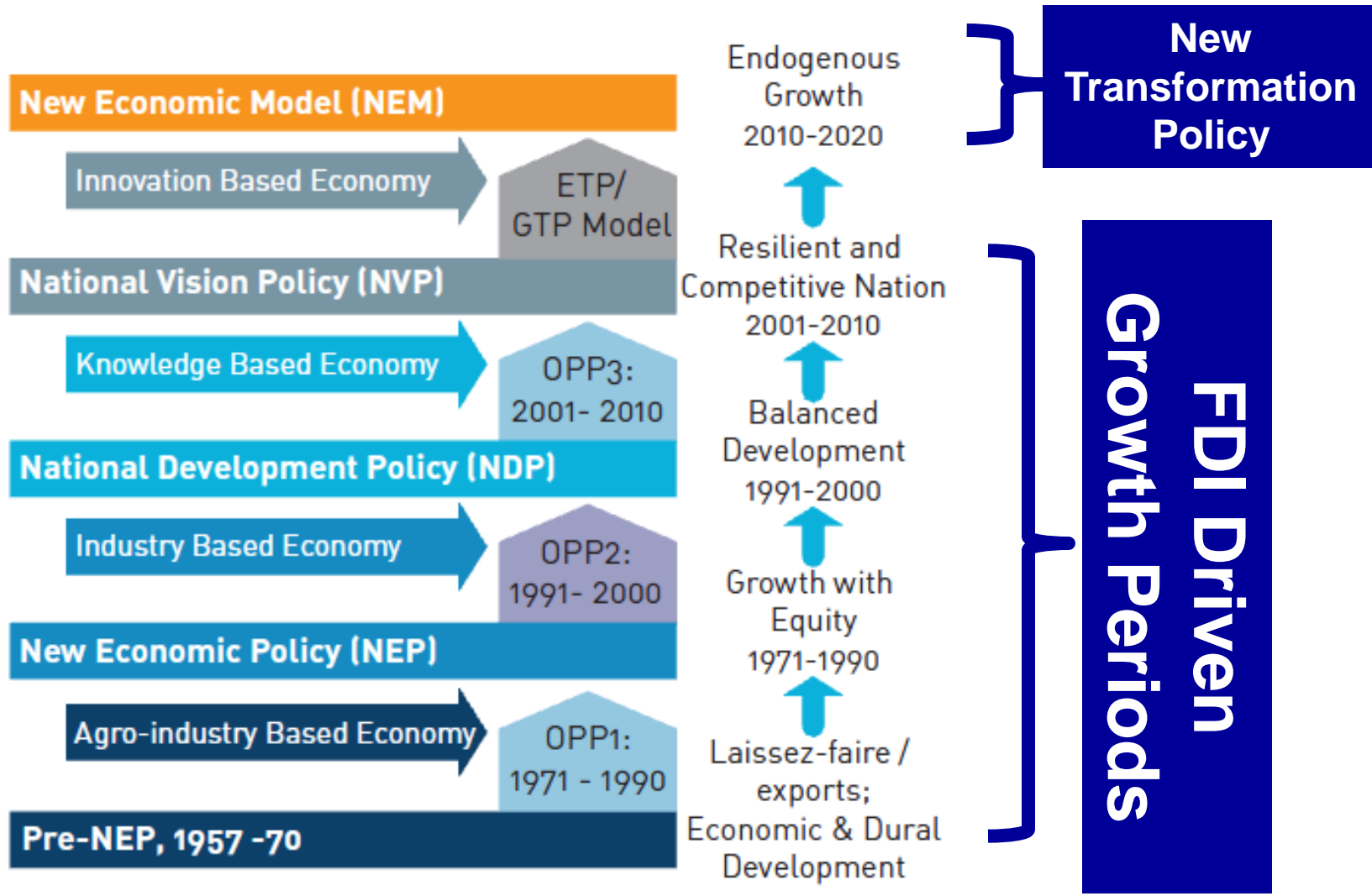


Land, labour and low skills

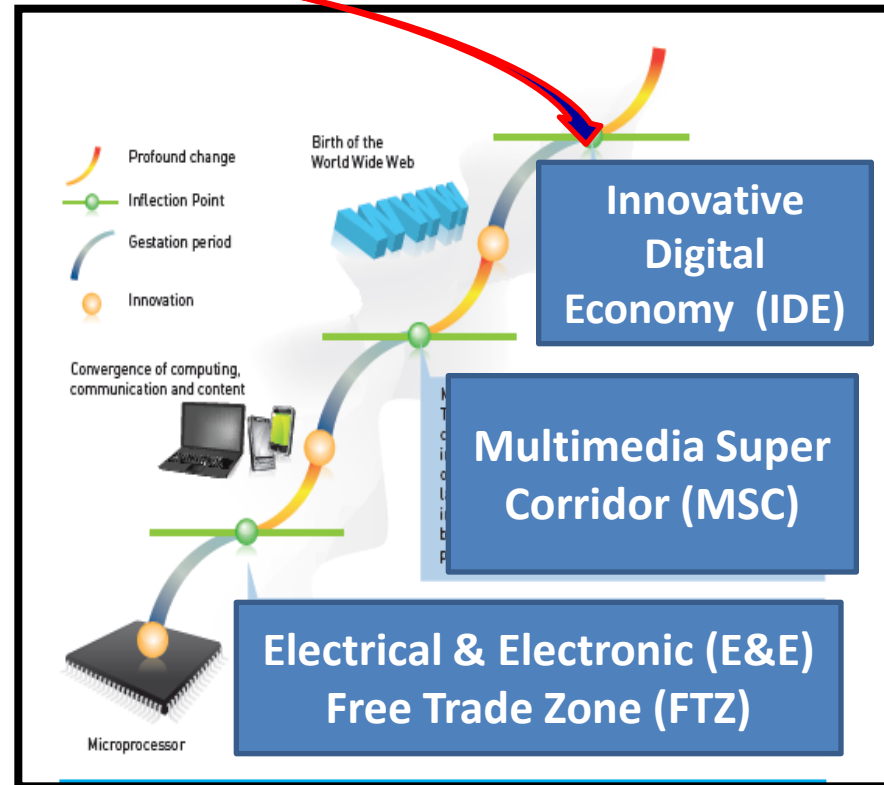
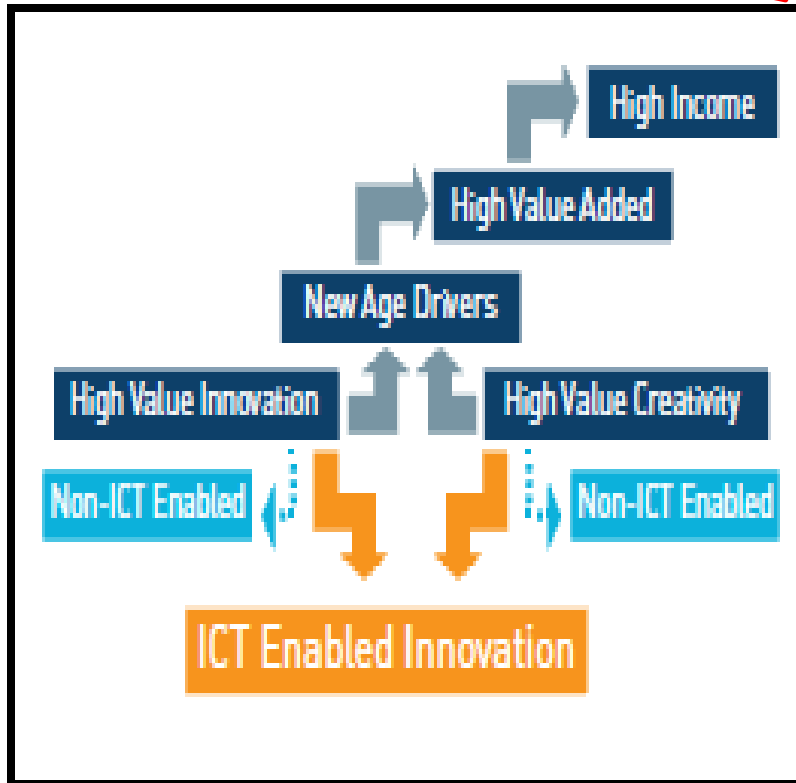
Infrastructure, Capital, Factory, Technical Skills and Semi-skilled Workforce



NEM: Higher Income Nation / Higher Value Adding



Next Economic Thrusts: Endogenous Growth



**PIKOM / Industry:
ICT Enabled Innovation**

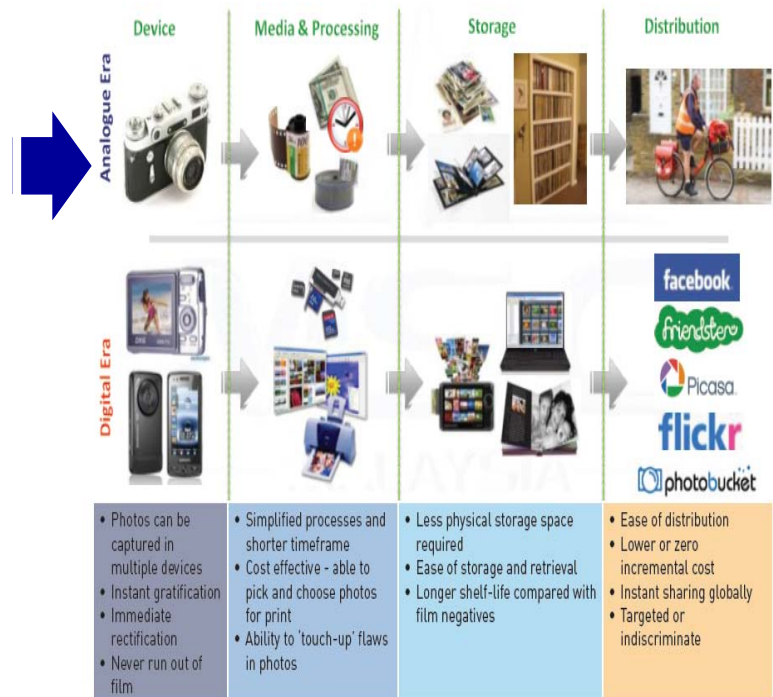
**Government :
IDE as Third Inflexion Point**

Alignment towards High Value Proposition

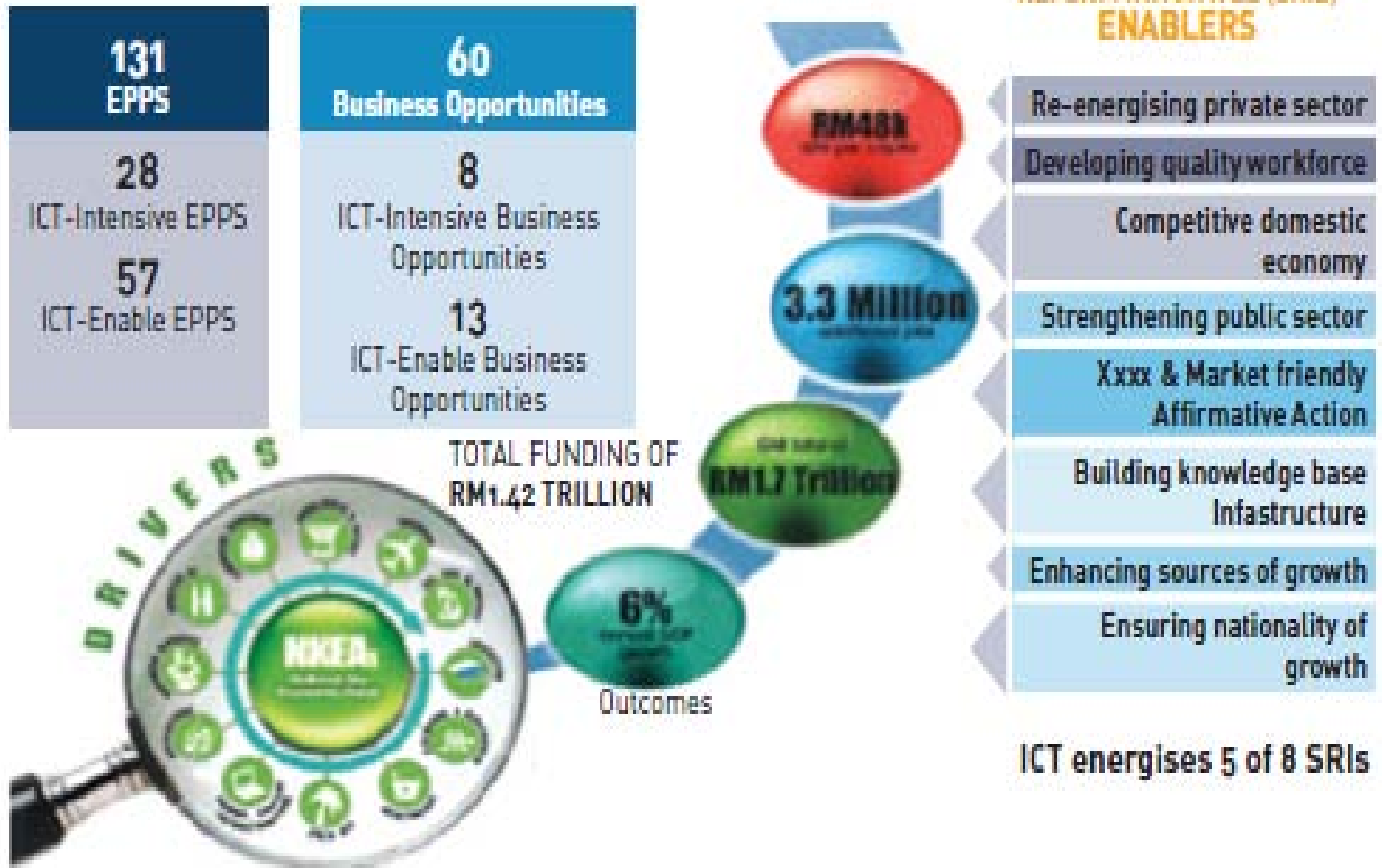
VISION 2020

1Malaysia	GTP	ETP	10 MP
Preservation and enhancement of unity in diversity	Effective delivery of Government services	New Economic Model: A high income, inclusive & sustainable nation	Smooth implementation of government development programme
1 Malaysia	Government Transformation Programme (GTP)	Economic Transformation Programme (ETP)	10th Malaysia Plan
People First, Performance Now	6 National Key Result Areas (NKRAs)	131 Entry Point Projects 60 Business Opportunities 8 Strategic Reform Initiatives (SRIs)	Macroeconomic growth targets & expenditure allocation

Innovative Digital Economy (IDE)



National Transformation Policy Strategy



ICT Plays a Significant Role in ETP

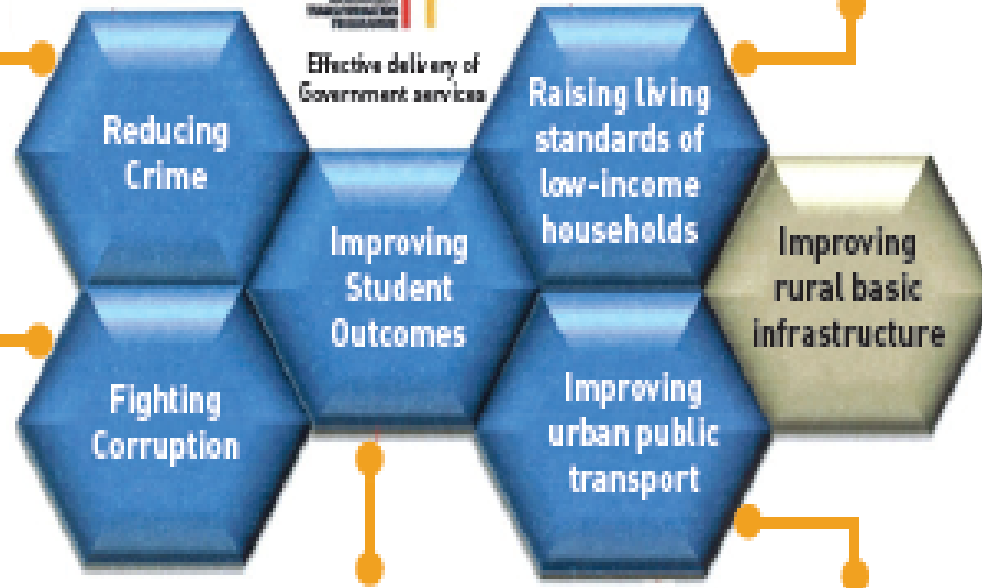
- Integrated dispatch system
- Criminal profiling application integrated with CCTVs
- Online portal with access to and integrated database with public safety agencies



Effective delivery of Government services

- Using ICT applications and tools to increase income e.g. e-PasarTani
- Empower low income household with ICT know-how via telecentres

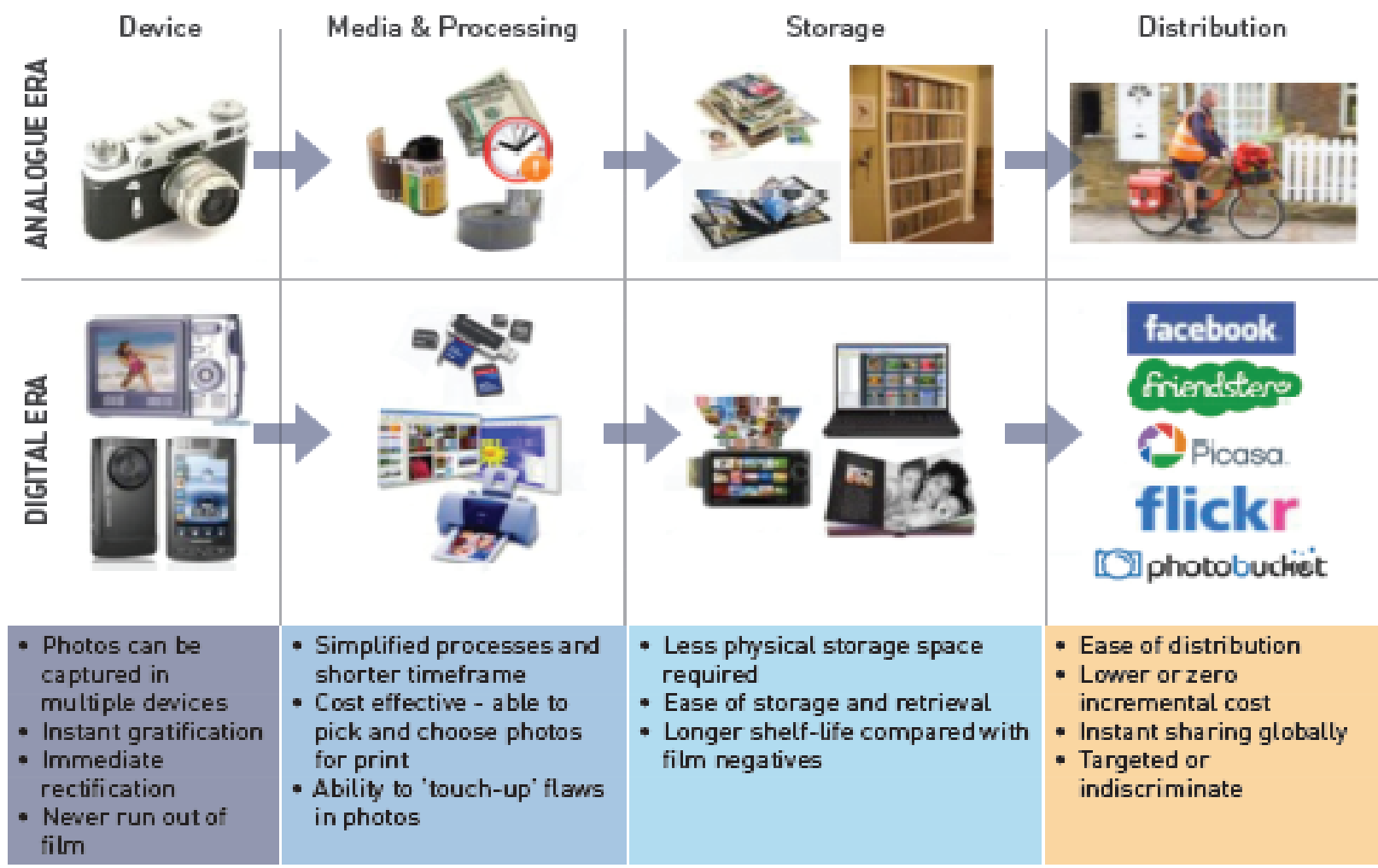
- e-Procurement
- Mounted-cameras on enforcement agencies vehicles



- Digital multimedia content in teaching modules
- Subscription to online research materials and knowledge database

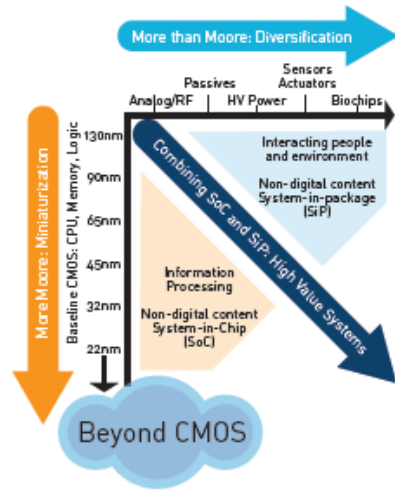
- Integrated public transport information
- GPS, Driver Identification and speed tracker/blocker on buses, cabbies, etc.
- Real-time traffic information

ICT Plays a Significant Role in GTP



ICT Drives the Innovative Digital Economy (IDE)

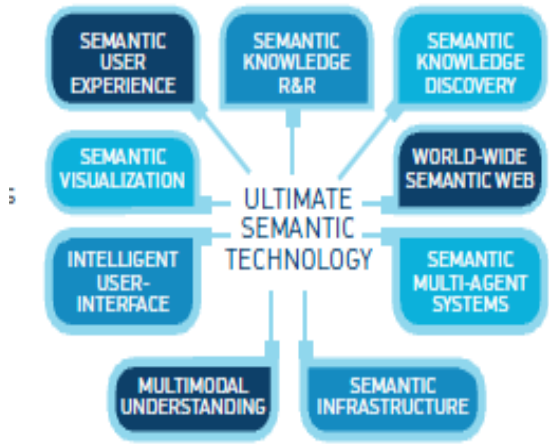
Nanotechnology



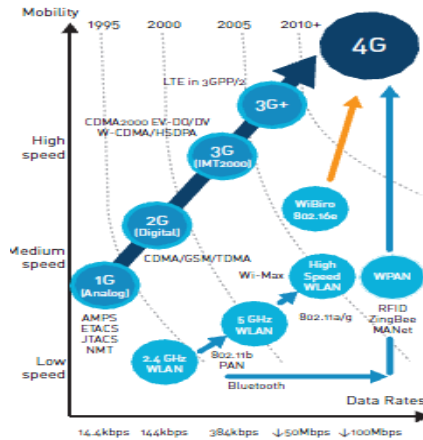
MEMS Technology

Market	Applications
Automotive	<ul style="list-style-type: none"> Airbag systems Vehicle security systems Inertial brake lights Headlight leveling Rollover detection Automatic door locks Active suspension
Biotechnology	<ul style="list-style-type: none"> Diagnostics Drug delivery Drug recovery Implantable devices
Consumer	<ul style="list-style-type: none"> Appliances Sports training devices Computer peripherals Car and personal navigation devices
Industrial	<ul style="list-style-type: none"> Earthquake detection and gas shutoff Machine health Shock and tilt sensing
Military	<ul style="list-style-type: none"> Weaponry Equipment for soldiers Embedded sensors
Communications	<ul style="list-style-type: none"> Fibre-optics network components RF relays, switches and filters Tunable lasers

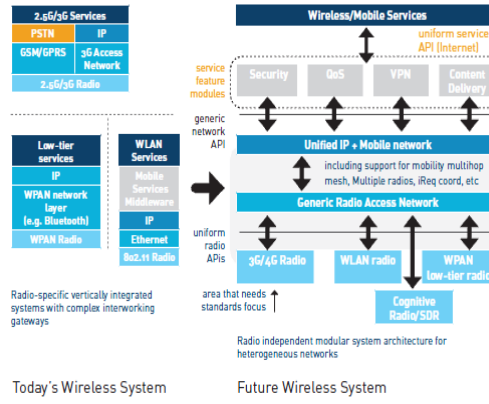
Semantic Technology



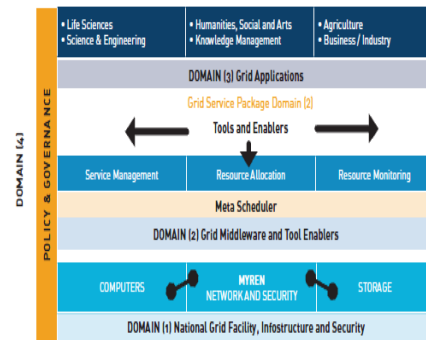
Convergence : 4G



Wireless Technology



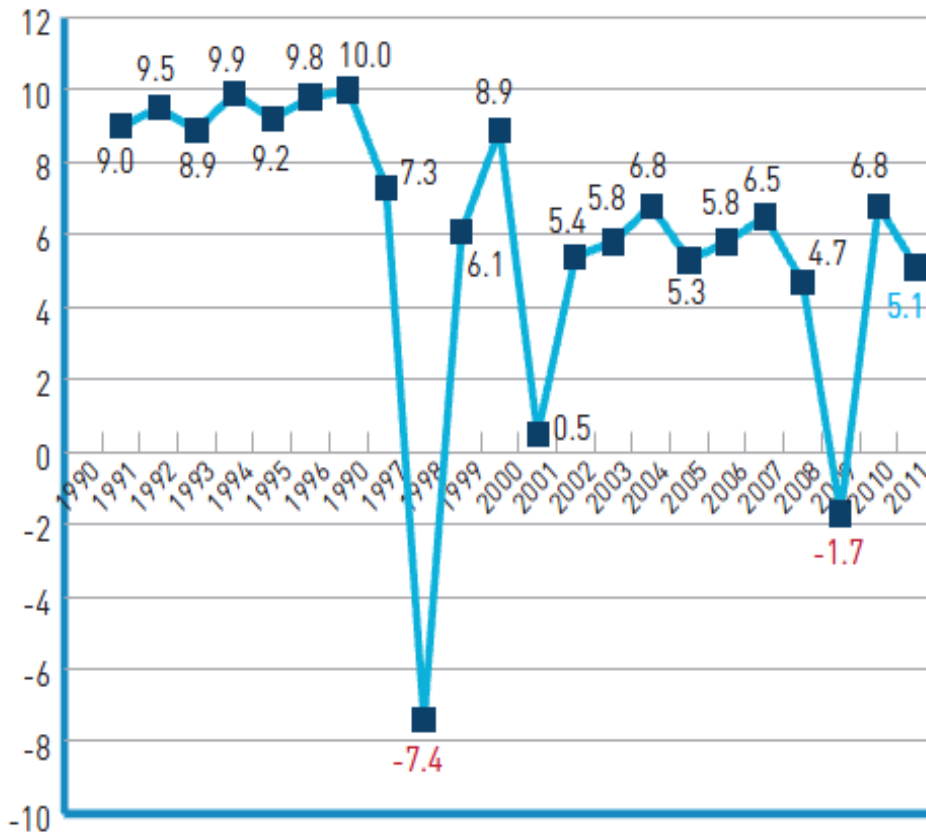
Grid Computing



High value R&D in micro-electronics

Biotechnology

Cyber security



Imperative 1

The AFC and GFC experiences have revealed that the country cannot be solely dependent on exogenous of FDI dependent growth. It has to spur endogenous growth in order to enhance competitive edge and comparative advantage



Pre Asian Financial Crisis 1997: 9.2% p.a.

Pre Global Financial Crisis 2009: 5.6% p.a.

Endogenous growth requires R&D ingrained innovative workforce

Malaysia's GDP Growth (%): 1990-2011

Imperative 2

The overall services sector poised to grow from 57% in 2011 to 60% by 2015;
ICT production / microelectronics share declined within ICT sector, from 74.3% in 2000 to 50% in 2010 ;
But, ICT Services increasing, which structurally moved up from 25.7% in 2000 to 50% in 2010



Services sector requires highly skilled knowledge workers

Year	Share of ICT Value Added to GDP (%)	Share of ICT Production to GDP (%)	Share of ICT Services to GDP (%)	Share of ICT Services to GDP Services (%)	Share of ICT Production to Manufacturing (%)	Share of Computer Services to GDP (%)	Share of Telecommunications to GDP (%)
2000	12.9	6.9	3.3	6.7	31.1	0.2	3.1
2001	11.9	8.0	3.9	7.5	27.1	0.4	3.5
2002	11.5	7.6	3.9	7.5	26.1	0.5	3.4
2003	11.9	8.0	3.9	7.9	26.7	0.5	3.4
2004	11.8	7.9	3.8	8.1	26.0	0.5	3.4
2005	9.6	5.7	3.9	8.3	19.4	0.6	3.3
2006	9.0	5.2	3.9	8.4	17.5	0.6	3.2
2007	9.0	5.2	3.8	8.1	18.8	0.7	3.1
2008	8.0	4.3	3.6	7.9	16.6	0.7	2.9
2009	9.0	4.7	4.3	8.3	18.4	0.9	3.3
2010	8.3	4.1	4.1	8.4	15.8	0.9	3.3

Table 2: Contribution of the ICT Sector to Nominal GDP, 2000-2010 Manufacturing Services

Source: Department of Statistics, 2000; Orbicom 2011; PIKOM 2011

Share of ICT Components to GDP Growth (%)

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Innovative Digital Economy (IDE)



Imperative 3
GTP, ETP and IDE as well as Political Transformation Programme (PTP) all require high skilled ICT Service workers to realize its successes



Institutes of Higher Learning and industry need collaboration to produce industry ready workforce

National Transformation Policy Strategy

Productivity (Output to Input Ratio) of the ICT Sector by Sub-Sectors, 2000-2007

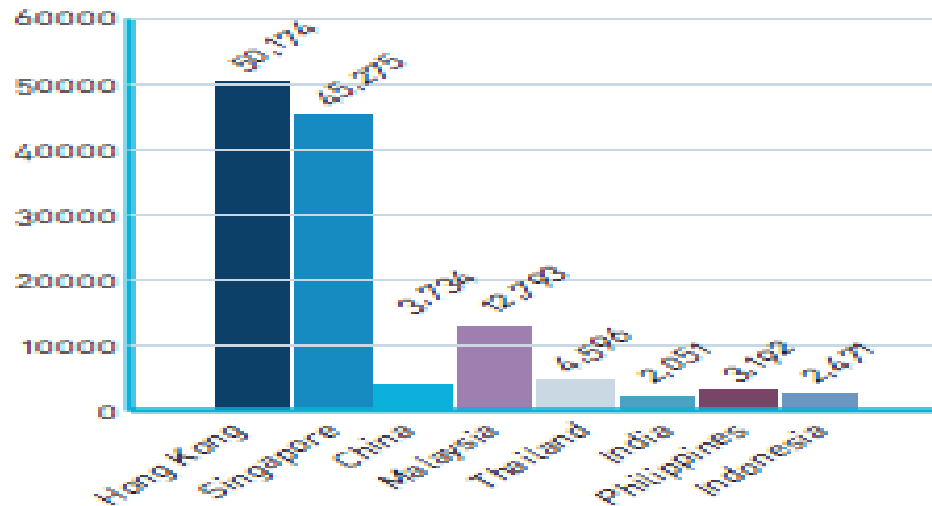
Year	ICT Manufacturing Sub-Sector	ICT Computer Services	ICT Telecommunication Services	ICT Services Sub-Sector	ICT Overall Sector
	Productivity = Output value per unit input				
2000	1.19	1.63	2.64	2.40	1.26
2001	1.18	1.60	2.38	2.19	1.26
2002	1.18	1.41	2.41	2.06	1.26
2003	1.17	1.50	2.36	2.08	1.24
2004	1.17	1.64	2.00	1.91	1.24
2005	1.16	1.63	1.98	1.90	1.24
2006	1.16	1.58	2.00	1.88	1.24
2007	1.18	1.60	1.94	1.84	1.27

Imperative 4

**Towards addressing the weakening productivity in micro-electronics sector
Government is embarking high value adding R& D initiatives in the emerging microelectronics technology**



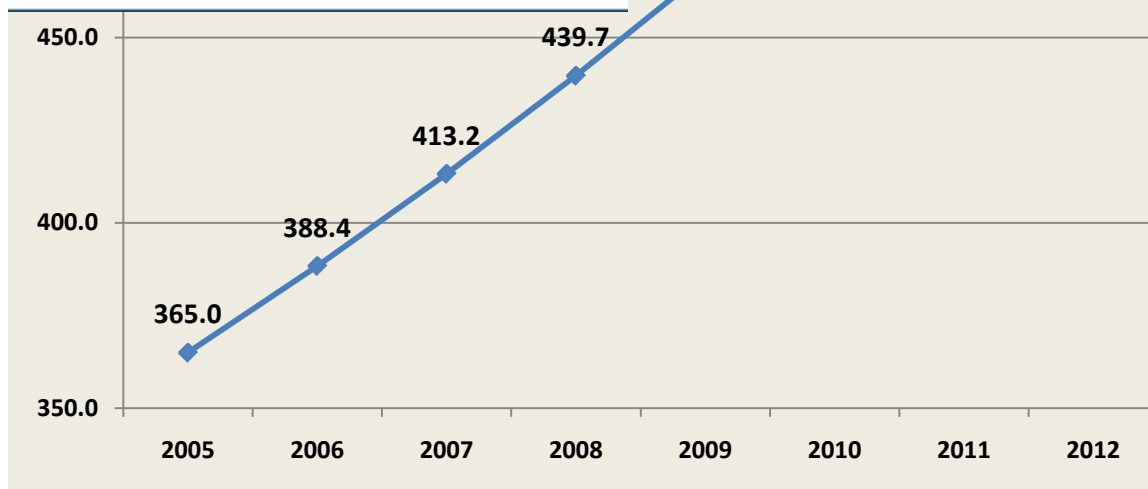
Institutes of Higher Learning need to produce highly qualified R&D engineers in Nanotechnology, MEMS, Semantic, 4G Convergence, wireless, grid computing, biotechnology



Low Productivity in micro-electronics

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



ICT Workforce Growth

Imperative 5

Average annual growth rate of ICT workforce
6.4%

Share of computer professionals and ICT managerial are increasing



Demand for highly qualified ICT skills continually increasing

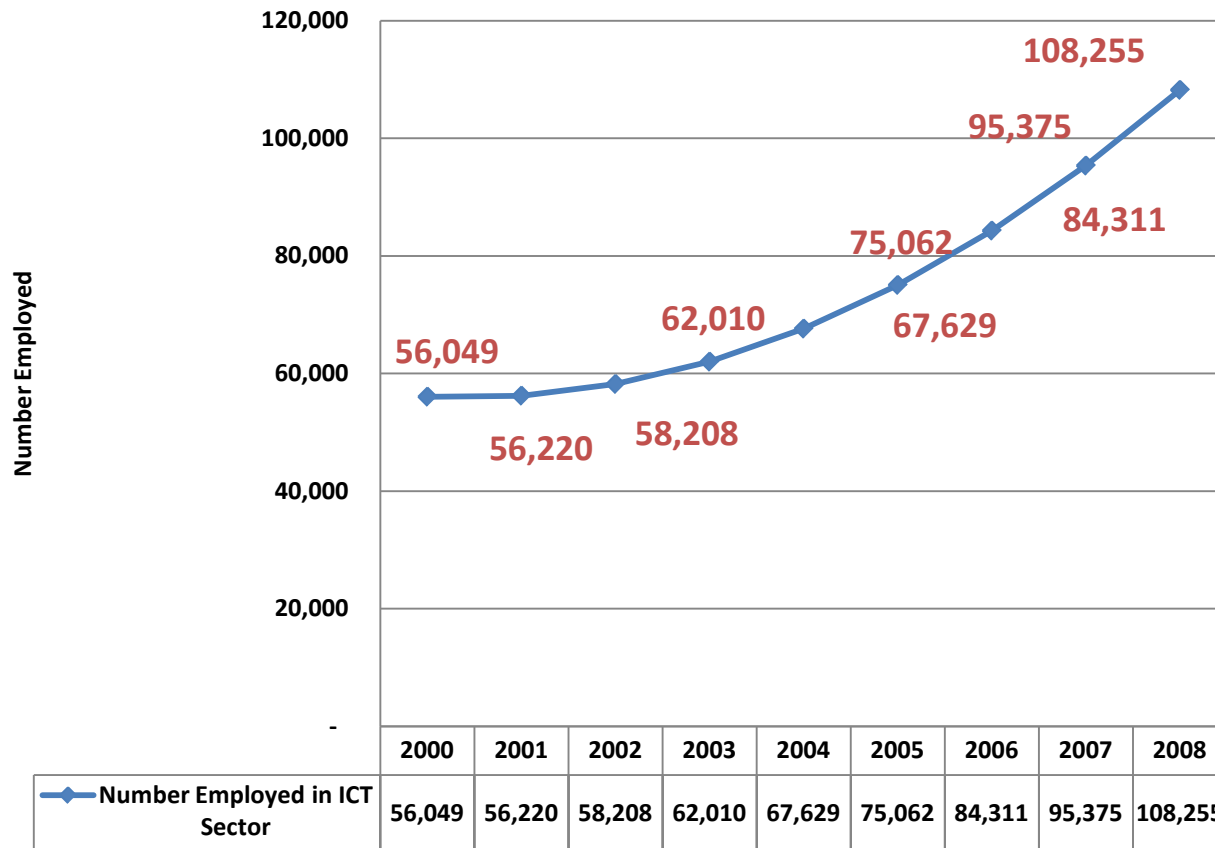
Imperative 6

1 out of 4 ICT
qualified
employees are in
the ICT sector

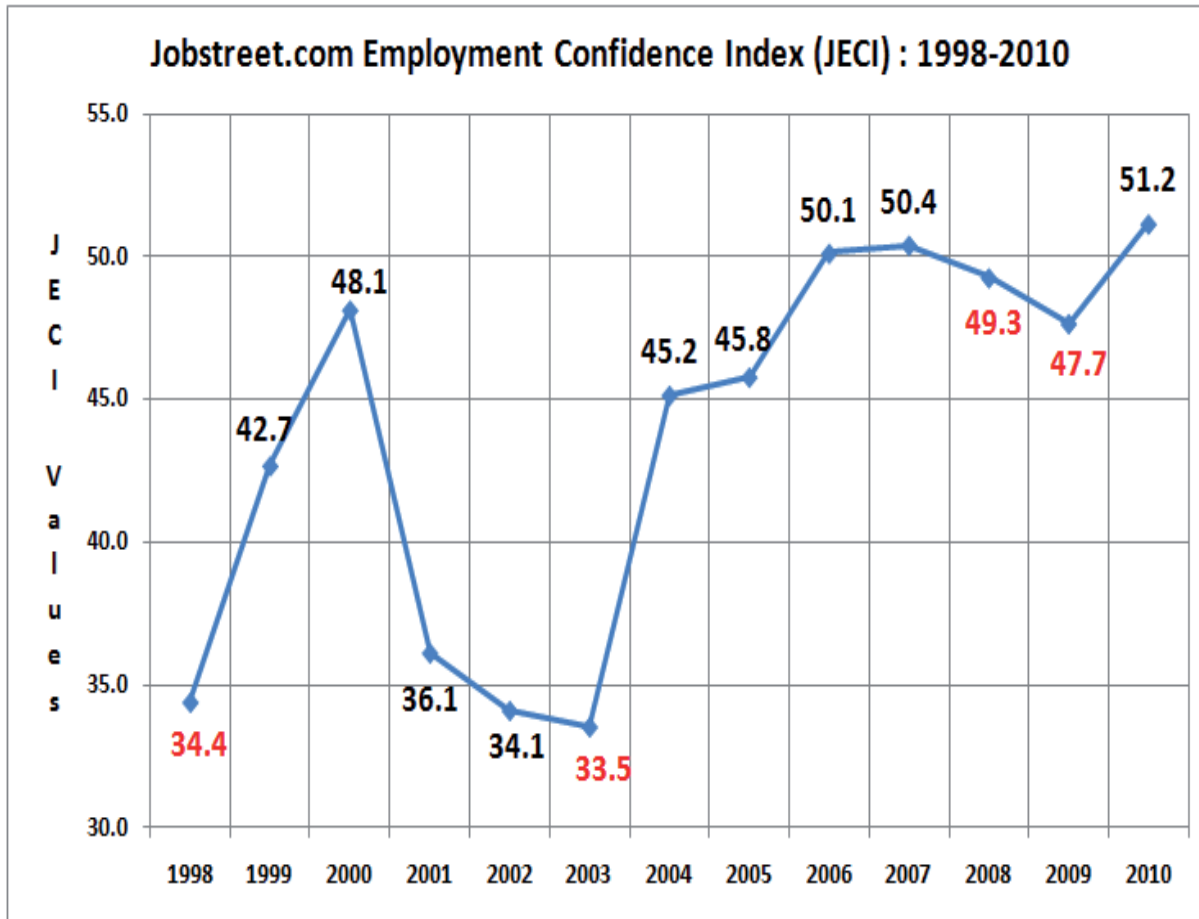
3 out of 4 are in
the ICT user
industries



Demand for ICT
high skills in the
user industries
are also rising



Employment in ICT Sector



Imperative 7

Despite economic slowdown, job confidence among job seekers always remained high



That is, demand for highly skilled workers will be continue to remain high

Job confidence among potential job seekers

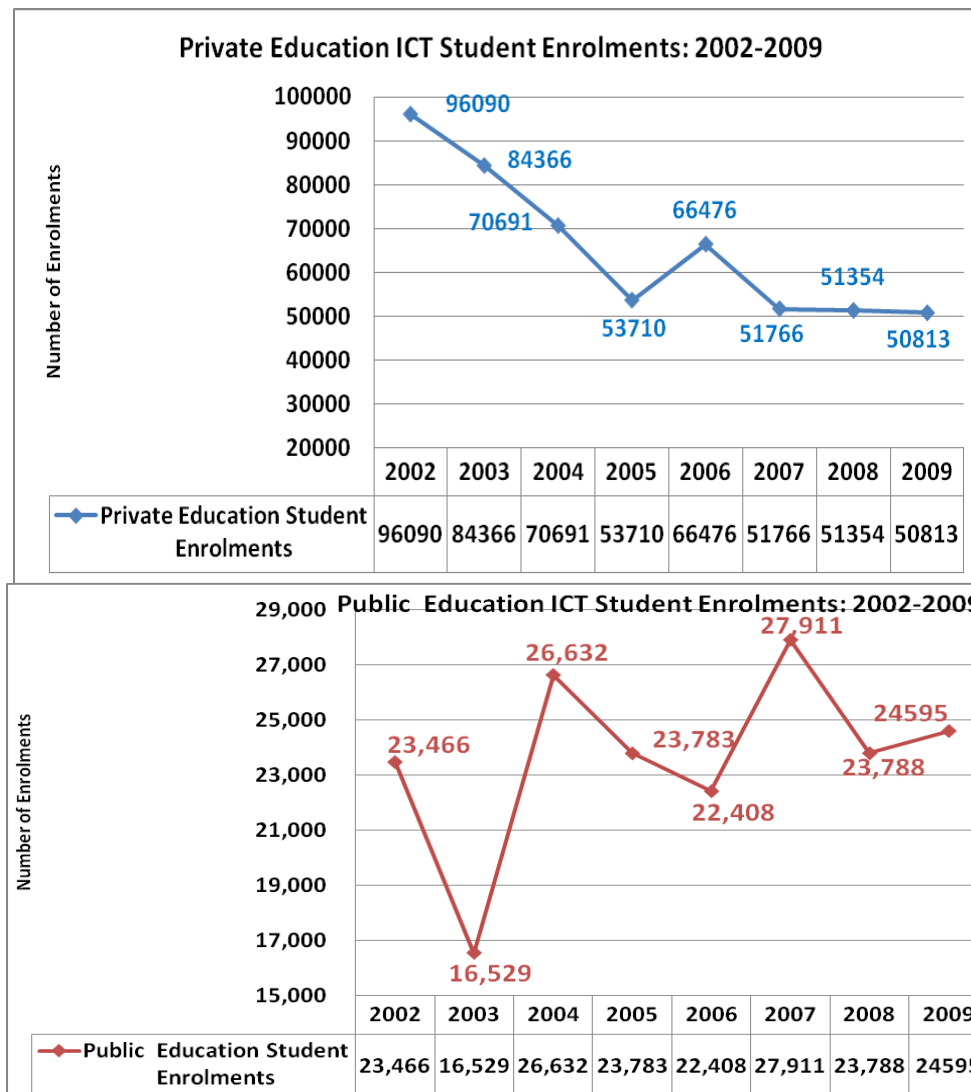
Challenge 1

ICT students enrolment in private sector almost halved from 96,000 in 2002 to 50,813

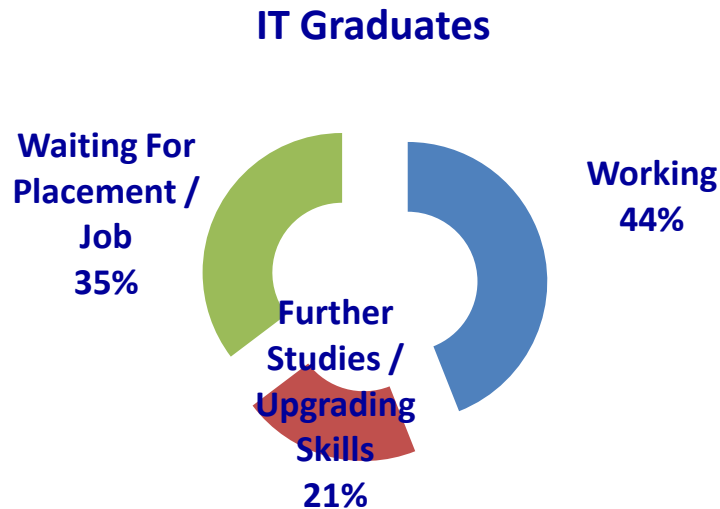
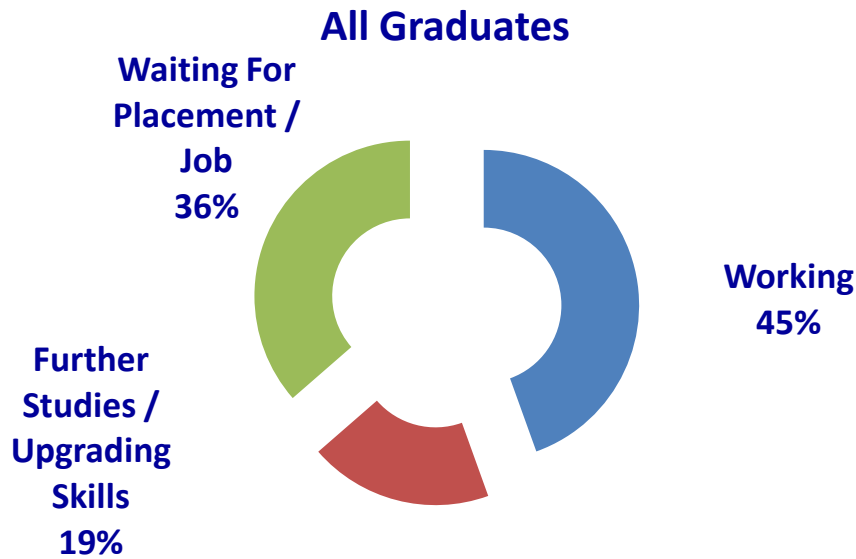
ICT students enrolment in public sector highly fluctuating due to capacity limitations



Inadequate supply of local graduates compels industries to import foreign talents, which needs to be duly addressed through Talent Corporation



Supply of ICT graduates in Institutes of Higher Learning



Source: MOHE,

Challenge 2

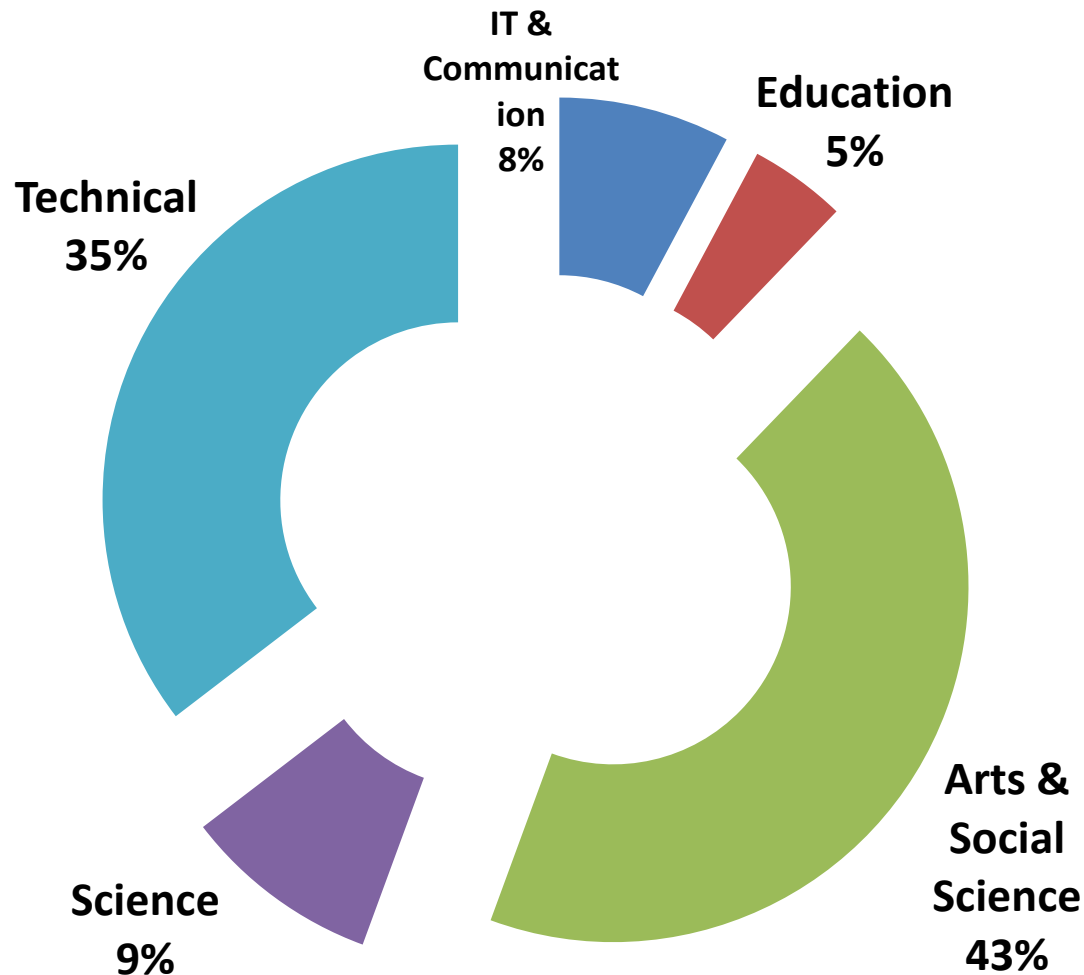
Only about 19% of fresh graduates are showing interest in further studies

Only about 21% of fresh ICT graduates are showing interest in further studies



Knowledge seeking culture needs to be duly addressed from young itself

Engagement of fresh graduates upon graduation



Source: MOHE,

Challenge 3

PIKOM :
only 10% of ICT graduates are employable and the rest require training

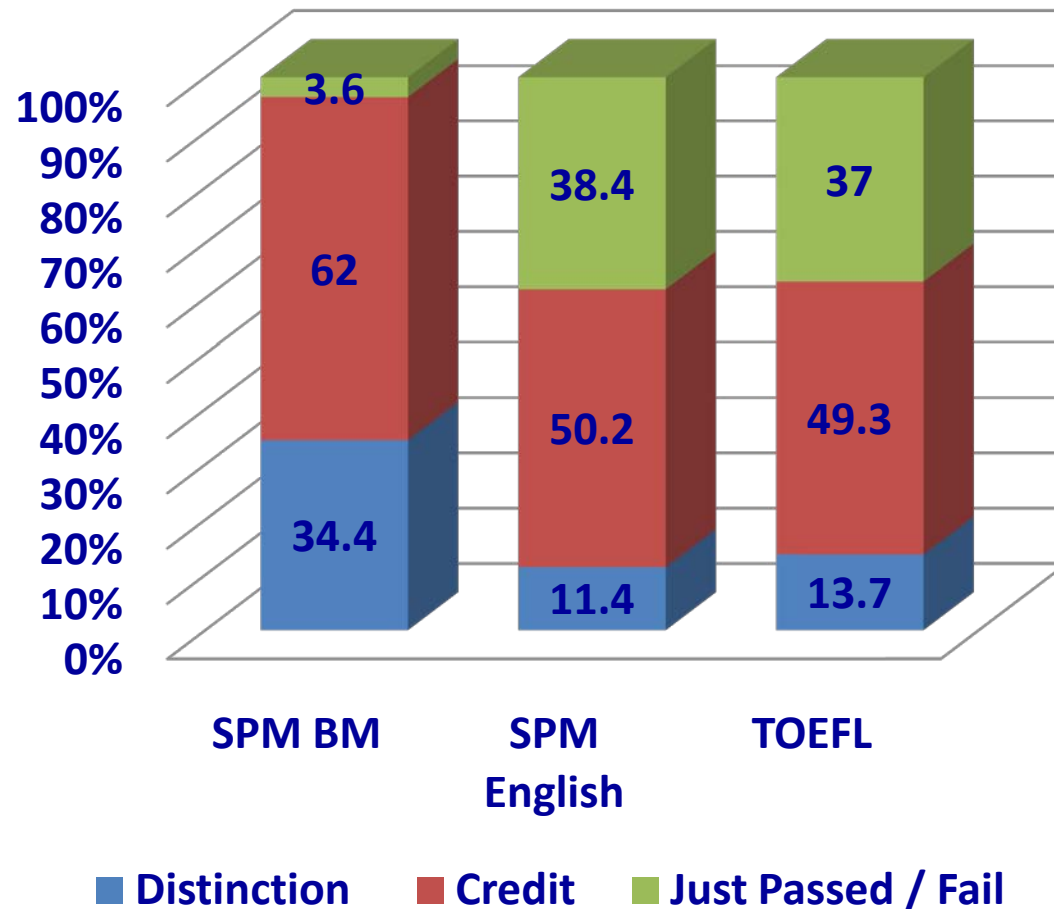
MOHE :
Only 8% ICT graduates continue further study



Skill upgrading among ICT graduates needs beefing up

ICT Graduates pursuing further studies

Challenge 4



Low English language proficiency among fresh graduates

Flip-flop decision to teach Maths and Science in English affects language proficiency among students



To be competitive in the globalizing world multi-linguistic skills need to be promoted

Language proficiency of graduates

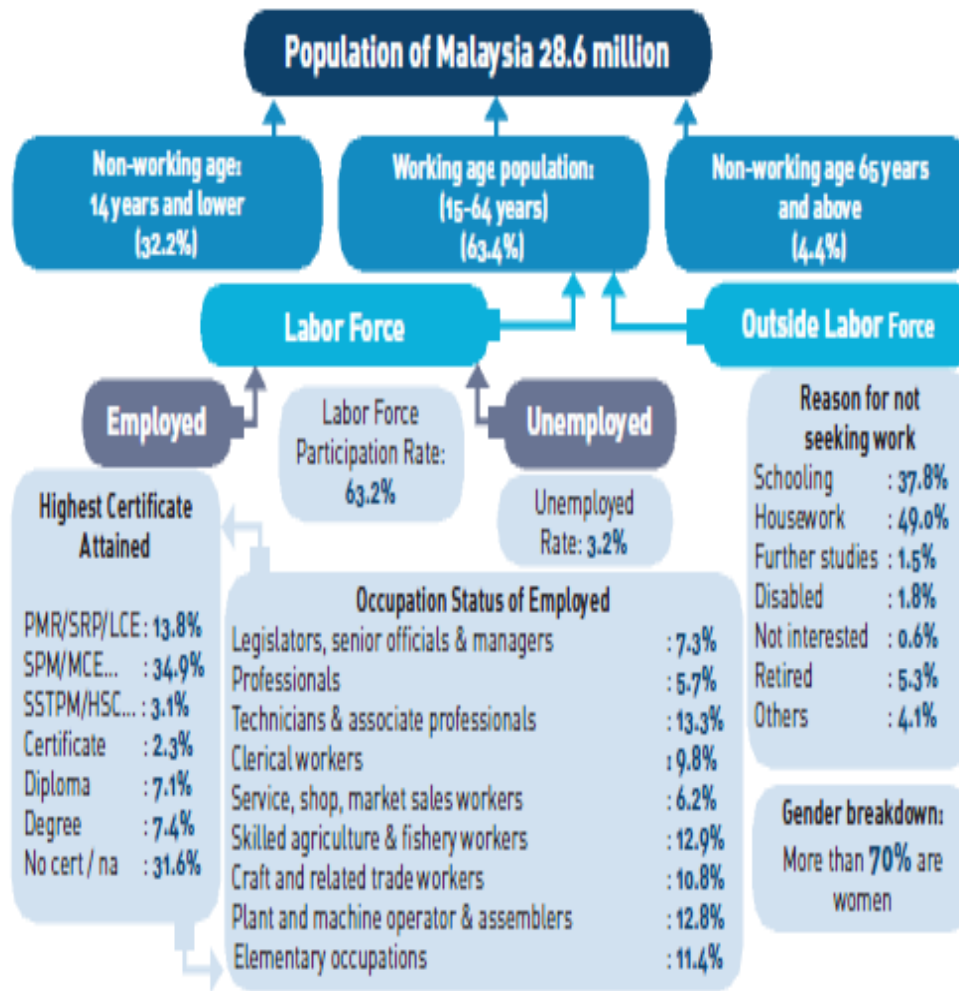
Challenge 5

Only 13% of the work force are in the professional and managerial category

49 % of those outside workforce are in housework, mostly women



Skills of existing workforce requires further upgrading



Workforce competency

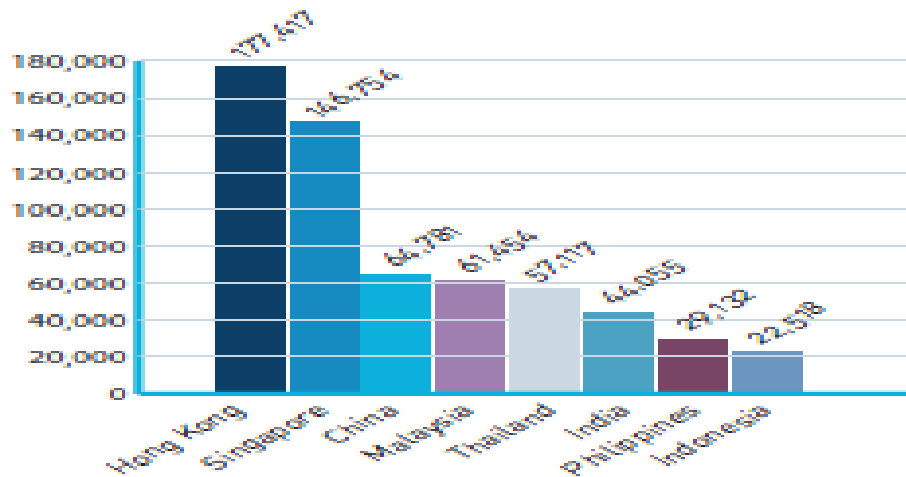
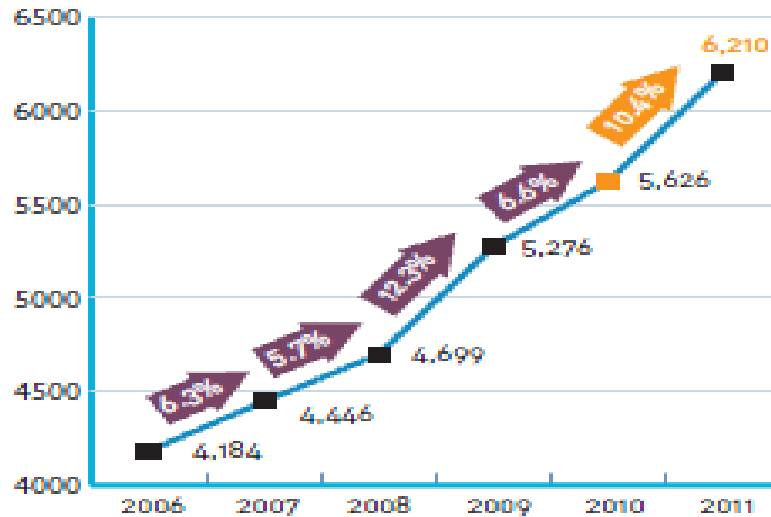
Challenge 6

Average salary increase for ICT graduate is not very high, despite the job requires high technically skills

Regionally Malaysia is in the middle position compare to its competitors



This situation needs to be rectified through providing competitive salary in order to retain talents within the sector or leaving to its neighbours



ICT workforce average salary

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	×	✓

Today a number of parameters are in place in order for the nation to move up and infrastructure alone cannot achieve the aspirations unless human capital is build

ICT parameters today



Thank
You