

# S&T Programs for Inclusive Growth in the Region

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*CP David  
PCIEERD Innovation Council  
Department of Science and Technology*



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# Technology for Inclusive Growth?

## Here's how technology can work for everyone



The winning entry in May's Global Shaper essay competition sees tech as a tool for inclusive growth

Image: REUTERS/Goran Tomasevic

02 Jun 2017

**Alok Medikespura Anil**

Founder and Director, Next Big 3D



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Innovation has always had a top down approach to solving problems. The top-level management are the first to benefit from new technological advances at the workplace. This is a trend which must change. Added advantages due to technological advances need to impact the masses and be a tool to bridge economic gaps between the rich and the poor.

Inclusive growth is the need of the hour to ensure that the gaps in economic disparity are closed so that countries maintain strong GDP per capita growth rates. Technology has had exponential growth in the past decade and is playing a key role in the lives of today's millennials. The way we communicate, entertain ourselves and work, has changed for the good, thanks to technological advances; is what an average city based millennial would say today. Are the technological advances that we enjoy, endorse and help bring to the market, exclusive to the rich and privileged? Or should we be deploying these technological advances to uplift the strata at the bottom of the pyramid?

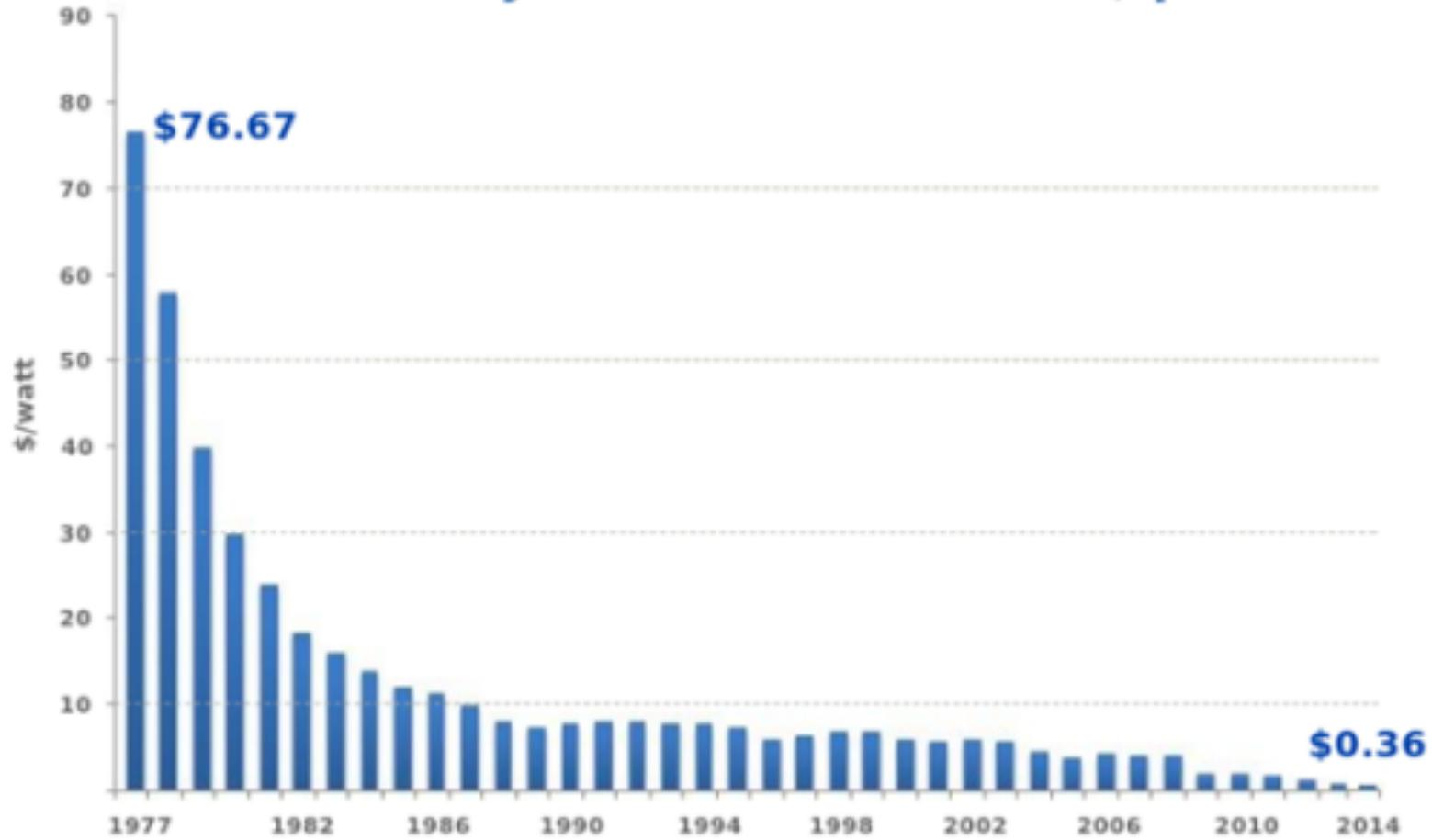
Artificial intelligence (AI) and machine learning are buzzwords used today in coffee-shop conversations on self-driving cars. In our quest to achieve singularity, where man and machine are one: are we forgetting to focus our technology to solve a much larger and pressing real world problem - food shortage? Satellite image data along with predictive analytical tools could potentially help farmers foresee disease onset and give governments a heads up on an approaching season of drought. AI and machine learning can thus reduce the burden for the



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## Price history of silicon PV cells in \$ per watt



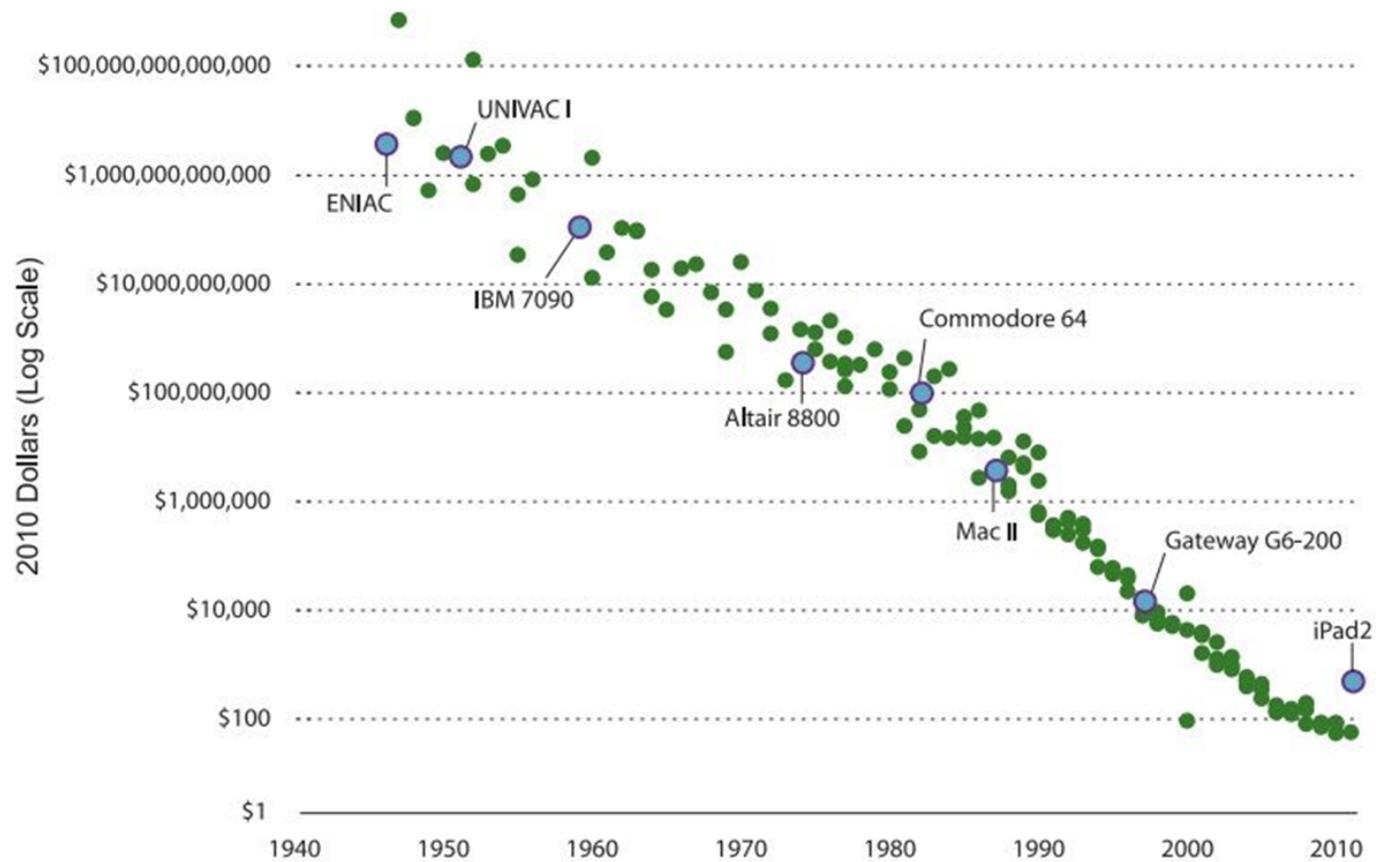
Source: Bloomberg, New Energy Finance & pv.energytrend.com



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# Cost of Computing Power Equal to an iPad 2



Note: The iPad2 has computing power equal to 1600 million instructions per second (MIPS). Each data point represents the cost of 1600 MIPS of computing power based on the power and price of a specific computing device released that year.

Source: Moravec n.d..

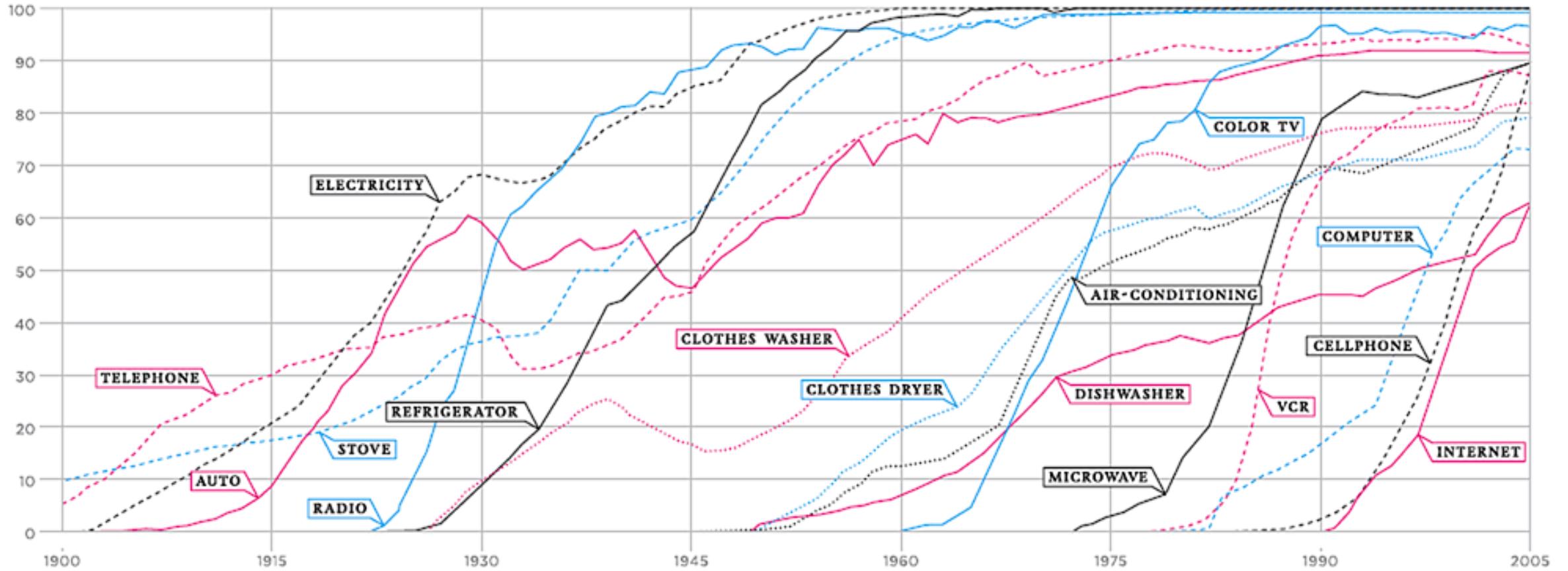


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# Faster Technology Adoption

PERCENT OF  
J.S. HOUSEHOLDS



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*There is a need to differentiate technology developers and technology users. Both enjoy the benefits that the technology provides but it is only the former that maximizes its economic gains through monetization of its intellectual property.*



# Five-stage Typology of Technological Development (Rasiah, 2013)



# DOST Programs

- Aggressive Manpower training
- Tech Startup support
- IP/Technology Acquisition

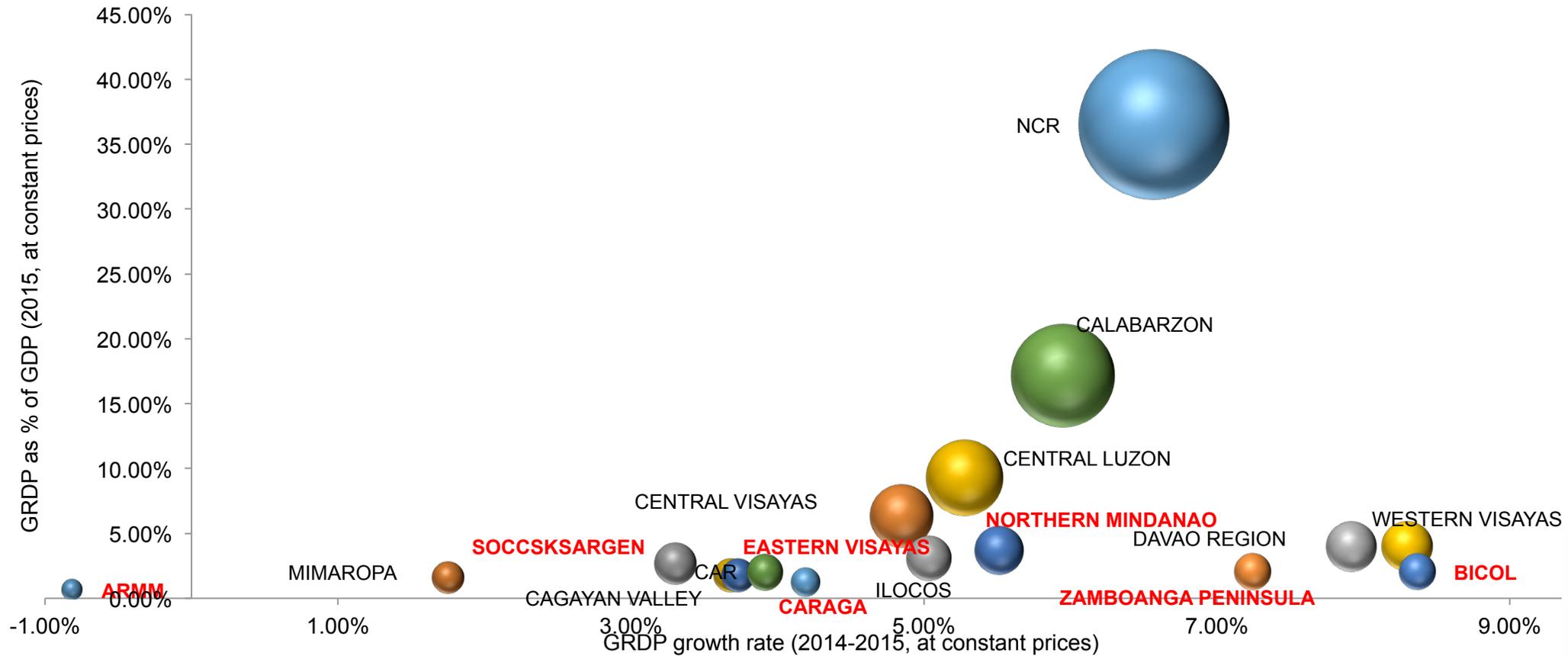
Data Science 1000  
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# Regional Analysis: Gross Regional Domestic Product



- Geographically, contribution to GDP is highly concentrated in a few regions
- NCR, CALABARZON, & Central Luzon account for 63 % of GDP
- Poverty-stricken regions in Mindanao have the lowest contribution

# Poverty incidence & Unemployment

Region	Poverty Incidence ('15)		Unemployment (Q2'17)
<b>PHILIPPINES</b>	<b>21.6%</b>	<b>21.9M</b>	<b>5.7</b>
NCR	3.9	0.49	<b>7.2</b>
CAR	19.7	0.35	4.1
I - Ilocos Region	13.1	0.67	<b>10.4</b>
II – Cagayan	15.8	0.55	3.2
III - Central Luzon	11.2	1.24	<b>6.7</b>
IVA - CALABARZON	9.1	1.29	<b>7.1</b>
IVB - MIMAROPA	24.4	0.75	4.7
V - Bicol Region	<b>36.0</b>	<b>2.17</b>	4.1
VI – W.Visayas	22.4	1.73	5.8
VII – C. Visayas	27.6	2.06	5.4
VIII – E.Visayas	<b>38.7</b>	<b>1.76</b>	3.8
IX – Zamboanga	<b>33.9</b>	<b>1.27</b>	2.5
X – N. Mindanao	<b>36.6</b>	<b>1.72</b>	5.4
XI - Davao Region	22.0	1.09	4.9
XII - SOCCSKSARGEN	<b>37.3</b>	<b>1.72</b>	4.3
CARAGA	<b>39.1</b>	<b>1.06</b>	4.7
ARMM	<b>53.7</b>	<b>1.99</b>	2.6

- Poverty incidence remains high in **ARMM, CARAGA, Eastern Visayas, Soccsksargen, Northern Mindanao, Bicol, & Zamboanga**
- Unemployment is high in regions where poverty incidence is low
- Unemployment rates are highest in NCR, Ilocos Region, Central Luzon, & CALABARZON



# PH Inclusive Innovation-led Industrial Strategy: Top 12 Priorities

## Opportunities

- New high level growth trajectory
- Growing market, middle class
- Political stability
- Young, English speaking workforce
- Stable business confidence
- AEC & FTAs



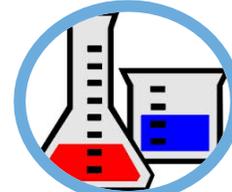
**Aerospace Parts**



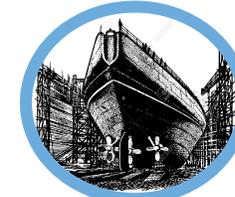
**Electrical & Electronics**



**Auto & Auto Parts**



**Chemicals**



**Shipbuilding RORO**



**Furniture, Garments, Creative**



**Tool & Die**



**Agri-business**



**IT Business Process Management, E-Commerce**



**Construction**



**Tourism**



**Transport & Logistics**



- Complex regulations
- High cost of power
- Lack of ports, airports, roads
- SME access to finance
- Supply chain gaps

## Challenges

**NEW INDUSTRIAL POLICY  
BOLDER TRADE POLICY  
INTENSE INVESTMENT PROMOTION**

**SKILLS TRAINING, HRD,  
INNOVATION, R&D, GREEN GROW  
SME DEVELOPMENT**

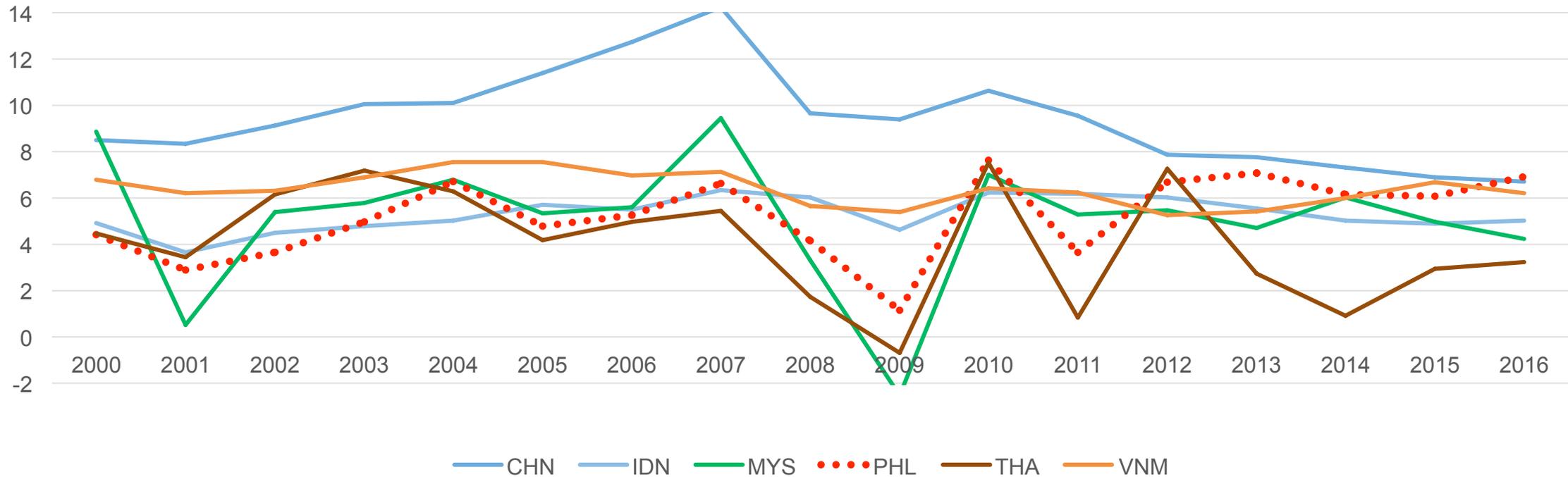
# Technology as Driver for ASEAN Cooperation and Growth?



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## GDP Growth in %

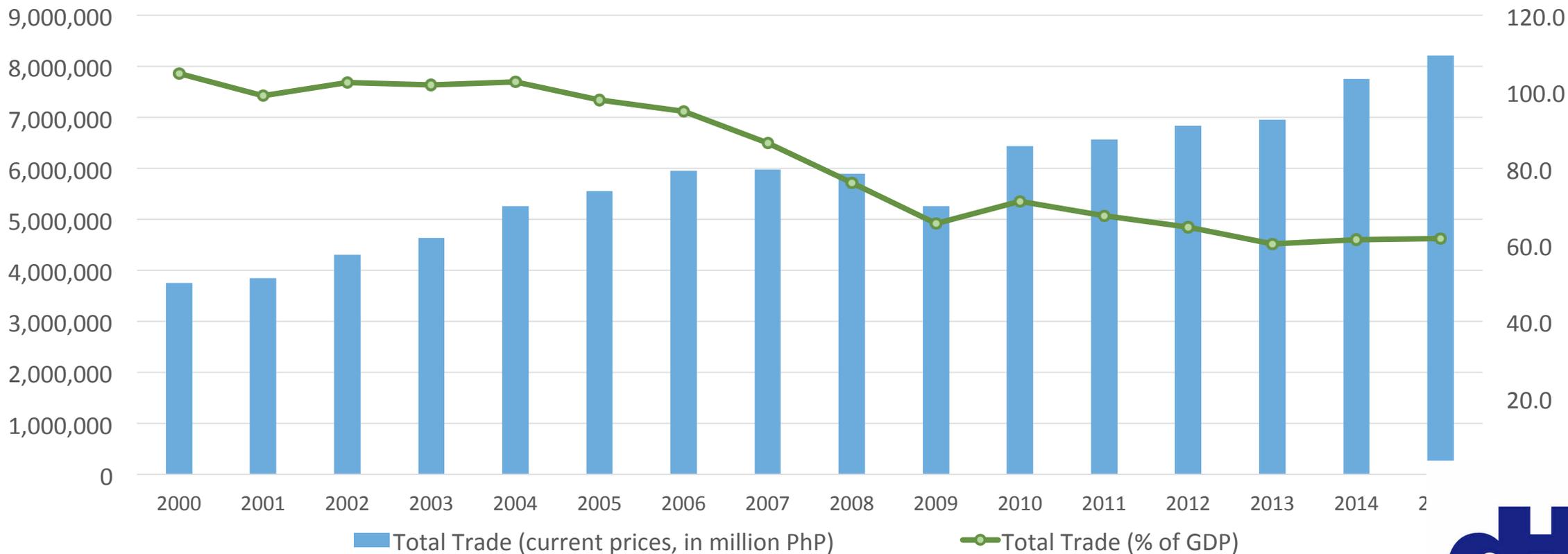


- Amid economic & global uncertainty, PH grew 6.3% from 2010 to 2016
- H1 2017: China 6.9%, **Philippines 6.4%**, Vietnam 5.7% Malaysia 5.7%, Thailand 3.5%, Indonesia 5%



# Regional or Locally-oriented?

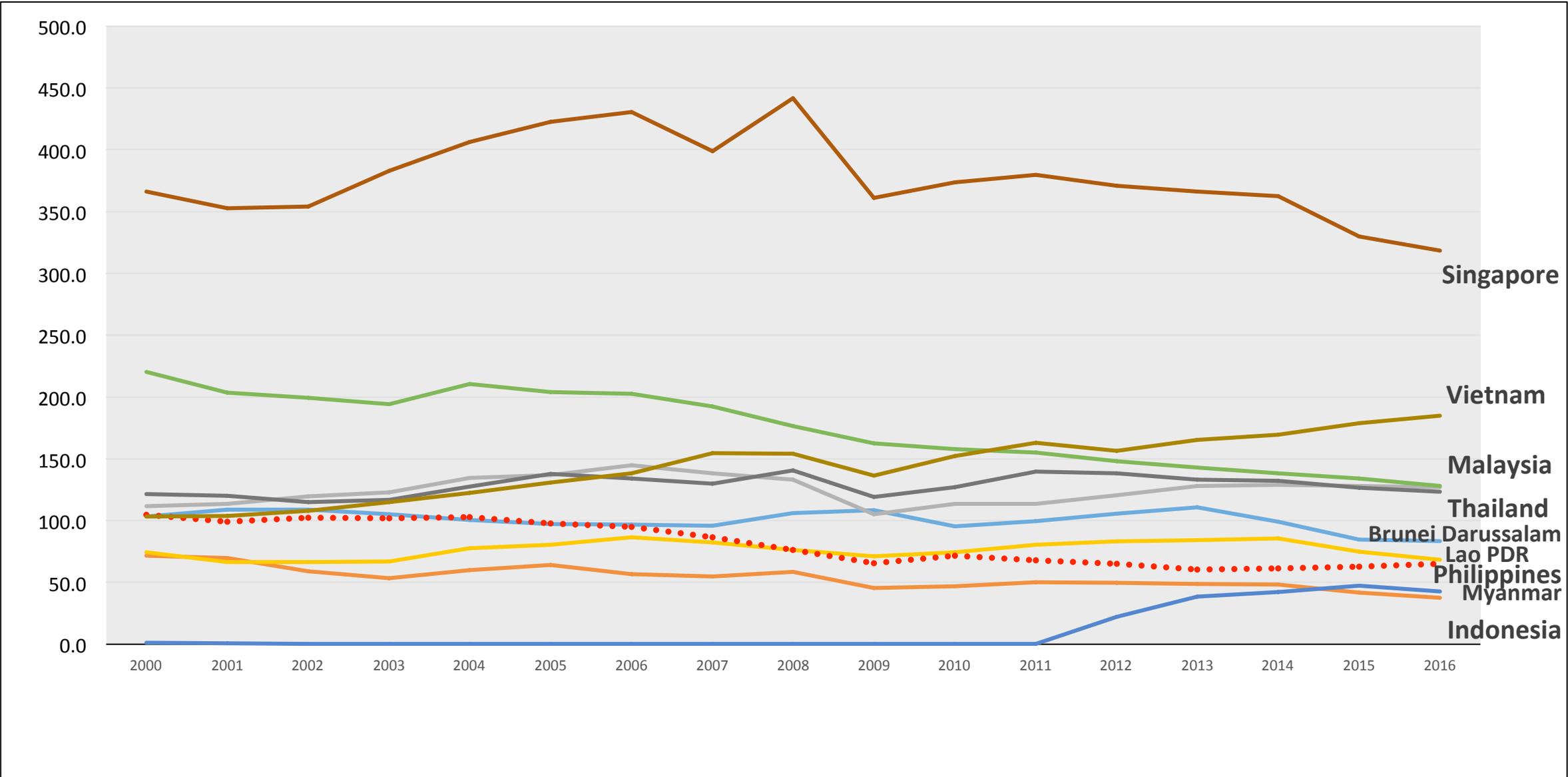
## Trade Openness Indicator, 2000-2015



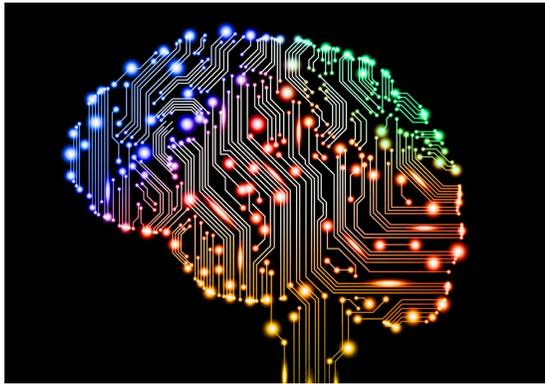
Average Growth	2001-2005	2006-2010	2011-2015
Exports	7.5	4.2	3.8
Imports	9.0	2.9	6.3



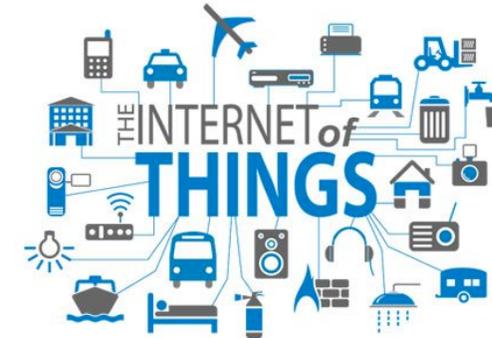
# TRADE OPENNESS: PH vis-a-vis ASEAN Countries



# DTI's Industry 4.0: driving force is technology, disrupting business models at an accelerated pace



INDUSTRY  
**4.0**



- Impact on PH industries
- Opportunities & challenges
- Future skills needed: human capital development critical Science, Technology, Engineering Mathematics
- Innovation-led technologies to improve productivity, transform PH economy

# DOST Programs

- ASEAN S&T Manpower Mobility
- ASEAN Technology Startup Scoping
- Facility/Knowledge sharing



# Marine Biomass Counter



end

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