

Pediatric Infectious Diseases in the 21st Century

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Human Civilization





- First wave 10,000 years ago: Invention of agriculture
- Second wave four hundred years ago: Industrial revolution
- Third wave : Electronic era or Information era

Alvin Toffler: The third wave

Industrial Revolution

- The First Industrial Revolution used water and steam power to mechanize production.
- The Second used electric power to create mass production.
- The Third used electronics and information technology to automate production.
- Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.

Navigating the next industrial revolution

Revolution	Year	Information	
	1	1784	Steam, water, mechanical production equipment
	2	1870	Division of labour, electricity, mass production
	3	1969	Electronics, IT, automated production
	4	?	Cyber-physical systems

The Fourth Revolution

- Fourth and distinct one: velocity, scope, and systems impact.
- The speed of current breakthroughs has no historical precedent when compared with previous industrial revolutions,
- The Fourth is evolving at an exponential rather than a linear pace.
- Moreover, it is disrupting almost every industry in every country.
- And the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance.

Emerging technology

- Digital, wireless, virtual
- E commerce (Amazon, Alibaba), E banking, E-book
- Digital camera
- Smart phone
- Line, Skype, etc
- Social media
- Genetic, bio markers , biotechnology
- Low cost air travel
- Point of care
- Robotics etc.
- Google search, Google map
- autonomous vehicles,
- 3-D printing,
- nanotechnology,,

The Fourth Revolution

- the revolution could yield greater inequality, particularly in its potential to disrupt labor markets. As automation substitutes for labor across the entire economy
- In the future, talent, more than capital, will represent the critical factor of production. This will give rise to a job market increasingly segregated into “low-skill/low-pay” and “high-skill/high-pay” segments, which in turn will lead to an increase in social tensions.

Seeking for the New Economic Model



A Nation of Maker



Design in Innovation



Made in China 2025



Smart Nation



Creative Economy

Thailand's Path to Development

The Wealth of Nation

Thailand 1.0
Agriculture



Thailand 2.0
Light Industry



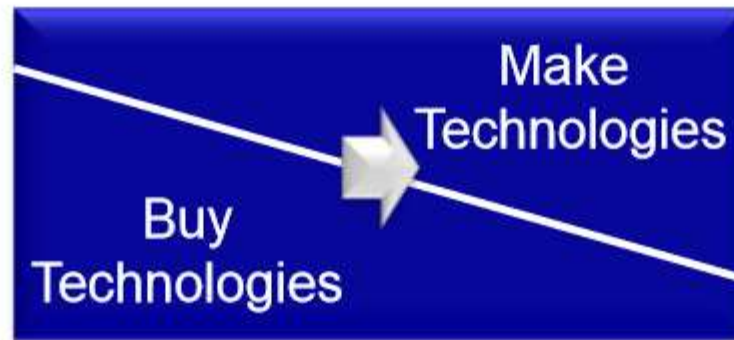
Thailand 3.0
Heavy Industry



Thailand 4.0

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Transformative Shifts



UN Goals

- Health for all by the year 2000
- Millennium development goals (2001-2015)
- Sustainable development goals (2015-2030)



SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS

SUSTAINABLE DEVELOPMENT GOALS

Goal 3: Ensure healthy lives and promote well-being for all at all ages

- By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births
- By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births

Goal 3: Ensure healthy lives and promote well-being for all at all ages

- By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases
- By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

Goal 3: Ensure healthy lives and promote well-being for all at all ages

- Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol
- By 2020, halve the number of global deaths and injuries from road traffic accidents
- By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes

Goal 3: Ensure healthy lives and promote well-being for all at all ages

- Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
- By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
- Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Support the research and development of vaccines and medicines for the communicable and noncommunicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all

Goal 3: Ensure healthy lives and promote well-being for all at all ages

- Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States
- Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

Specialists in Infectious Diseases 2016

	Total	อ.ว.	ว.ว.
Pediatricians	3,724	250	3,474
Pediatric ID	108(2.9%)	51	57
Internists	5,654	314	5,340
Infectious Dis	210(3.7%)	86	124

Subspecialty

- Pediatrics

- Neonatology 208
- Pulmonary 161
- Allergy 155
- Cardiology 124
- Infectious Dis 108
- Child develop 104
- Neurology 92

- Medicine

- Cardiology 797
- Emergency 620
- Dermatology 596
- Neurology 530
- Renal 512
- GI 398
- Chest 323
- Endocrinology 256
- Hematology 249
- Infectious Dis 210

Future trend

- New Vaccines
- Increased drug resistant organisms
- Rapid diagnosis
- Point of care
- Molecular technology and cytokines
- Genetic diagnosis
- Monoclonal antibodies
- Increased in immuno-compromised children
- Emerging and re-emerging diseases
- Hospital associated infections
- Control use of antimicrobial agents
- Webcast and teleconference
- Consultation via internet, lines



Thank You