

Annual ATPAC-MOST-OHEC-IPST Conference
Marriott Suites on Sand Key, Clearwater Beach, FL
September 15-17, 2017

Building Human Intellectual Capital for Thailand 4.0

Rationale and Objectives:

"Thailand 4.0" is Thailand's new economic model aimed at driving the country out of the middle-income trap to become a high-income nation. It aims to do so by elevating the economy that currently depends on heavy industry, export promotion, and strong dependency on foreign direct investments to a high value-based economy that is driven by innovation. At the heart of an innovation-driven economy is the ability of the country to produce sustained innovations to fuel the new engines of growth in the chosen strategic areas. In the case of Thailand 4.0, Thailand has chosen to pursue five growth engines, namely: Biotechnology to fuel food and agricultural industries; Biomedical technology to drive health and wellness quality and the related burgeoning businesses in healthcare; Smart devices, robotics, mechatronics, sensors and AI technologies to support the human's pursue of superior and smart livings (society), and highly-automated intelligent manufacturing (industry); Embedded technology and big-data science and technology to quicken the deployment of IoT-related technologies and to drive the development of smart cyber-physical systems for the 21st century digital economy; and finally Service and design technology to support creative, cultural and high-value services industries. To achieve those aspiring goals, it is clear that Thailand must develop its own stockpile of intellectual capitals to draw upon to drive innovations necessary to fuel the five engines of growth. At the heart of intellectual capitals is the human intellectual capital, those who are capable of producing real innovations that matter.

In addition to galvanizing and organizing existing groups of potential innovators, Thailand should adopt a more focused model of human intellectual capital development, going forward. It should be technology-centric, concentrating on enabling technologies that will fuel the five engines of growth. And it should be team-based, since solutions to complex technological problems often require expertise from various disciplines working in a well-coordinated unison toward a common goal.

The principal aim of this conference is to provide a forum for exploring strategies for developing human intellectual capital for Thailand 4.0 in the next decade. The conference will focus on four key enabling technologies required for Thailand 4.0, namely: smart sensors, energy storages, big-data science and technology, and water resources management and technology. A key group of participants will be US-based post-graduate (particularly doctoral) students currently conducting research in the four areas identified above. They are potential contributors to Thailand's intellectual capitals required for Thailand 4.0. The specific objectives in bringing this group of participants are to let them learn more about Thailand 4.0, to let them share ideas that they deem worth sharing, and to create an environment conducive to networking and team forming among these potential intellectual contributors to Thailand 4.0.

Tentative Program

September 15, 2017

Invited Honor Guests and Thai Professionals, ATPAC members, and invited Thai students arrive at the Marriott Suites on Sand Key, Clearwater Beach, Florida

6:00-8:00 p.m. Dinner

8:30-10:30 p.m. ATPAC Board Meeting

September 16, 2017

08:00-09:00 Registration of Conference Participants

09:00-09:05 Background and Objectives of the Conference by Methi Wecharatana, ATPAC President

09:15-09:15 Opening Remarks: Building National Growth Engine through R&D and Innovation by Air Chief Marshall Prajin Juntong Ph.D., Deputy Prime Minister

09:20-10:20 Thailand 4.0: Thailand's New Growth Engine
Dr. Suvit Maesincee, Minister Attached to the Prime Minister's Office

10:20-10:30 Coffee Break

10:30-12:00 Strategy for Building Human Capital for Innovation for Thailand 4.0

- MOST's Strategy and Program (Assoc. Prof. Soranit Siltharm, M.D. Permanent Secretary, Ministry of Science and Technology (MOST) or Dr. Chanwit Tribuddharat M.D., Acting Vice President, NSTDA)
- OHEC's and MOE's Strategy and Program (Suphat Champatong Ph.D., Secretary General, Office of Higher Education Commission).
- IPST's Strategy and Program (Pornpun Waitayangkoon Ph.D., President, The Institute for the Promotion of Teaching Science and Technology (**IPST**))
- A Holistic Approach to Building Human Capital in Thailand (Rattikorn Hewett, Ph.D., ATPAC Board Member)
- Technology-centric Strategy for Building Human Intellectual Capital for Thailand 4.0: An Idea Worth Sharing, Vira Chankong, Ph.D. ATPAC Board Member

Moderator: Nisai Wanakule, Ph.D.; Rapporteur: Chuleeporn Changchit, Ph.D.

12:00-13:15 Lunch Break

13:15-14:45 Ideas Worth Sharing: Smart Sensors

- Why Smart Sensors? Vira Chankong, Associate Professor, Case Western Reserve University
- 5 Selected Thai doctoral students with research related to smart sensors and closely linked areas

Moderator: Vira Chankong; Rapporteur: Praprut Songchitruksa and Natchanon Amornthammarong

14:45-15:00 Coffee Break

- 15:00-17:00 Ideas Worth Sharing: Data Science and Technology
- Why Data Science and Technology? Rattikorn Hewett, Professor, Texas Tech University
 - Data Analytics with application in healthcare and business, Wanpracha Chaovalitwongse, 21st Century Leadership Chair Professor, University of Arkansas
 - 4 Selected Thai doctoral students with research on Big Data, IoT and related to data science and technologies
- Moderator: Rattikorn Hewett; Rapporteur: Gaviphath Lekutai and Wallapak Tavanapong

6:00-8:00 Dinner

September 17, 2017

- 08:30-10:30 Ideas Worth Sharing: Energy Storages
- Why Energy Storage? Methi Wecharatana, Professor, New Jersey Institute of Technology
 - Advances in Energy Storage Technologies, Santi Kulprathipanja, R&D Fellow, UOP LLC, or Sirivatch Shimpalee, Research Professor, University of South Carolina
 - 4 Selected Thai doctoral students with research on energy storage technologies for consumer electronics/gadgets, hybrid and electric vehicles, and power grids
- Moderator: Methi Wecharatana; Rapporteur: Sirivatch Shimpalee

10:30-10:40 Coffee Break

- 10:40-12:00 Ideas Worth Sharing: Water Management and Environmental Technologies
- Why Water Management and Environmental Technologies? Nisai Wanakule, Lead Water Resources System Engineer, Tampa Bay Water
 - Advances in Water Management and Environmental Technologies for Thailand 4.0, Eakalak Khan, Walter B. Booth Distinguished Professor, North Dakota State University; Natchanon Amornthammarong, Scientist at National Oceanic and Atmospheric Administration, and Uni. of Miami
 - 2-3 Selected Thai doctoral students with research on water resources management
- Moderator: Nisai Wanakule; Rapporteur: Mongkol Mahavongtrakul

12:00-12:30 Wrap up and Summary, Present and (Proposed) Future ATPAC Activities (Methi Wecharatana)

12:30-13:30 Lunch

13:30 Adjourn