AoE - Information Technology

Objectives
The Area of Excellence in Information Technology (AoE-IT) was a collaborative project among three leading universities in Hong Kong: The Chinese University of Hong Kong (CUHK), The University of Hong Kong (HKU) and The Hong Kong University of Science and Technology (HKUST). The three research universities joined forces in a concerted effort to train IT researchers, conduct R&D projects, and transfer technology to the commercial sector. Building on the proven strengths and resources of each university in information technology, the project aimed to put Hong Kong on the world map as one of the key players in IT, thereby contributing to the transformation of Hong Kong into an IT society with a strong value-added economy.

Research Impact
The project focused on three main areas in Information Technology:
(1) Multimedia Delivery over Heterogeneous Networks;
(2) Distributed Denial of Service (DDoS) attack on the Internet;
(3) Internet Technology.

The AoE participants made significant contributions in each of the areas with real-world impacts. For example, in area 1, the research on video adaptation and real-time trans-coding resulted in a prototype system that was eventually licensed commercially to a telecom operator. In area 2, collaborations with the Internet industry yielded insights on how to detect and prevent DDoS attacks based on "real" Internet traffic traces. In area 3, researchers of AoE built a bilingual reading comprehension system that was among the first of its kind that addressed the problem of multilingual comprehension which pushed the technological frontiers in natural language processing.

Overall, participants of the AoE have produced high-quality outputs in large quantities. A total of 210 papers in prestigious international journals and conferences are attributed to the AoE project. The project has strengthened inter-institutional collaborations, as evidenced by the fact that many of these publications were results of joint research efforts among the AoE-IT participants in Hong Kong, as well as between AoE-IT participants and well-known researchers in renowned institutions around the world.

This AoE has made international impact, as evidenced by best paper awards, novel prototype systems, *one-of-a-kind* test-beds, software, international collaborations, etc. The project also led to additional funding from other sources for new projects.

At the conclusion of the project review, the international review committee commented *"... Actual system development would allow the researchers to recognize new research topics early and to establish leadership. In that way, the AoE project has demonstrated exceptional performance... Hong Kong was not known for her computer systems research. Today, it is making notable research results in networking, an important research filed in computer systems..."*

Training of Research Students
Over 80 postgraduate research students have been trained. All these graduates have been well-placed in industries and academic institutions. The project has been very successful in fostering inter-institutional and international collaboration amongst research students.

The project has not only met its original objectives to develop an area of excellence in IT, it has also engendered continuing collaborations and active exchange of research results among the AoE-IT participants beyond its completion date.