

**Speech as Chair at Plenary Session “Summaries from Concurrent Sessions”
Fourth Annual Meeting of the STS forum
October 9, 2007, Kyoto, Japan**

**Ismail Serageldin
Director
Library of Alexandria, Egypt**

Ladies and gentlemen,

As we come to the final day of this STS forum, meeting this year under the watchwords of Harmony with Nature and Innovation, we have had a very rich two days, with innumerable interventions and valuable discussions. So rich and varied was the menu, that I personally felt that I wanted to clone myself to attend more than one of the parallel sessions. I am sure that I was not the only one who wistfully looked at the program when confronted with the necessity of choice among six competing sessions.

So now we will remedy, at least partially, this situation. We have asked a group of very distinguished speakers to summarize in no more than eight minutes each of the six tracks we ran in parallel. Let me introduce all the tracks and all the panelists.

First, Track A, dealing with Harmony with nature. It covered the key overarching themes of energy, climate and water. To present that we will have **Jared Cohon** (Track A), President of Carnegie Mellon University, He was the dean of the school of Forestry and Environmental Studies at Yale. He is an authority on environment and water resource systems analysis

Second, Track B, The new genetics, covering biomedical discoveries, bioethics and stem cells, and the debate surrounding GMOs. To report on that we will call on **Ichiro Kanazawa** (Track B), A medical Doctor , science adviser and President of the Science Council of Japan

Third, Track C, the new frontiers of science today. Nanotechnology, ICT and the awesome computational capabilities that we have at our disposal today. The promise and the perils of these new frontiers will be reported on by **Indira Samarasekera** (Track C), Fellow of the Royal Society of Canada and the Canadian Academy of Science, President and Vice Chancellor of University of Alberta, Canada

Fourth, Track D, Education. At the need of the day, there is no possible advance, no possible achievement without investing in human resources. Starting with basic science literacy for all, through the need for collaboration between universities, research institutes and industry, and finally the problem of brain drain ad how to turn it into brain gain. All if this will be reported on by **Gavin Brown** (Track D), Vice Chancellor and Principal at the University of Sydney, winner of the Australian Mathematical Society Medal, and a former Vice president of the Australian Academy of Science

Fifth, Track E, On international Cooperation, covering cooperation in Science and technology, and Science for and with Developing countries, and the international property rights regime. To report on that track, we will call on **Daniel Goldin** (Track E), Founder,

Chairman and CEO, Intellisis, focusing on biological technologies, President of NASA from 1992-2001, Vice President and GM of the Space and Technology Group of TRW.

Sixth, Track F, Engaging others. Scientist must be able to function in a society that supports science and must act as citizens as well as scientists in addressing issues of science and society. This will require engaging with others be they policy makers, or the media. In addition, even in the academic circles, the humanities and the natural sciences need to be able to talk to each other. To report on the three sessions of this track we will call on **Philip Yeo** (Track F), Senior science and technology Advisor at the Ministry of Trade and Industry of Singapore, Chairman of SPRING and Former Chairman of A*STAR and EDB.

Finally, Track G Innovation. The second watch word of this STS forum, innovation was discussed in terms of its relationship to science and to business. We also addressed how the valuable process of innovation could be accelerated. To report on innovation, I am pleased to introduce **Alexander Zehnder**, President of the Board of the ETH in Switzerland and who served in many distinguished academic positions including Wisconsin, Wageningen and Stanford.

Ladies and gentlemen,

I will not try to summarize the summaries. I just want to say that as humanity embarks on this new century, never have we needed S&T more, and never have we needed to learn to work in harmony with nature as we do now. We will need all our ingenuity, all our innovation to rise to the challenges of meeting the needs of an additional three billion people on the planet, and to do so in an equitable, sustainable fashion.

Our only way to do this will be science and technology. Every aspect of human well-being that we take for granted today was the result of Science and Technology.

Surprisingly, “**Scientist**,” is a relatively new word. It was first coined in 1840 by the brilliant English philosopher-mathematician William Whewell (1794-1866), “We need very much a name, to describe a cultivator of science in general. I should incline to call him a Scientist.”

“**Research and Development**” entered our language only in 1923.

We have done well in those eight decades or so...

Today, there is an enormous tidal wave of data that is engulfing us. Data, when organized, becomes information, which in turn, when explained becomes knowledge. In turn, when Knowledge is combined with experience and reflection it should, hopefully, yield wisdom. The wisdom that we need to rise the many challenges we confront.

Today, it is not just the amount of data and information and knowledge that is multiplying at a dizzying pace, it is very much the pace of innovation that is accelerating. This new state of affairs is the harbinger of the third great human revolution. The first such revolution was

the agrarian revolution that allowed societies to settle and civilization to flourish. The second such revolution was the industrial revolution which mechanized fabrication, and changed forever the relationship of the individual to the process of production and allowed the globalization of commerce.

Today, it is not only the pace of scientific discovery that is accelerating at a giddy pace, it is the amazing reach of the transformative technologies that have emerged from such discoveries. This year we are celebrating the 80th anniversary of the 1927 filing by Philo Farnsworth of the patent for Television, surely one of the most profoundly transformative technological breakthroughs of the last century. Yet even more transformative will be the Internet and the ubiquitous mobile phones that have reached billions of people and are now promising to become platforms for so many things.

Today, it is as much by the fecundity of the questions as by the finality of the answers that we must measure the contribution of scientific research. No answer is ever complete. No solution ever final. The complexity of our existence and our multidimensional relationship with the world and with each other, defy such easy simplicity. It was thus particularly apposite that Mr. Koji Omi and his colleagues chose to focus STS on the lights and shadows of science in relation to society.

In so doing, they have shown great wisdom. For by rejecting a triumphalist simplicity, they rightly recognized that frequently the great menace to progress is not ignorance but the illusion of knowledge, and its attendant hubris.

So we have embarked once more, throughout this STS meeting, and in these parallel sessions that we have just surveyed, into an exploration of ourselves and our world. It is in the spirit of inquiry, in the search for a deeper, more meaningful understanding, in this ongoing exploration that the nobility of the scientific enterprise shines through,

So let us continue this exploration together, As Eliot said:

"We shall not cease from exploring
And at the end of all our exploring
Will be to arrive where we started
And know the place for the first time."

--- T. S. Eliot