The Role of Universities for the 21st Century

Remarks to the *Science and Technology in Society Forum*
9th Annual Meeting, Kyoto, Japan
By Professor David Naylor
President, University of Toronto

October 8, 2012
*Check against delivery*
Let me begin by extending my sincere appreciation to Mr. Koji Omi for the kind invitation to be a part of the STS Forum this year and to be here with you today.

I want to acknowledge our esteemed Chair Dr. Matsumoto, President of a great research university, and note the presence of distinguished leaders from diverse walks of life on the panel and in the audience.

I will offer only two local data points that speak to my perspective or biases. Thomson-ISI regularly creates a global tally of total published research output. For a number of years, the top three universities in order have been Harvard, Toronto, and Tokyo. We also confer over 9,000 degrees each year, and have maintained our research position despite per-student funding that is about one fifth the average level of US private research universities. Thus, the practical question of the university’s role in the 21st century is very much on our minds in every budget decision we make.

This afternoon I have only three brief points to make in addressing this issue.

1. The Nature of Graduates?

We can’t talk about the role of the university in the 21st century, in my view, without thinking about what kinds of leaders our global community needs.

The next generation will confront challenges – everything from climate change to cyber-security – that are more intertwined and complex than ever before. Solutions to these challenges will require convergent thinking across disciplines, creativity, ingenuity, and excellent collaboration and communication skills.

There is no easy consensus on how to define these and other attributes. But I would nonetheless propose that the job of universities is increasingly to help build what some call T-shaped individuals – a column of deep and specific expertise, capped by a substantial breadth of perspective.

That means more multi-disciplinary and experiential learning, and lots of opportunities for interactive problem solving inside and outside the classroom or the laboratory. It also means embracing globalization – in the flow of students and faculty, and in the range of our collaborations with universities, industry, governments, and civil society alike.

2. A Sustainable Educational Eco-System

My second theme relates to an old maxim. Take three positive attributes: Good, Fast and Cheap. You can maximize two rather easily, but it’s hard to optimize all three at once. The same is true in higher education, where we can talk about another triad: Quality, Availability and Affordability.
We heard thoughtful reference this morning to inclusive innovation. We also need inclusive higher education if the world is to confront its grand challenges in an effective and equitable way.

Each nation is sorting out the mix of public and private funding that will optimize quality, availability and affordability. Each nation is deciding how to manage the growth of private institutions. And all institutions are responding to the rapid emergence of digitally-enhanced education as a disruptive innovation that may have both positive and negative effects.

It is truly a period of accelerating change. I would argue that it is critical in this context to think carefully about the eco-system of higher education that is sustainable, as well as best suited to meet societal needs and improve the human condition.

My bias is that every university graduate must have a perspective shaped by research and scholarship. However, I hope we would all agree that not every university, college or polytechnic should have a strong focus on generating new knowledge. That is simply unaffordable. It is also highly inefficient.

Unfortunately, university rankings tend, perhaps by accident more than design, to value research-intensive institutions more than vocational colleges and polytechnics, undergraduate-intensive universities, or comprehensive universities renowned for their teaching and their professional programs. This creates an incentive for homogenization with all institutions playing the research game.

Diversification is healthy in any eco-system. And, absent specialization and differentiation in universities, no country can have globally competitive research. This leads logically to my third and final theme.

3. The Roles of Fundamental and Applied Research

This morning Jean-Lou Chameau reminded us that much apparently useless research turns out to be surprisingly useful. That theme has been repeated eloquently by speakers this afternoon.

Today, there is tremendous – and increasing – social pressure for university research to be quickly translated into products and services. We all understand why this is happening. No question about it: We need incremental applied research, and we need to work effectively to translate and commercialize our research findings.

But we also need to recognize that many of today’s most challenging problems call for paradigm-shifts and disruptive convergent innovation.

After all, necessity is the mother of invention only in the very short term. Over the long haul, invention is the mother of necessity – changing not only what is possible, but what we regard as essential.
Conclusion

Let me summarize briefly.

First, the world needs universities, particularly major research universities, to produce graduates with a new mind-set.

Second, the world also needs differentiated and diversified systems of higher education that can broaden participation and drive globally competitive research, without sacrificing quality.

Last, the world needs research universities in particular to advance an exciting agenda of discovery and knowledge translation, not only in and across the STEM disciplines, but at the interface of science and technology with a full range of other fields of research.

These three propositions are hypotheses that may be dead wrong. But I hope that they are at least helpful in sparking discussion in our session today.

Thank you for your kind attention.