Thank you, President Xie and Vice Minister Wu.

We are convened because of the imperative need to design universities for the next hundred years. The greatness achieved with the model of the past century is insufficient to address the challenges we currently confront, and we cannot accomplish our objective based solely on the models of the past. Looking ahead, we must equip ourselves to address levels and layers of complexity and sustainability that are unprecedented. So far we have done only a marginal job and this is simply not adequate to the tasks ahead.

If our global society was doing a better job, we would not have polluted our air and our water, for example, and we would not continue to allow such a large percentage of the population to live in poverty. We have built an immense infrastructure to support human life, but as the population of the planet grows, we will have to double that infrastructure. This is a challenge that human society has not faced on such a scale until now. The sort of effort that this will require is ongoing and continuous. There is no single achievement that will allow us to call the work complete, and there will be no time at which we can rest, saying we have done all we can. There are only the challenges that confront us to address and overcome. And universities play a critical role in helping all of us to understand and to overcome these challenges.

This coming together of leaders from China and the United States to discover, explore, and design the kind of universities we will need going forward is of immense significance. We must assess the needs of society, and determine what is required of the universities of tomorrow. These institutions may bear some resemblance to the universities that served our needs in the past, but they will be utterly different because what we need for tomorrow is not what we needed before.

We will measure the success of our institutions based on our desire to leave no one behind, on our success in achieving diversity, and on our ability to provide the best possible education and generate the most creative and useful research.

Both in the United States and China the approach towards higher education has been to focus on elite universities that conduct important research, and to invest in these institutions at the expense of all the others. This may be a first step, but every university must do research and seek to have societal impact. Each must do so in order to provide its students with the best possible education, and to provide its community with the best possible service. Each university must be able to answer the questions: what did this
university accomplish and contribute economically, culturally, environmentally, and socially? We must measure ourselves with multiple and multifaceted metrics.

It is as if we are architects, and we are building a house. This house is the university. In order to build it well we must ask ourselves: what do we want it to look like? We cannot simply replicate what has been built in the past. The copy will inevitably be a poor shadow. All universities need to meet a certain standard, but universities need to seek differentiation, and not replication. Differentiation enhances the individual institution, and it enhances the system of higher education as a whole. Differentiation allows us to break down false hierarchies.

**Design imperatives/parameters**

- **Leveraging place**
  ASU must embrace its cultural, socioeconomic and physical setting

- **Transforming society**
  ASU must become a force and not only a place

- **Knowledge Entrepreneur**
  A culture of academic enterprise

- **Pasteur’s Principle**
  Use inspired research

- **A Focus on the Individual**
  Outcome-Determined Excellence
  A Commitment to Cultural Diversity

- **Intellectual Fusion**
  Interdisciplinary Multidisciplinary Transdisciplinary Postdisciplinary

- **Social Embeddedness**
  Public Service Community Engagement Outreach

- **Global Engagement**
  Transnational Transcultural

At ASU we have conceptualized the frame of this house with what we call “design parameters.” These design parameters give us a sense of how the house should look, and they guide us as we fill in the rest of the blueprint and build the structure.

The base—the foundation—of what we do is to embrace our setting. By this I mean that we seek to understand the place in which the university is situated, and we embrace the challenges and success of that place.

Universities are the most transformational institutions in society. We seek to transform society by focusing the university’s efforts beyond its institutional borders, and to learn from many diverse environments.

We understand that the knowledge economy will be the driver for economic success in the foreseeable future. We understand this to mean not just traditional science and technology. Science and technology considered in isolation, we know, have created as many problems as solutions. Thinking about the social consequences of science and technology is just as important. Understanding the multiple facets of the creative and
knowledge economies is just as important as the objects and advantages we may create with science. Nanotechnology is an important example. The university must behave as a knowledge entrepreneur. This is different from a financial or business entrepreneur. The university must have different return on investment metrics and, as knowledge entrepreneur, must advance with full awareness of our broader, social responsibilities.

ASU has evolved from a normal school to a comprehensive university in a short time, as have many Chinese universities, and we do so while honoring our roots in the normal school tradition of teaching first and always. As teachers we must also advance learning on all levels, and this is guided by research. The form this research should take is a critical question for our scholars, for our students, and for our objective of contributing to society and the economy. We cannot pursue all the research and learning that our society, our scholars, and our students need in the old hierarchical model with physics at the top of the science pyramid, for example. We need to embrace use-inspired research—research guided by need—as much as research guided by curiosity. This is a key cultural shift for universities.

All of us come from different backgrounds and we must embrace diversity if our institutions and, more importantly, our society, our world, is going to be successful. Our universities must create mechanisms to build a breadth and range of opportunities for scholars and students—for all learners. We, the higher education community, are learning every day that exams, like the SAT in the United States, are too narrow as measures of aptitude and achievement. We need, then, to place less and less weight on such exams and instead stretch our own minds and design additional and alternative measures that embrace the breadth of intelligence.

Disciplines are useful constructs in many ways, but they are constructs, and where they constrain us—constrain our thinking—they become less useful, and we must be prepared to think beyond them. This can be among the most difficult changes for universities. At ASU we strive, in our design and implementation, to bring the disciplines together. An example of this is the Biodesign Institute. We are pursuing such interdisciplinary conceptions because without intellectual fusion—without enabling the most creative thinking—we are destined to fall behind.

The university is probably the most important institution on this planet. We are the generators and incubators of new ideas, new science, new materials, new objects, new technology, and new ways of thinking and problem solving. We are inherent problem solvers and embrace the task of understanding the world’s most complex challenges as our life’s work. At ASU, for example, we engage directly in such issues as affordable housing, migration and immigration, environmental sustainability, and the advancement of the knowledge economy and workforce.

Finally, we are focused on global engagement. We are here today because we recognize the importance and value of global engagement across many levels. The fate of the planet rests heavily with the people of the United States and the people of China.
The institutional challenge: new institutions are necessary to harness knowledge to address the challenges we face

With all this at stake, the institutional challenge for universities is great. The success of our countries, our cities, and our families, rests in many ways with the academic leadership of the world. To illustrate more specifically what I mean by this I would like to walk us through a case study.

**Science**

**Approaches to Inquiry**

### 5000 years before 1700
- **Pre-Science**
  - Look at nature
  - Make educated guess as to how it works

### 1700-2000
- **Traditional Science**
  - Study nature
  - Hypothesize how it works
  - Make very educated guess as to how it works and what it means
  - Build theory (predictions)

### 2000-
- **Integrated Science**
  - Traditional science
  - Expand and link
    - Observation
    - Experimentation
    - Modeling
  - Integrate with natural science
Excellence and embeddedness: sustainability

Outcome based inquiry

The long-term sustainability of our planet remains in doubt. We are not currently organized, as a species and as nations of the world, to be sustainable. Universities need to re-equip and redesign themselves in order to deal with the challenges this presents.

Most U.S. and Chinese universities are based on a model dating from 1700–2000. Since the year 2000, however, we have seen the need to rapidly accelerate the development of integrated science, and inquiry that expands and links together observations from natural science, economics, and social science in its models. We need to integrate within each of these categories and across them. We conceptualize this integration as outcome-based inquiry, use-inspired research, and intellectual fusion.
Universities as entrepreneurs: economic development and societal transformation in the knowledge economy

The university as entrepreneur, as I mentioned earlier, does not mean becoming a business, but it does mean finding ways to leverage the university’s unique products: knowledge. At ASU we have built programs to help local biotechnology companies get venture funding, opened a center to incubate student companies, developed a strong technology transfer arm, built use-inspired (technology product-driven) research entities such as our Biodesign Institute. We are building a new kind of knowledge and innovation center in collaboration with the surrounding community, and something called Macrotechnology Works, which will help conceptualize new products, from the first seed of an idea through to production—this “skunkworks” takes on entirely new technology ideas and helps work out how to design, build, and produce innovative products.
Outcomes: University Design Toolkit and the Global Institute for University Design

Now I would like to turn to our task over these coming two days. We are here to start building a toolkit for university design. This toolkit will take the tangible form of a book, and will be geared toward how to design universities that can adapt as rapidly as society is changing. This toolkit will be the first product of a developing Institute for University Design, in which we will work together, all learning from one another’s experiences, to conceptualize the design parameters that will help us successfully conceive and construct the universities of the twenty-first century and beyond.