

The Performance and Role of Chinese Higher Education

Prof. Nian Cai LIU

Center for World-Class Universities, Shanghai Jiao Tong University, China
and CGHE International Co-Investigator

11 April 2018

Introduction of Chinese Higher Education

Excellence Initiatives in Chinese Higher Education

Institutional Strategies of Top Chinese Universities

Performance of Chinese Universities in ARWU

Final Remarks

Introduction of Chinese Higher Education

Excellence Initiatives in Chinese Higher Education

Institutional Strategies of Top Chinese Universities

Performance of Chinese Universities in ARWU

Final Remarks

Overview of Chinese Higher Education

China has the largest higher education system with the number of enrolled students at 37 million and a gross enrolment ratio of 43%.

The number of new graduates in 2018 will be more than 8 million, with more than 0.5 million Master's graduates and more than 50,000 new doctorates.

The total higher education investment is about 160 billion USD, but the expenditure per student is only about 5,000 USD.

Internationalization of Chinese Higher Education

International collaboration programs and projects in Chinese universities is about 2,600, the quality of such programs is improving steadily.

490,000 international students from 205 countries were enrolled in Chinese universities in 2017, and the number is increasing rapidly.

Chinese universities have more than 100 campuses and programs outside China, and many more are expected.

Research at Chinese Universities

Chinese universities did little research in the 1980s. Until the late 1990s, research at Chinese universities was not so important as one might wish.

Currently, about 80% of scientific publications by Chinese is contributed by universities, and 80% of research grants of national scientific foundations is awarded to university researchers.

Several Chinese universities are among the top 50 universities in the world in the number of publications indexed in the Web of Science.

R&D in China

R&D expenditure of China in 2017 was 1,750 billion RMB or about 280 billion USD, which was about 2.1% of GDP.

R&D expenditure of China increases at an annual rate of about 10%.

Chinese government announced a major national initiative to strengthen fundamental research in January 2018.

Introduction of Chinese Higher Education

Excellence Initiatives in Chinese Higher Education

Institutional Strategies of Top Chinese Universities

Performance of Chinese Universities in ARWU

Final Remarks

Overview of Excellence Initiatives

Projects/programs that aim to finance the development of world-class universities or world-class subjects in an accelerated fashion through concentrated funding at organizational level by national governments.

Chinese Excellence Initiatives in recent years include [211 Project](#), [985 Project](#), [2011 Project](#), [Double World-Class Project](#), etc.

211 Project

Goals: To develop about 100 first-class universities and subjects.

Phases: Several phases between 1995 and 2015.

Funding: About 36 billion RMB (more than 5 billion USD) from the governments.

Institutions: A total of 109 universities have been funded.

985 Project

Goals: To develop several world-class universities.

Phases: 1999-2001 (I); 2004-2008 (II); 2010-2014 (III); with transition years in between the phases.

Funding: More than 100 billion RMB (about 15 billion USD), about half of which was from the central government.

Institutions: A total of 39 universities have been funded, [the top nine universities \(C9 Group\) have received close to half of the government funding.](#)

Double World-Class Project (2017-)

42

Universities

To build
World-Class
Universities

95

Universities

To build one
or a few
World-Class
Subjects

Features of Double World-Class Project

An excellence initiative upgraded from 985 Project, 211 Project, 2011 Project and others.

At both institutional and subject level, selected by the governments with help of an expert committee.

Institutions have the autonomy of making their strategic plans, and are required to put their plans on their websites.

Evaluation is expected in 2020, those not performing well enough will be removed from the project.

Impact of Excellence Initiatives

Increasing recognition of the strategic importance of world-class universities for national innovation system and knowledge-based economy, and for a country's international competitiveness.

Increasing awareness of the strategic importance of international competition for building world-class universities.

Introduction of Chinese Higher Education

Excellence Initiatives in Chinese Higher Education

Institutional Strategies of Top Chinese Universities

Performance of Chinese Universities in ARWU

Final Remarks

Setting Strategic Goals

Continuously making and modifying its strategic plans along with the national initiatives for building world-class universities such as 985 Project and Double World-Class Project, during which process strategic goals are being set.

Requiring their schools and departments to make strategic plans accordingly, during which process **schools and departments have to benchmark themselves with their international peers and references.**

Improving Faculty Quality

Raising requirements for recruitment and criteria for promotion and evaluation.

Global recruitment for professors and associate professors, with equal opportunities for both internal and external applicants, at home and abroad.

Special initiatives to recruit faculty members with doctoral degrees of and/or working experiences at world-class universities.

Encouraging Research Excellence

Encouraging research of international standards with a variety of incentives in terms of funding, facilities, laboratories, and human resources.

Emphasizing quality publications by rewarding quality publications, setting publication requirement for faculty promotion and evaluation, setting publication requirement for doctoral students.

Supporting innovation and technology transfer.

Promoting Internationalization

Strengthening strategic partnerships with a few carefully selected world-class universities or even world-top universities.

Promoting internationalization of education and research at school, departmental, and individual faculty level in a variety of forms.

Increasing the number of international students in degree programs and diversifying their countries of origin.

Diversifying Financial Resources

Regular block funding from the government based on the number of students.

Governmental funding of special initiatives such as 985 and Double World-Class.

Research income from governments, funding agencies and corporate sponsorship.

Tuition fees and revenues from continuing education and professional training.

Endowments and donations which are increasingly important to support chair professorships.

Influences of Institutional Strategies

The organizational culture of top Chinese universities has been transformed:

From domestic standards to international ones;

From domestic competition to international one;

From quantity indicators to quality ones.

Introduction of Chinese Higher Education

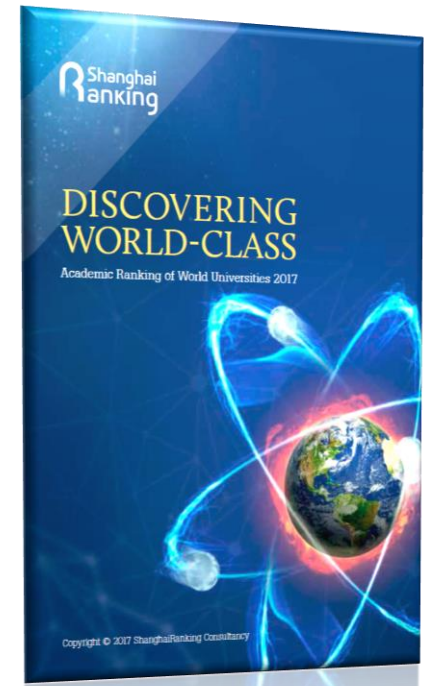
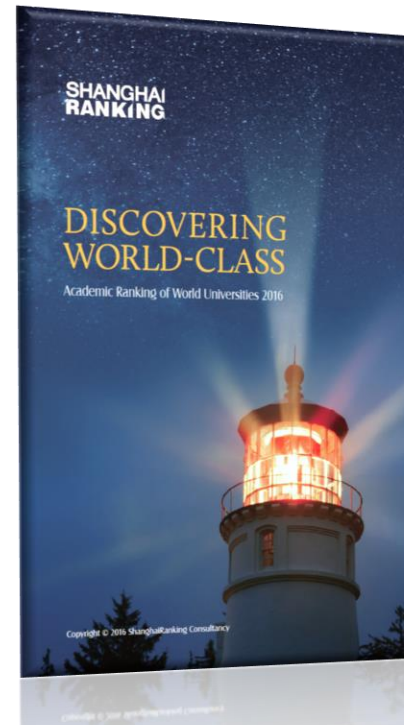
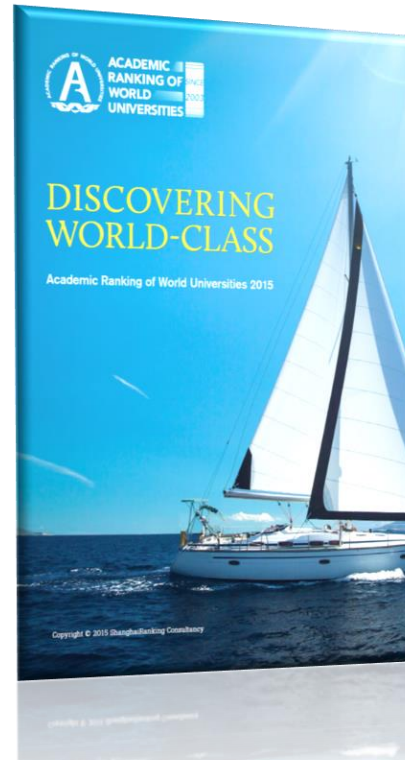
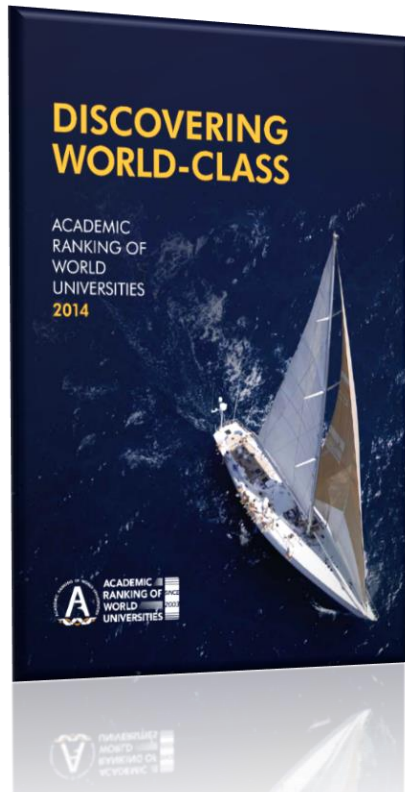
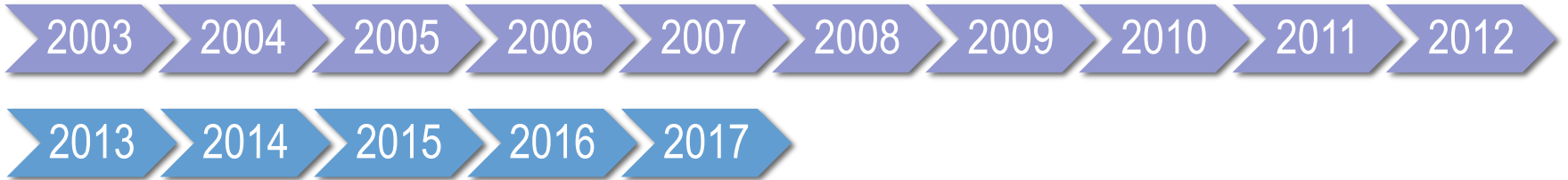
Excellence Initiatives in Chinese Higher Education

Institutional Strategies of Top Chinese Universities

Performance of Chinese Universities in ARWU

Final Remarks

Academic Ranking of World Universities (ARWU)



Features of ARWU

Objective indicators

Third-Party data

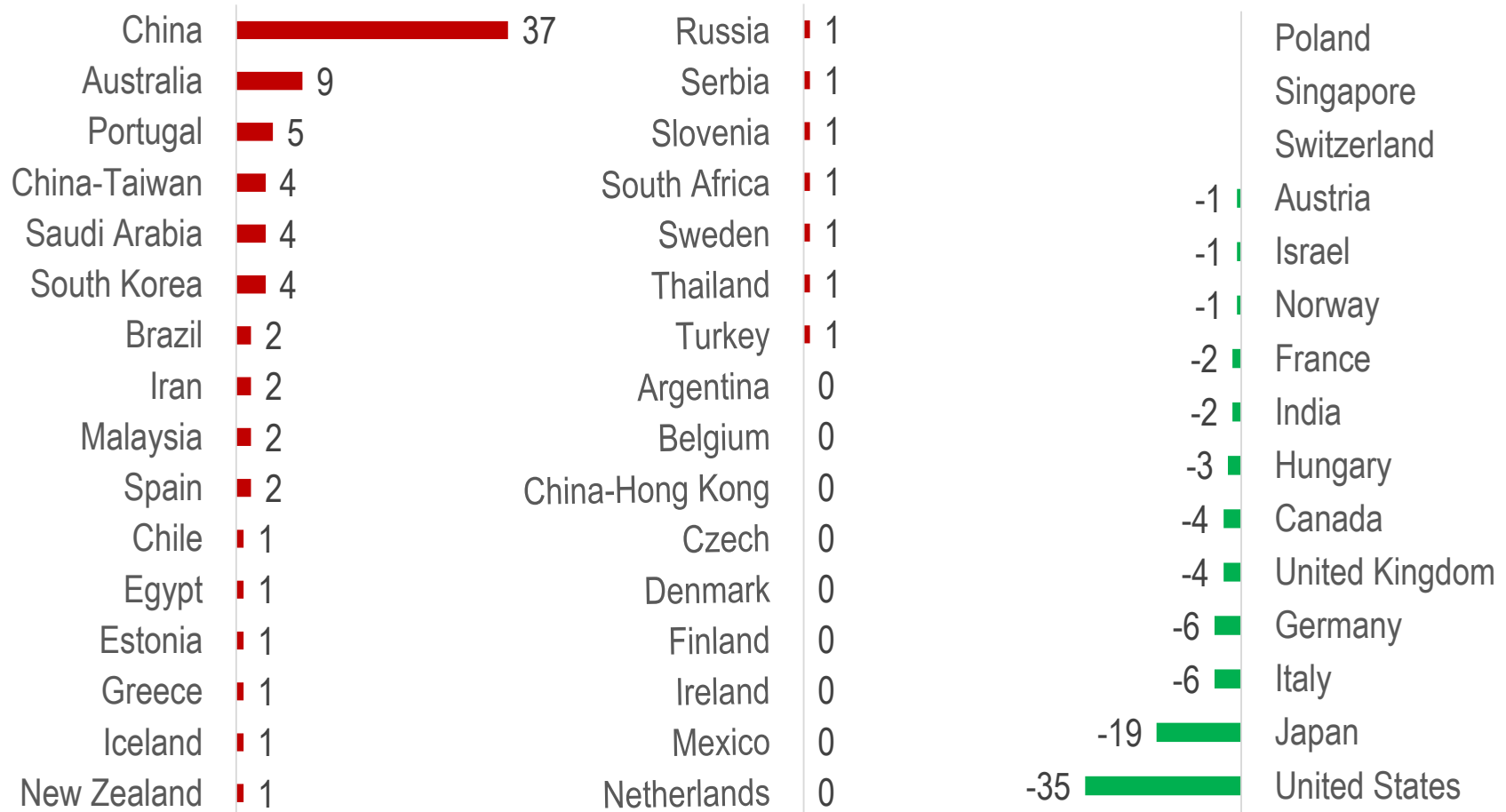
Transparent

Consistent

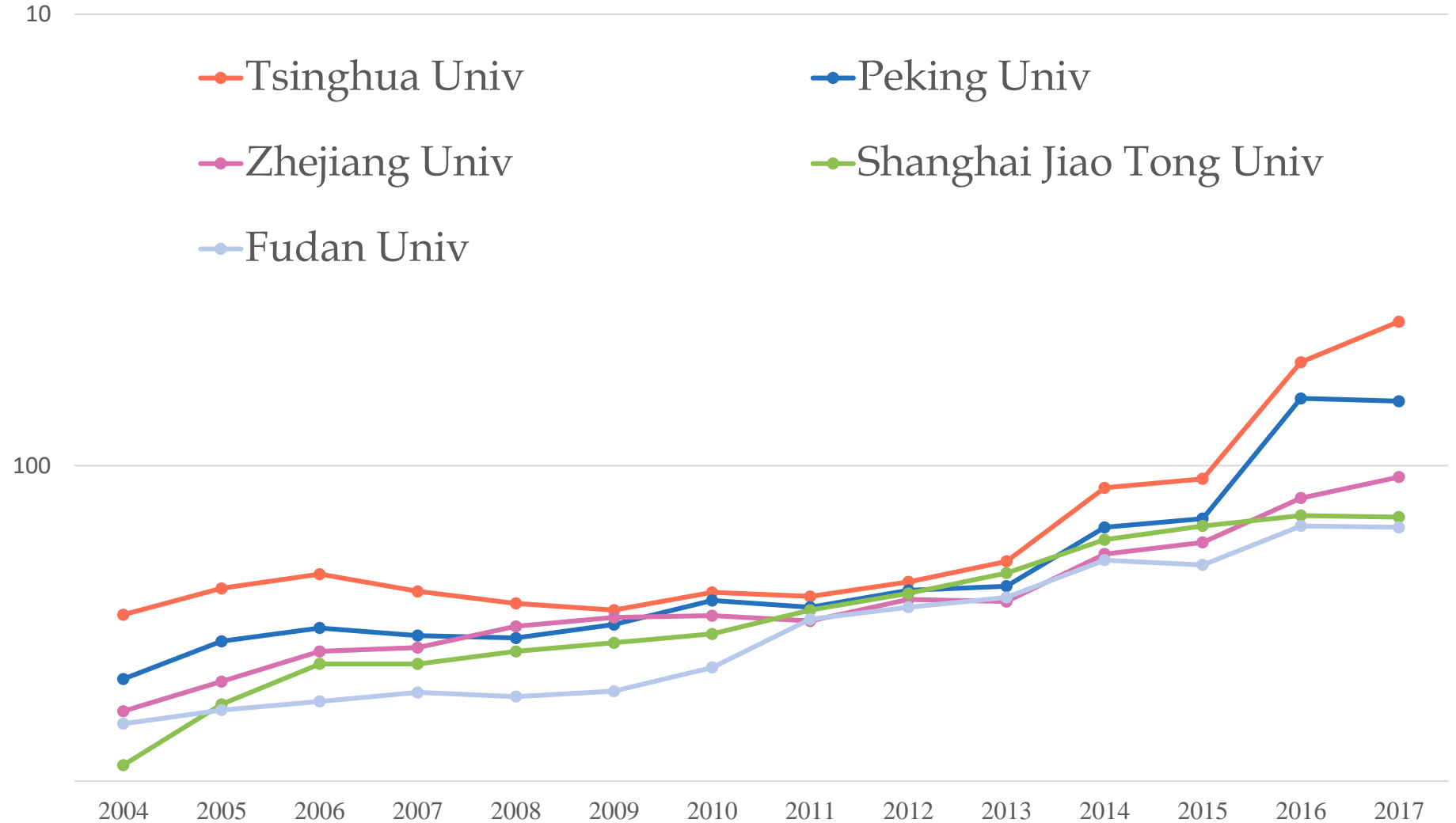
ARWU Methodology

Criteria	Indicator	Code	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	Alumni	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	Award	20%
	Highly cited researchers in 21 broad subject categories	HiCi	20%
Research Output	Papers published in Nature and Science	N&S	20%
	Papers indexed in Science Citation Index-expanded and Social Science Citation Index	PUB	20%
Per Capita Performance	Per capita academic performance of an institution	PCP	10%
Total			100%

Changes in Top 500 Universities: 2004 => 2017



Positions of Top 5 Chinese Universities in ARWU



The Improvement Is Remarkable

Total number of Chinese (Mainland) universities ranked in the Top 500 of ARWU increased from 8 in 2004 to 45 in 2017.

Top Chinese universities have started to appear in the Top 100 list of ARWU since 2016.

The Gap Is Still Huge

The original purpose of ARWU was to find out the gap between top Chinese universities and world-class universities.

The number of Chinese universities appearing in and close to the Top 100 of ARWU is small, and they are still far away from the Top 20.

Considering the population and GDP of China, the gap between top Chinese universities and world-class universities is still huge both in quantity and in quality.

The Design of ARWU Indicators

Award and Alumni as top quality indicators to differentiate World Top Universities: Top 20 universities in ARWU have about 50% share of the Award and Alumni of all universities respectively.

HiCi and N&S as high quality indicators to differentiate World-Class Universities: Top 100 universities in ARWU have about 60% share of the HiCi and N&S of all universities respectively.

Top 200 universities in ARWU have close to 50% publications of all the universities ranked.

Performance by ARWU Indicators

ARWU Indicator	Award	Alumni	HiCi	N&S	PUB
Harvard University	11.6	38.8	84	460	17000
Average of Top 20 Universities of ARWU	4.8	10.3	28	147	7700
Average of Top 100 Universities of ARWU	1.5	3.4	13	57	5500
Average of Top 5 Chinese Universities in ARWU	0.0	0.2	6	23	8200
<i>Total of Top 5 Chinese Universities in ARWU</i>	0.0	0.9	31	117	
<i>Total of Top 50 Chinese Universities in ARWU</i>	0.0	1.8	90	221	

A Long Way to Go

Although Chinese universities have been improving quickly in recent years and the gap between Chinese universities and world-class universities has become smaller and smaller, **there is still a long way to go for top Chinese universities to be fully competitive with world-class universities.**

Introduction of Chinese Higher Education

Excellence Initiatives in Chinese Higher Education

Institutional Strategies of Top Chinese Universities

Performance of Chinese Universities in ARWU

Final Remarks

Greatest Challenge at Institutional Level

The percentage of faculty members at top Chinese universities who are doing research because of intellectual curiosity is still very low.

Radical reforms of faculty evaluation and reward system are necessary to create a truly excellent research culture in top Chinese universities.

Greatest Challenge at National Level

The current national research evaluation system is driving institutions and researchers to focus on quick indicators such as grants, publications, awards, and ranking positions.

Radical reforms of the national research evaluation system are necessary to create a truly excellent research culture in Chinese higher education system.

Major Challenges at Global Level

Pressures from the rapid rise of Chinese higher education.

Suspicious about the objectives of international initiatives from China.

Concerns on Chinese characteristics.

Cooperation for a Shared Future

Chinese universities are open and eager to have more and deeper cooperation with institutions in the world for a shared future.

Chinese universities are ready to contribute more and better opportunities, funding, and talents for such international cooperation.

Chinese characteristics are a help rather than a hindrance in such international cooperation. They are essential for the development of China and beneficial to the world.



Thank You!

www.Shanghairanking.com