

OECD-Japan Seminar on “Global Strategies for Higher Education— Global trends & Rethinking the Role of Government”

*Panel Discussion: Knowledge-based society, commercialization, globalization, and
change of relationship between higher education institutions and government*

What is the appropriate balance between the government control and university autonomy in a changing world?

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Outline

What are the major trends ?

What caused these trends?

Pros and cons of state control?

Pros and cons of autonomy?

Is there an optimal balance?

Way forward

Growing Enrollments in Higher Education

New Normal:

- ❑ Diverse education providers- public, private, for-profit, on-line, combinations
- ❑ Cross-border higher education; Internationalization of higher education
- ❑ Global ranking of universities and higher education systems

NOW

~ 32% age cohort enrolled in higher education

2000

19% age cohort enrolled in higher education

19th Century

Less than 1% age cohort in higher education

Growing Enrollments in Higher Education

Assumptions:

- more education is the way to mitigate the income gap (Gini index)
- more education is the way for economic competitiveness

High Income Nations:

From mass higher education to universal access

Emerging Nations:

Pursuing mass higher education

Widening access to tertiary education

❖ *20,000 universities/IHLs*

❖ *~ 200 million students*

❖ *~ 40% enrolled in private sector*

Drivers of Private Higher Education

- Growing demand for tertiary education
- States unable to find resources and meet the demand
- Greater flexibility
- Isomorphism of public universities

Private Higher Education Institutions

Mishmash of Institutions

- Elite
- Not-for profit
- For profit
- On-line
- Open
- Dubious

Growing Enrollments in Higher Education

Is this achieved without due attention to the quality of higher education ?

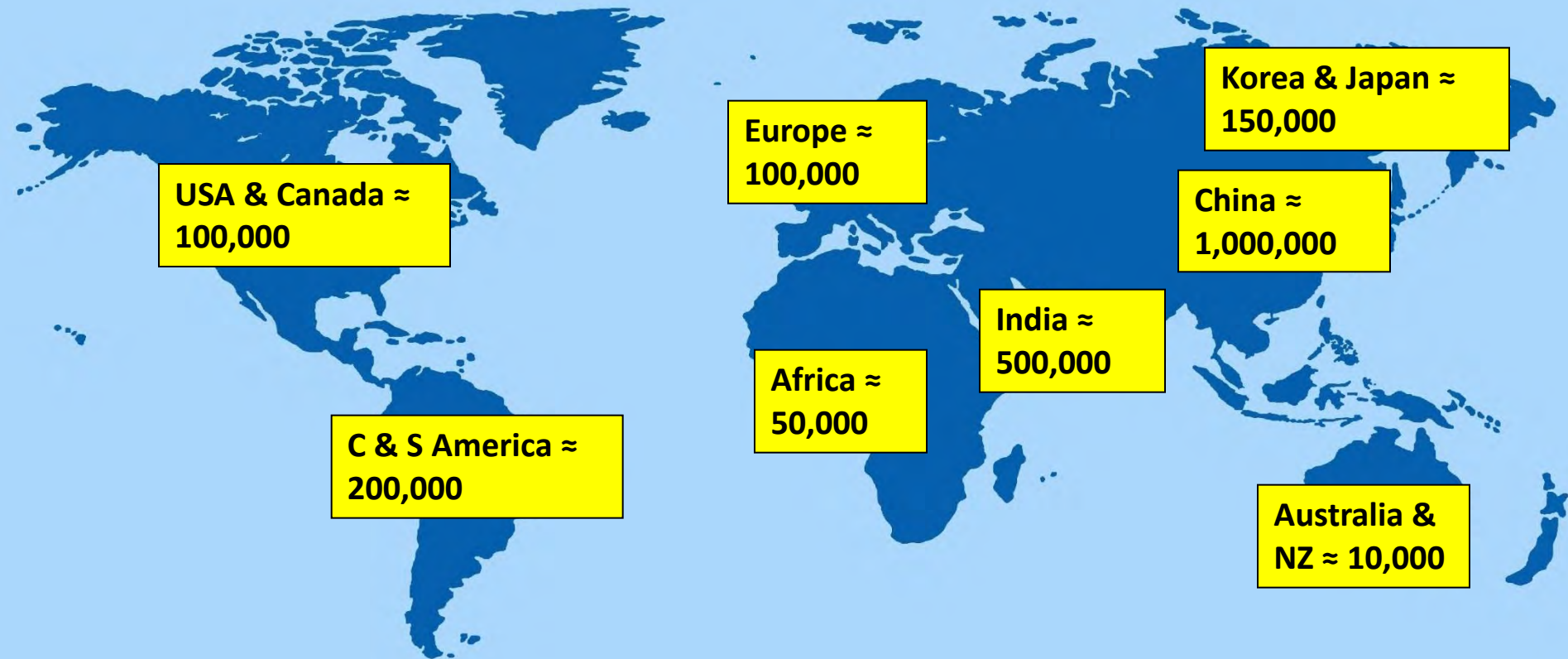
Poor infrastructure or no infrastructure

Ill trained professors; resistance to pedagogical innovation

Graduates lack critical skills. Theory but no hands on experience

Quality assurance ?

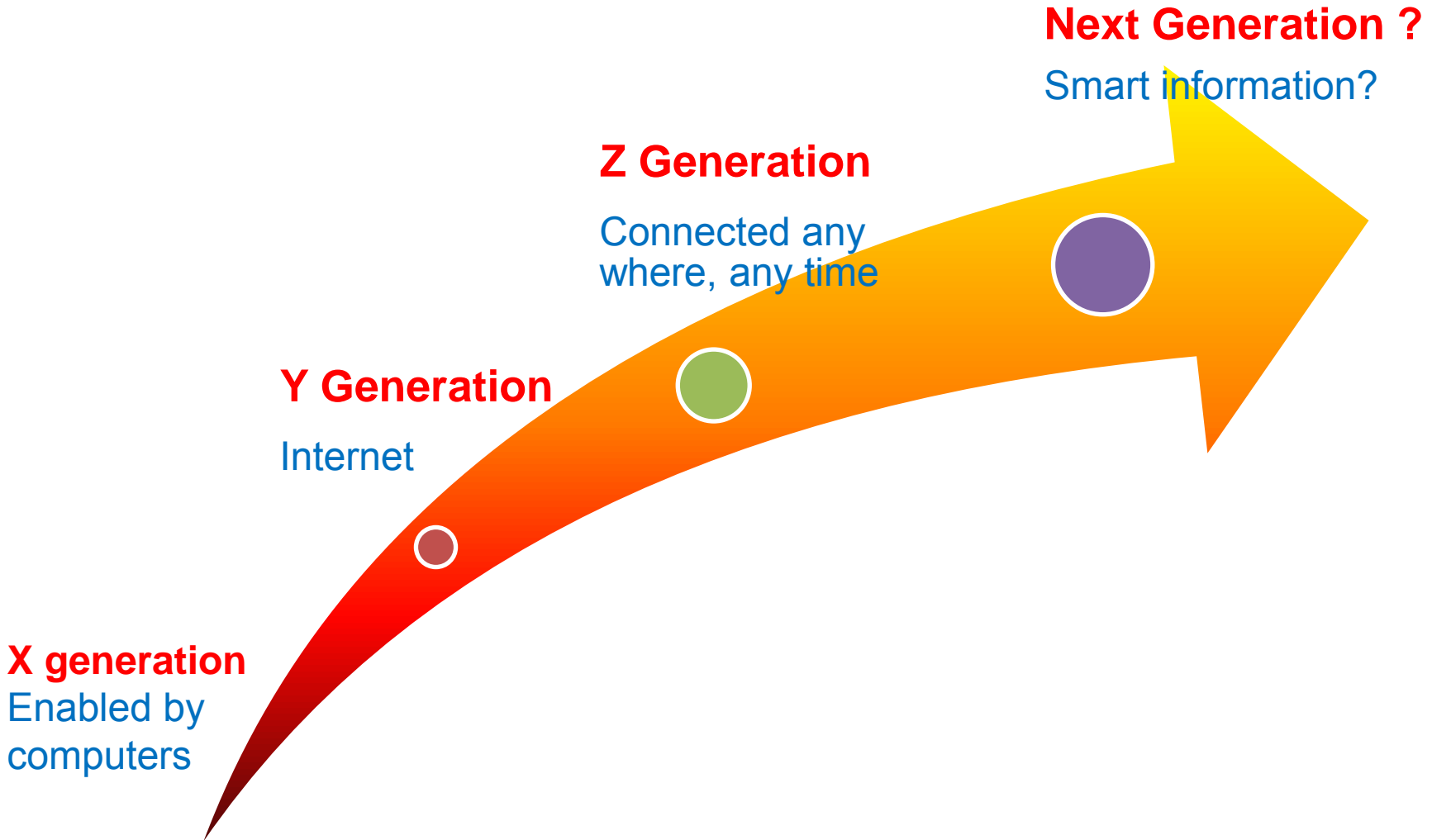
Emphasis is skewed towards professional disciplines in emerging nations



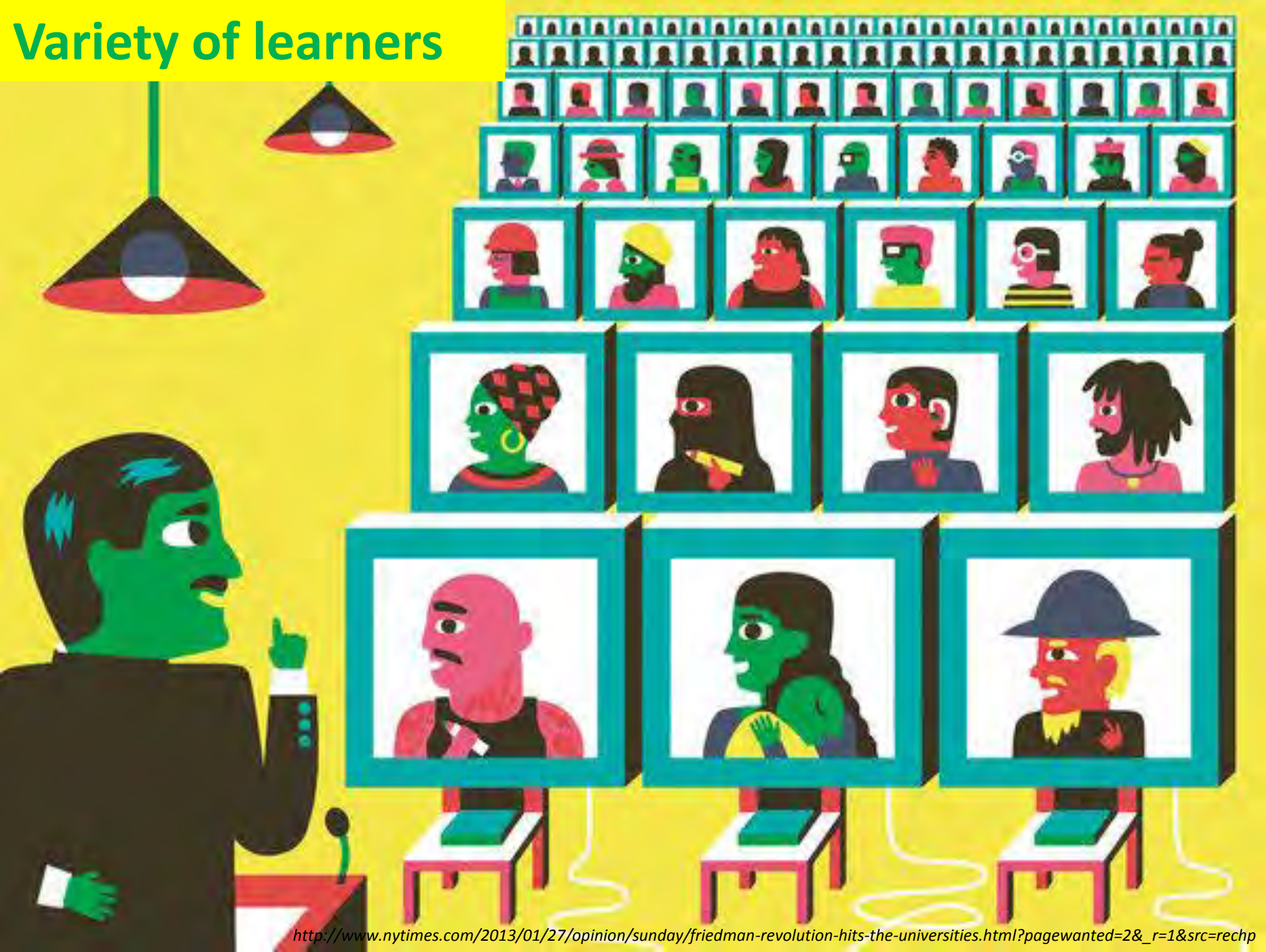
~ two million engineering graduates per annum
~ 6,000 Engineering colleges



Changes shaping the generations



Variety of learners



Flipped

Teacher instructs lesson at home
(video / podcast / book/ website)

Students work in class.

- Deeper understanding of concepts, applications, and connections to content are made.
- Students receive support as needed.

Traditional

Teacher instructs

Students take notes

Students follow guided instruction

Teacher gives assessment

Students have homework

Fully online degrees



- ❖ Free video micro-lectures
- ❖ Unaccredited
- ❖ Non-profit, tuition-free
- ❖ Peer-to-peer learning
- ❖ Pay-by-the-course Gen Ed



Fully online courses, MOOCs

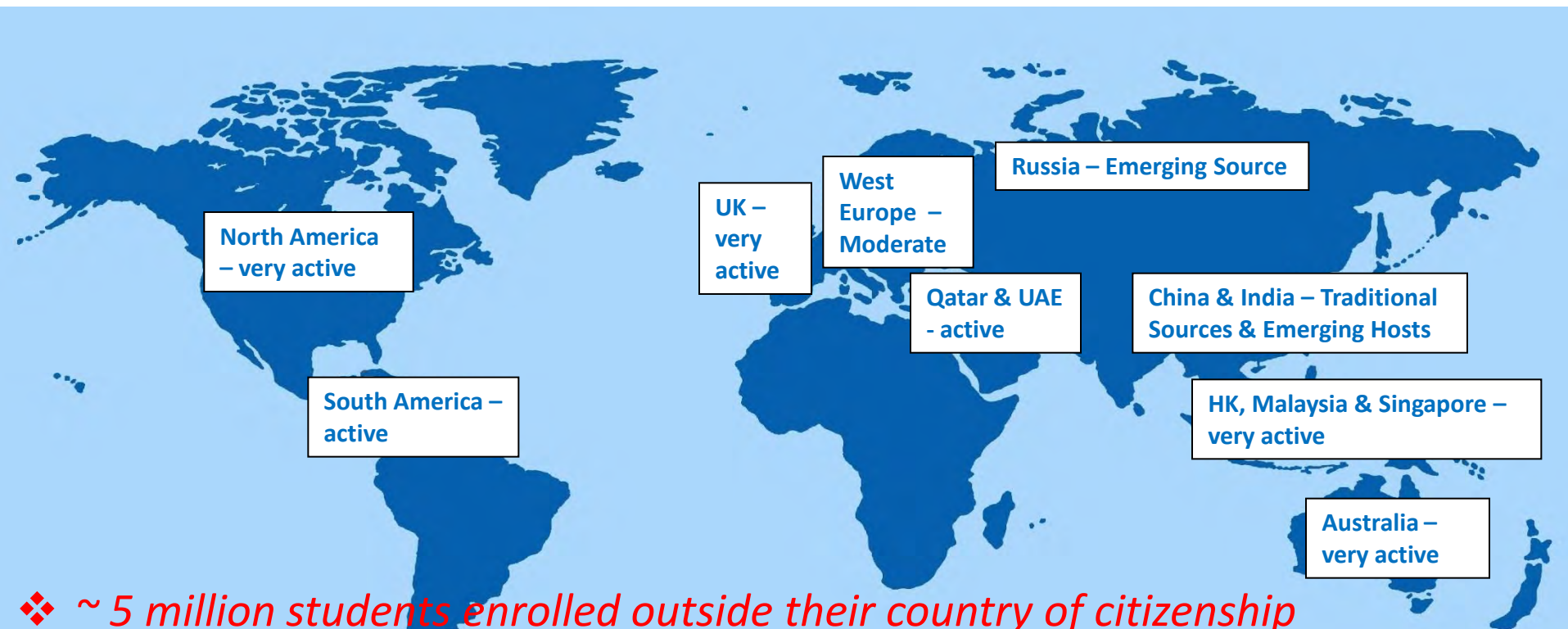
<http://www.edtechtips.org/2012/09/18/flip-classroom-instruction-1/>





External education &
degree are prized

Transnational Higher Education Markets

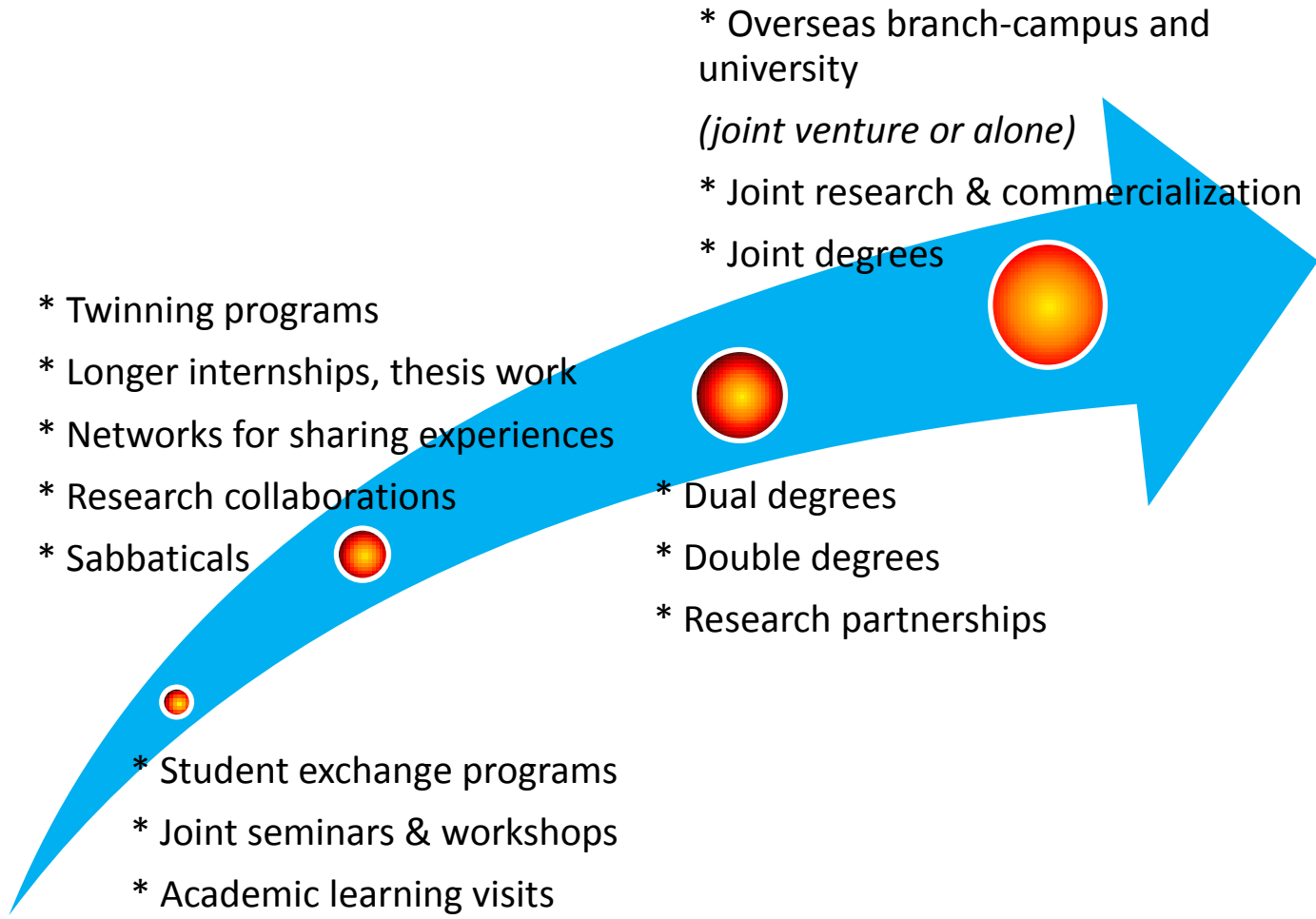


- ❖ *~ 5 million students enrolled outside their country of citizenship*
- ❖ *Value of international education market ~ \$60 billion*
- ❖ *Tertiary education as % services trade (import + export) ~1.5%*
- ❖ *Private higher education has been around for some time in several different forms*
- ❖ *For-profit higher education is relatively new, since 1970s; Universities public in respective country operate as for profit enterprises overseas*





Internationalization of Higher Education

- ❖ Internationalization in abroad
- ❖ Internationalisation at home

Complexity



Various ranking organizations list up to 500 universities worldwide

Ranking Organization	Research Related	Education	Internationalization	Per Capital Performance	Industry Income	Employer Perception	
HEEACT	100%	0%	0%	0%	0%	0%	
ARWU	80%	10%	0%	10%	0%	0%	
THE	62.5	30%	5%	0%	2.50%	0%	
QS	60%	20%	10%	0%	0%	10%	

Academic reputation

International awards

Employer reputation

Research volume

Research income

Citations per faculty

Faculty : student ratio

Qualifications of faculty

International Faculty



Implications of Rankings

- Isomorphism of universities as they are captive to the prestige
- Hierarchism of universities

- Brain drain
- Concerns on sustainability; vaguely understood performance based funding

- Priority to the disciplines relevant to ranking
- Less attention to the teaching there by affecting the quality of education

- Stakeholders attention
- Justification for investments

- Attraction of talent
- Mobility of talent

- Opportunities for partnerships
- Streamlining of operations
- Aspiration for new standards

Measure of research quality & impact

Bibliometrics

(No. of Papers;
Citations; etc)

Peer Review

Bibliometrics:

- ❖ Projected as the objective and best proxy indicator
- ❖ Appealing to stakeholders
- ❖ Enable benchmarking

Peer Review:

- ❖ has been the tradition of higher education institutions for centuries to assess the quality and impact of scientific/scholarly research

Impact of University League Tables

Germany: Increased research funding to a few (~9) universities

France: Grouping of institutions and more investments

India: University Grants Commission (UGC) announced a new guideline that foreign educational institutions keen on partnering (twinning programs or joint degrees) with Indian ones to be among the top 500 institutions ranked in the THE or Shanghai list....

Russia: Russia awarded official national recognition to the degrees from the top 210 universities in the world university league tables...

Brazil: Science without borders scheme taps on world university league tables to approve the destinations of 100,000 Brazilian students...

Indonesia: contemplating to rise the standards of 100 plus public universities and ~3,000 private higher education providers

Innovation

20th Century

- * **Corporation led Innovation**
- * Dominant role of USA
- * Systematic role of scientific research & technology
- * Miniaturization of products
- * Standard products for markets around the world

19th Century

- * **Individual led Innovation**
- * West European Nations
- * ~1000 researchers

Pre-industrialization

- * Sporadic innovations led by individuals and scholars
- * Apprenticeship model

21st Century

- * **Distributed Innovation**
- * Re-emergence of Asia
- * Increasing role of universities
- * Large scale interaction among participants; importance of networks
- * Innovations facilitated by systems & superdisciplinary approaches
- * More than 10 million researchers
- * Accelerated pace of innovation
- * Customization to the local markets
- * Frugal Innovations

Singapore

Global Partnerships

MIT: Infectious Diseases; Environmental Sensing & Modeling; Bio-Systems and Micromechanics; Future Urban Mobility

ETH, Switzerland: Future Cities Laboratory

UC Berkeley: Sustainable Buildings and Renewable Energy

TUM, Germany: Electromobility in Megacities

Cambridge University: Low carbon processes



Technion Institute of Technology, Israel: Cardiac Restoration Therapy

Hebrew University of Jerusalem: Mechanisms of Inflammation

Cornell will build the new applied sciences and technology campus in New York City



Cornell University

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WIN-WIN! CORNELL SEALS THE DEAL FOR NYC TECH CAMPUS

LEARN MORE

<http://www.cornell.edu/nyc/>

Proposed Cornell University plan for Roosevelt Island. Courtesy of Cornell University and Skidmore, Owings & Merrill

It's official! Mayor Michael Bloomberg has selected Cornell and its partner, the Technion – Israel Institute of Technology, to realize his vision for a cutting-edge NYC tech campus that will serve as a global magnet for tech talent and entrepreneurship. Follow the latest news and information about this exciting initiative:

Cornell will build the new applied sciences and technology campus in New York City

New York City's tech sector is unique. Its information-driven economy is serving as the impetus for the development of many consumer-oriented companies focused specifically on technology to meet end users' needs, including those of NYC's core industries: media, advertising, finance, healthcare, real estate, fashion and design, to name a few.

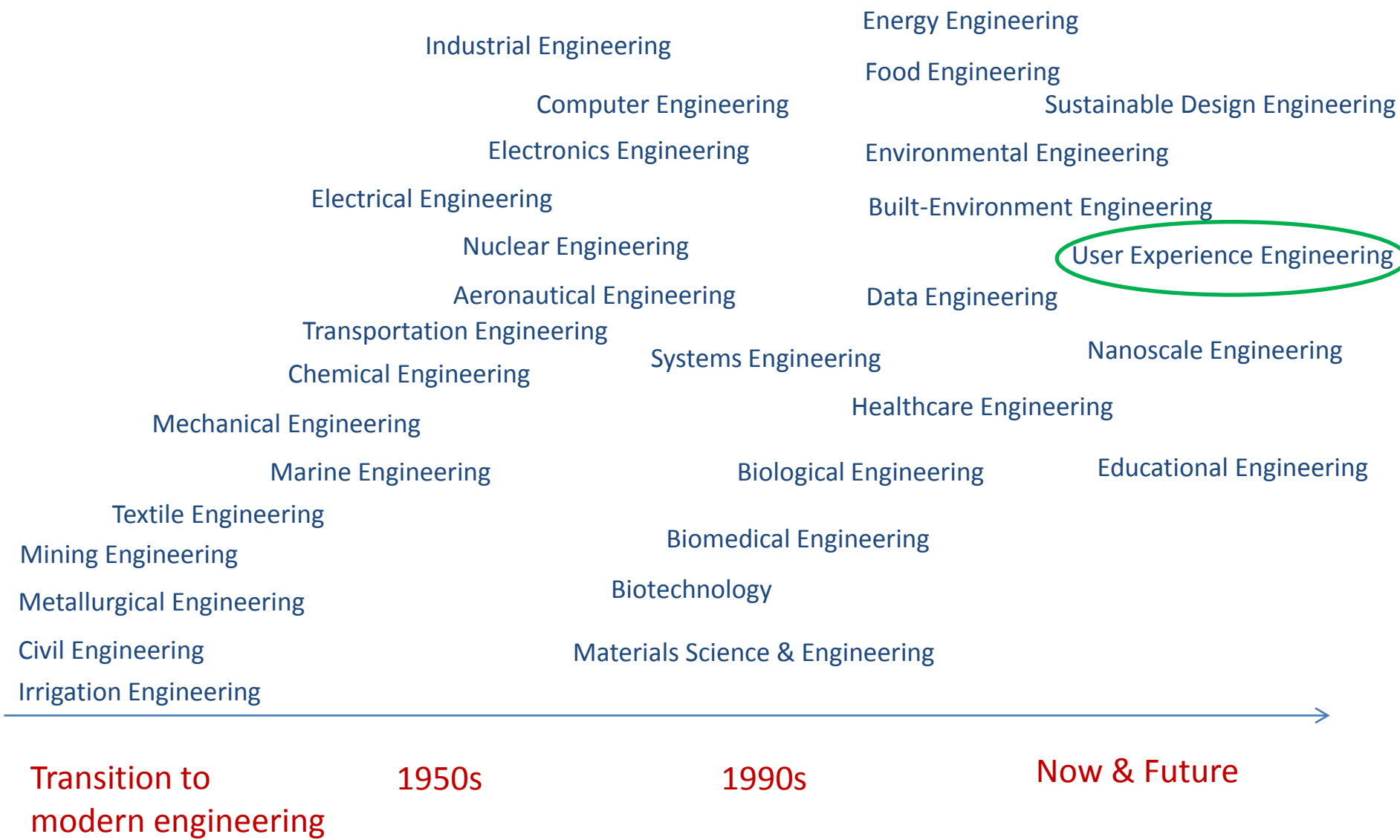
The NYC Tech Campus will be centred on flexible and dynamic interdisciplinary application hubs instead of traditional academic departments. The first three hubs – **Connective Media, Healthier Life and Built Environment** – reflect NYC's information economy today and where it's going.

Significant ROI: Estimated \$23 B (nominal) economic benefit and \$1.4 B in tax revenue over 3 decades



Challenges of societies

Engineering is transforming with time....



eg: user experience engineering



Source: X. Fouer, *The XXIst Century Da Vinci: A Systems Engineer?*, 40th SEFI Conference, 2012, Thessaloniki, Greece