



Higher Education Summit *“Universities of the Future”*



Theme Address **Rupamanjari Ghosh**

Co- Chair, FICCI Higher Education Committee & Vice-Chancellor, Shiv Nadar University

FICCI Summit Program – 30-31 October 2018

- University 4.0 & beyond
- Financing Model 4.0
- University as a Gateway to Knowledge
- Future of University Degrees
- Program Designs & Learning Systems – Integrating high-order skills
- The way I learn – A student in University 4.0
- Brand India – the opportunity to educate the world

Blended Learning integrates the best of face-to-face teaching (and learning) interactions with those that occur outside-of-classroom type settings.

(Blended) Learning is a designed endeavor -- one size (model / approach) does not fit all.

University 1.0

***Gurukuls* of India and the Academies of Greece**

- High quality
 - high teacher-to-student ratio
 - flexible schedules and syllabi that were highly personalized to every student's requirements
 - wide span of subjects - from astronomy to zoology
- Fundamentally unscalable
 - limited knowledge that was closely guarded
 - restricted access only to the most fortunate and influential

University 2.0

Broadcast + Assembly Line Model

- Mass enrolment
 - one-to-many information dissemination
 - focus on rote learning and term-based testing
 - one method to teach all
- Poor quality
 - prioritize literacy and recall over problem-solving and curiosity-driven exploration
 - forced-expansion of access at the cost of personalization and dedicated attention
 - knowledge still limited to books and syllabus

University 3.0

Focus on Quality while Upscaling, with Technology as the Lever

- Open Public Infrastructure
 - public spending must expand the install base of the fundamental layers of innovation
 - create a free open national knowledge base
 - eliminate friction - allow for infrastructure to scale and optimize for quality
cross-institutional, cross-cultural educational opportunities
- Tech-enabled Pedagogy
 - collaborate with best-in-class technology companies to unleash solutions at scale
 - knowledge networks, personalized and adaptive learning, blended education, data-driven continuous assessments, multi-format simulations and practice environments...

What is 'Knowledge'?

Knowledge is not a body of totally-certain beliefs.

In the academic tradition, knowledge is *a body of rationally justified conclusions beyond reasonable doubt.*

It leaves an opening for questioning / reasonable doubt when that doubt comes up, and this is how Knowledge progresses.

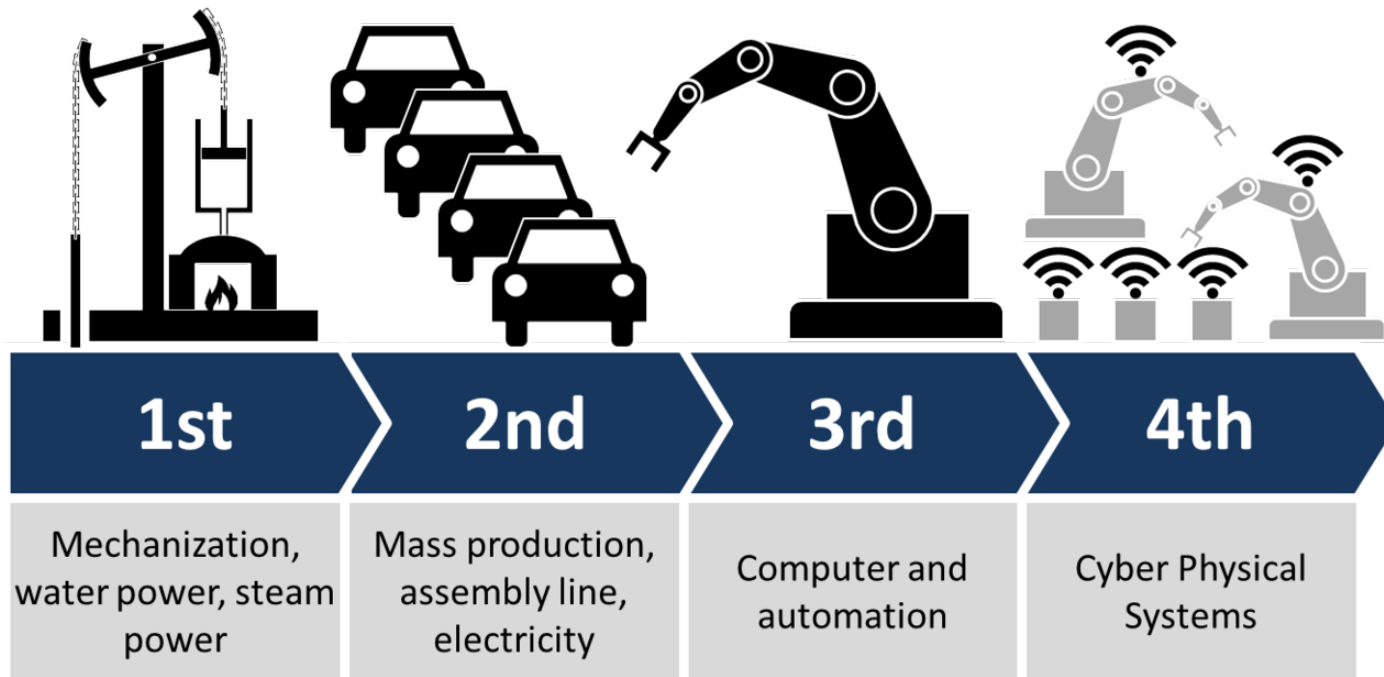
Purpose: Learner at the center

- It is our responsibility as educators to ensure that our students are 'trained' in the practice of these norms of academic knowledge.
- Changes in the “Knowledge Society Discourse” are driven by changes in the higher education, reflecting the challenges & expectations generated for higher education.

Today's context: Industry 4.0

Current trend of automation & data exchange in manufacturing technologies

Includes cyber-physical systems



Christoph Roser at AllAboutLean.com

“Future of work”

- There is widespread concern over the potential impact of Industry 4.0 on employment.
 - Education needs to stay aligned with the fundamental changes in the nature of work, and address the issue of **employability**.
- With the job market changing very fast in today’s world, many of the skills that were needed yesterday are *not* relevant today.

Ongoing ‘skill acquisition’ is critical to persistent professional relevance...

Liberal (= free, without boundary) studies

- If skill development is taken *outside* the higher education system and given a narrow mandate, the people being ‘skilled’ today will become unemployable in no time!

*“The value of an education in a liberal arts college is not the learning of many facts but the **training of the mind** to think something that cannot be learned from textbooks.”*

-- Einstein (1921), on Thomas Edison's opinion that *a college education is useless*; quoted in Frank, *Einstein: His Life and Times*, p.185

“Future of Work”: Education ↔ Livelihood

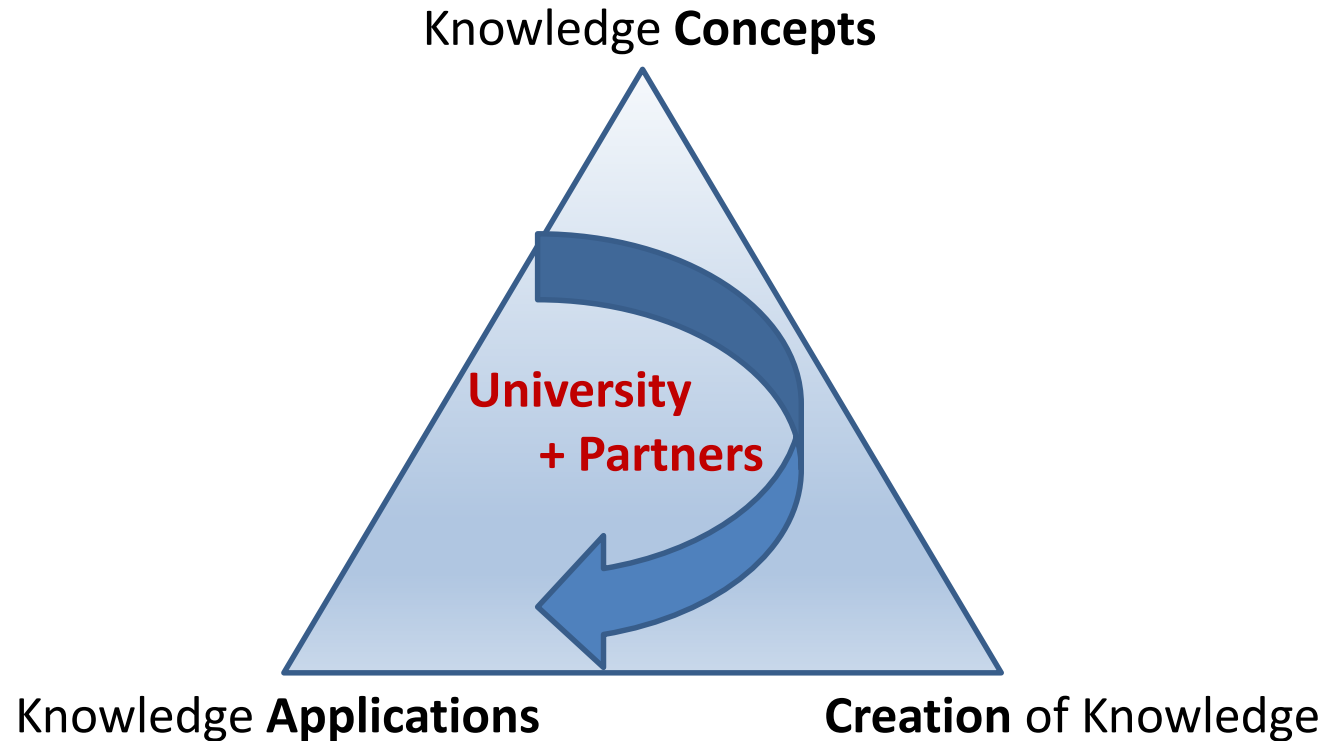
University 4.0?

Education **3.0** "is characterized by rich, cross-institutional, cross-cultural educational opportunities within which the learners themselves play a key role as creators of knowledge artifacts that are shared, and where social networking and social benefits outside the immediate scope of activity play a strong role".

-- Prof. Derek Keats [& J. Philipp Schmidt]

- But contemporary universities have been motivated by *self-interest* in the face of a competitive market landscape.
- Universities have to *shift from being self-focused* to being 'for others', the industries and communities around them – the "ecological university".

Knowledge triangle



- Universities have been charged with being “**knowledge incubators**”. They need to now step up, and become “**knowledge economy incubators**”.
- Serious logistic issues:

Access to Knowledge
Delivery of Services

Governance strategies

Two kinds of governance strategies needed in Higher Education:

- (a) a unique vision-oriented, **top-down** approach to provide directions, and then
- (b) an inclusive, **bottom-up**, organic approach for stable systems of delivery.

The system has to have all 8 major characteristics of good governance--**participatory, consensus oriented, accountable, transparent, responsive, effective & efficient, equitable & inclusive, and legal.**

- Leadership?

Ecosystems, not stand-alone institutions

“If you look at history, innovation doesn't come just from giving people incentives; it comes from creating environments where their ideas can connect.” -- Steven Johnson

- The teaching-learning process has to be **research & innovation driven**.
 - Effective blending of brick-&-mortar and **virtual** learning environments
 - Strong, equitable and credible **partnerships** – national & international, academic & industrial, public & private.
- **Ecosystems** of partners centered around universities are competitive necessities, in which everyone can win.

New India

- **Technology** is a great 'enabler'. But technology alone will *not* enable, since it functions in a **social** system... Social challenges are far more serious than the technological challenges.
- Rather than digital platforms and AI be just '*disruptive*' to a **lagging** education sector, I would like to control such powerful technology to serve our purpose/ vision of education... through innovation.

New India...

- Like before, University education should **drive**, and *not* just respond to industry/ technology.
- We need competent leadership and **resources**... to enable.

University 4.0 & beyond

- Highly **nonlinear** evolution – subsuming all future versions!
- *Universities of the future* will have a **new framework** -- should be a combination of brick-&-mortar and virtual learning environment, providing a mix of short- and long-term courses to a cohort of global students, facilitating credit transfers between departments and universities, imparting online assessment and certification, and focusing on research & innovation.

Changing, facilitating environment

- Independent **philanthropic** interventions in higher education are needed allowing for necessary *experimentation* towards excellence, which the government often cannot risk since it is spending tax-payers' money and is hence bound by *safe rules*!
- Rules & regulations necessarily set the **minimum** standards in a diverse and growing country like ours, and should not bring any *peak of excellence* down to the prescribed 'minimum' level!

Higher education's moment of choice

- We should retain some of the **unique** advantages the **Indian** higher education system has at this point in time.
- There are stages in the growth of each country/ community, and benchmarking mechanisms must have a **time stamp** on them.
- The Indian society has **many layers**, and one size does *not* fit all.
- Quality checks & balances needed... But the global rankings' focus on **uniformity** of parameters should not be allowed to narrow the diversity that universities need for innovation in every sphere -- in strategy, curricula, pedagogy and research.

Today's learner

- Ambitious -- values 'experience'...
- Motivated, but anxious
- Intellectually diverse, Global, Mobile
- Flexible, growing life-long

The amazing brain

- *Our brain's first job is to make sure we don't die.*

Human performance isn't just what we are physically capable of. It's what we are capable of within the context of what our brain is willing to endure at a given moment's risk and reward.

- "*Summit*" developed by IBM for the Oak Ridge National Laboratory, USA, is the world's fastest supercomputer (as of 8 June 2018) with **200 petaflops** of calculation speed → combined capacity of more than 1 million fastest laptops.

But in 70 years of developmental history of computers, we have not been able to surpass the calculation speed of the human brain, estimated at **1000 petaflops** (1 exaflop).

Aside: Nature vs Nurture debate

- *“Blueprint: How DNA makes us who we are”*
by Robert Plomin, a celebrated geneticist
[MIT Press, November 2018]

Why nature always trumps nurture... [Really?!]

'Diversity' is the key...

- Diverse, multidisciplinary [STEM → STEAM], Interdisciplinary curriculum, with inherent flexibility, needed for ground-level challenges & opportunities
- Help connect the left brain (verbal, analytical, and orderly) to the right brain (visual and intuitive)...
- Higher education needs the 'surprise' elements – not all to fit in the 'standard' statistics or standardized tests... Need to capture and nurture the uniqueness of individuals.

Diversity and creativity are the key...

- Will an algorithm take your job? What are humans still good for?
 - **Social intelligence** is far from being fully automated.
 - Humans also have the edge over machines in **creativity**...

Universities of the future

= knowledge economy incubators

banking on 'diversity' & creativity → innovation

= ecology university

(partnership drivers & quality controllers)

Universities are “zones of *openness*”.

“Universities will nurture the hopes of a *sustainable* world.”



Thank you