



自資高等教育聯盟  
Federation for Self-financing  
Tertiary Education



## Developing Higher Education for Next Decade

Technology advancement and its impact on  
higher education



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# Conference Theme

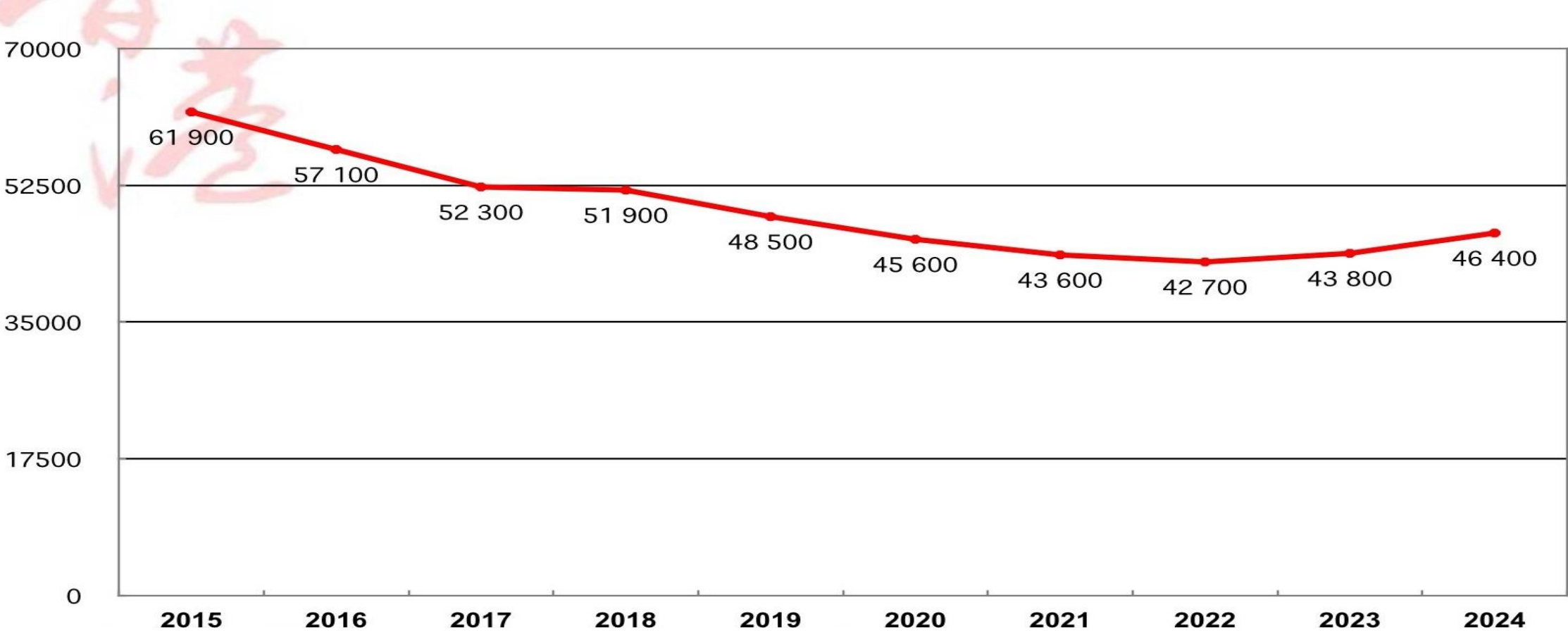
- Changes relevant to education brought about by the 4<sup>th</sup> Industrial Revolution
- Implications for tertiary education
  - Pedagogy, delivery mode and hardware
  - Content and curriculum
  - Research
  - Financing models
  - Target population

# Relevant Factors

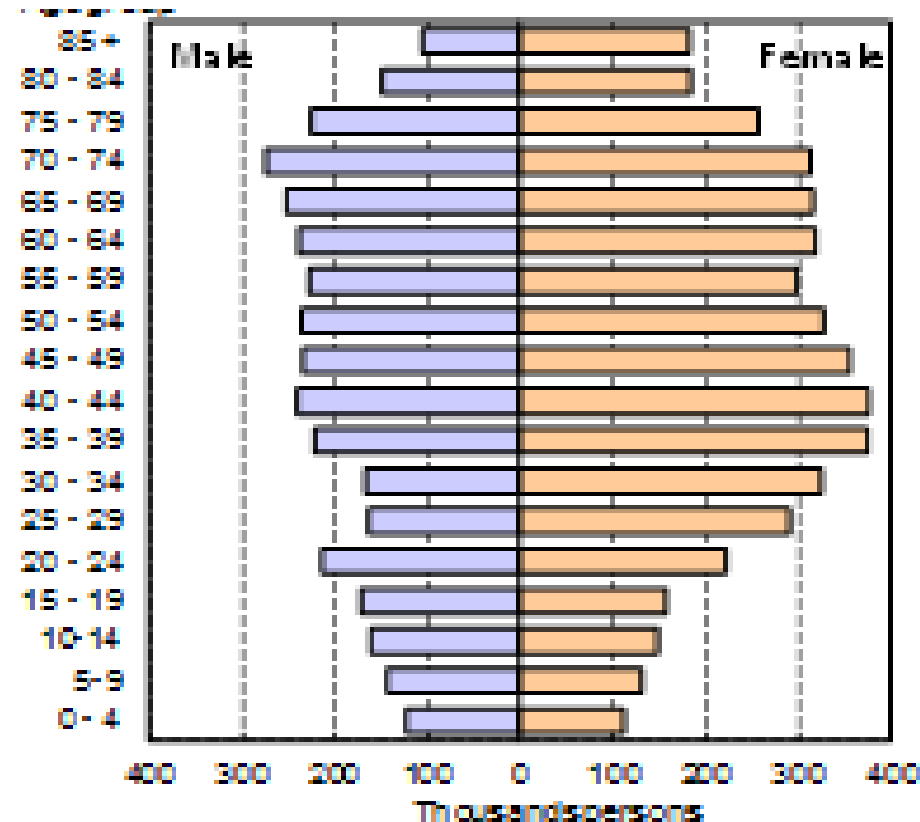
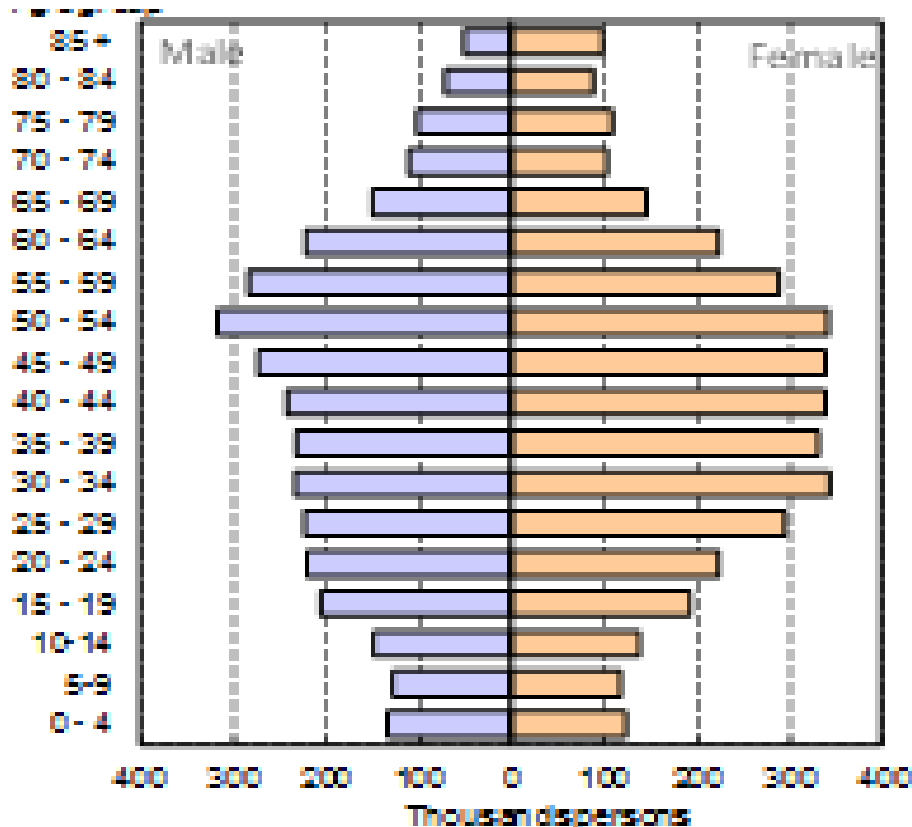
- Technology
  - 5G, IOT, big data, AI, mobile data, cloud computing, 3D printing, VR/AR, imaging technology
- Disruptive innovations of conventional processes
- Further globalization of supply chain and other things because of improved connectivity
- Changing demographics
  - Shrinking DSE graduates
  - Ageing population

# Falling Demand

## Secondary School Graduate Numbers



# Less tax payers, more retirees



Note: \* Provisional figures

Sources: Hong Kong Census and Statistics Department and Hong Kong Population Projections 2012 -2041

# Financing

- Reliance on government funding unrealistic; self-financing is the trend
- Fees from fresh DSE graduates will not be adequate
- Potential market for mature students
- Potential market for continuing education

# Disruptive Technology

- Traditional jobs disappearing
- There will be more frequent job changes and career
  - 15-20 job changes; 3 to 5 career changes
- Single career/lifelong employment is dead
- Many of the content we teach at university will become obsolete
- All kinds of knowledge are readily available on the internet, delivering knowledge content becomes less important
- Many people will need retraining, CPD, and life-long education

# Implications for Tertiary Education

- Need to educate our students to be adaptive
- More emphasis on soft skills
  - Communication, logical thinking, complex problem solving, creativity, innovation, EQ, cultural sensitivity, empathy and tolerance
- Traditional lectures are not effective in delivering these soft skills



# Learning Pathways and Life Horizon

Linear learning pathways inadequate:

- Traditional Life Horizon
- Study -----> Work -----> Retire/leisure -->Death

Not friendly to many learners

## Flexible Life Horizons

- Study→Work→Leisure→Study→Work→Retire→Study→Work -->Death

Facilitate retraining, travelling/working in foreign countries, second career

# Trends

- Greater emphasis on General Education
- Pedagogical changes and the associated Hardware
- E-learning
- Flexible education pathways, portability of qualifications
- Greater professional and industry engagement

# Greater Emphasis on Soft Skills

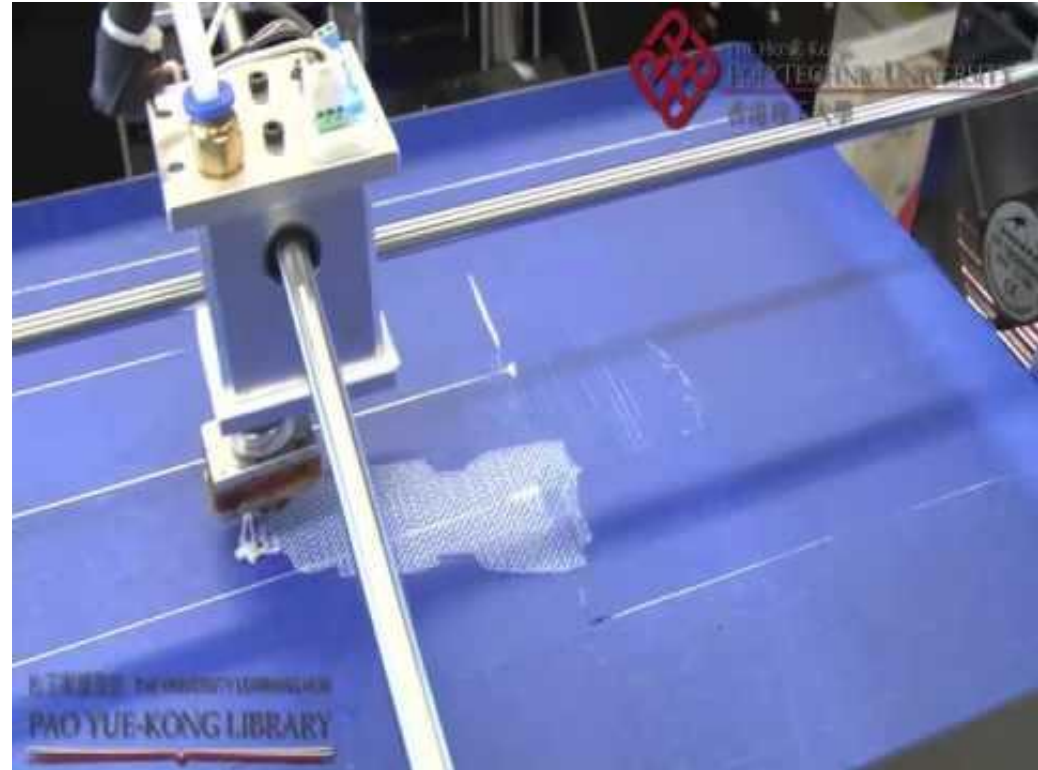
- Language and Communication Requirements
- Leadership and Intra-Personal Development
- Broadening subjects chosen from four clusters:
  1. Human nature, 2. Community and globalization, 3. History and culture, and 4. Science, technology and environment
- Service-Learning
- Fitness
- Work-integrated education

# Hardware for General Student Usage

## Digital Studio



## 3D Printing



# Interactive Teaching & Learning Classrooms

## Enabling Flipped Classroom

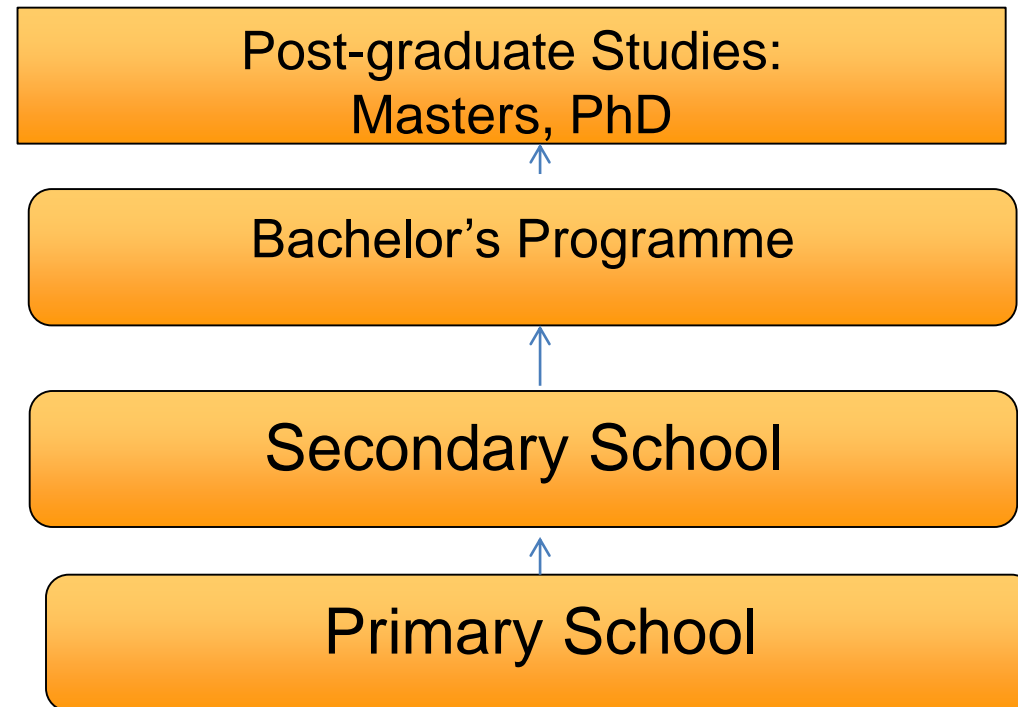


# Interactive Teaching & Learning Classrooms



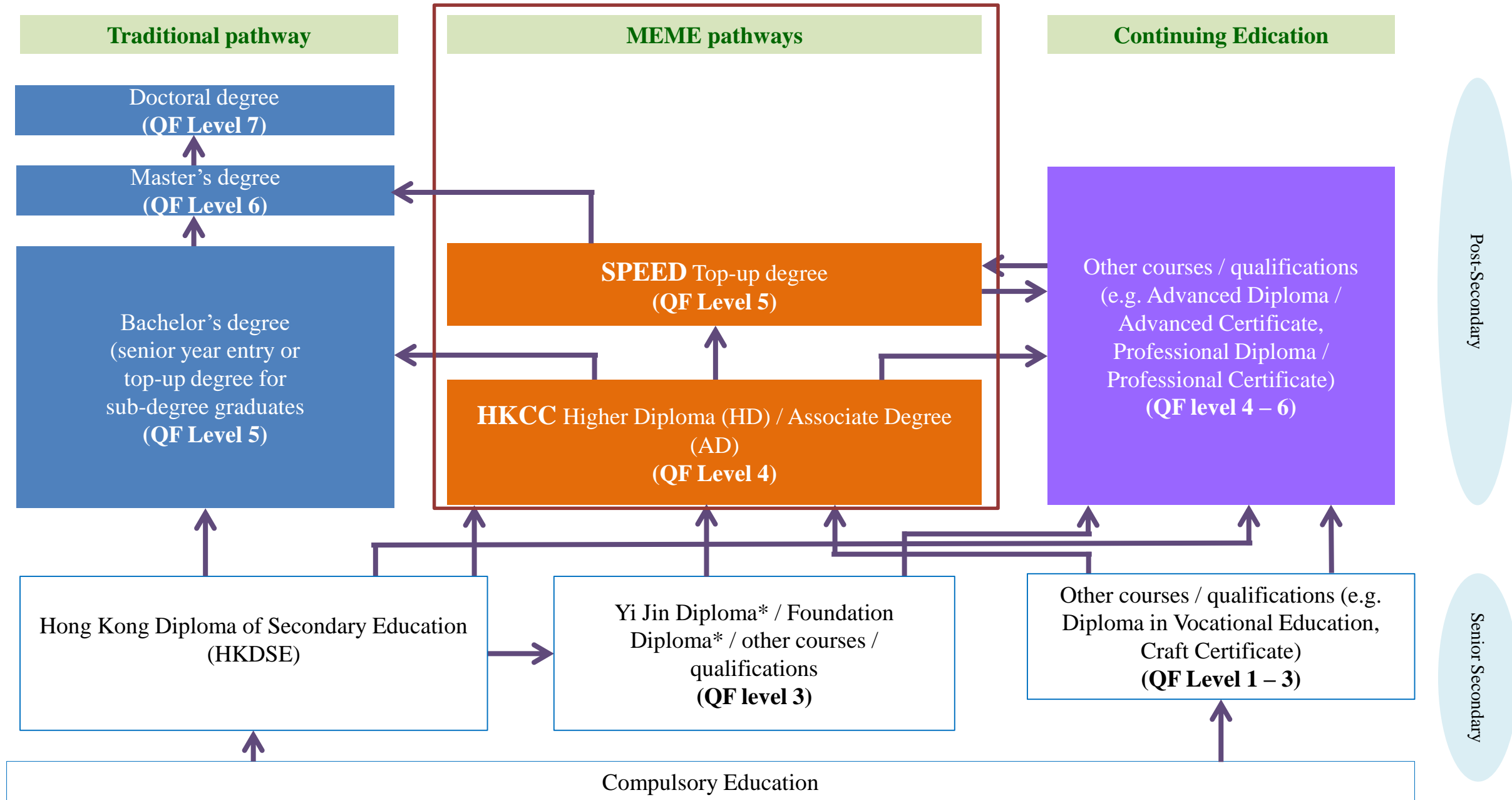
# Study Pathways

Traditional Pathway : linear and rigid





# Multiple Entries and Exits





# Serving Secondary School leavers, Sub-degree Graduates and Mature Learners



# Industry Relevance: Partner with Industry

e.g. Industry Training Advisory Committee (ITAC); Corporate Academies



CLP Power Academy



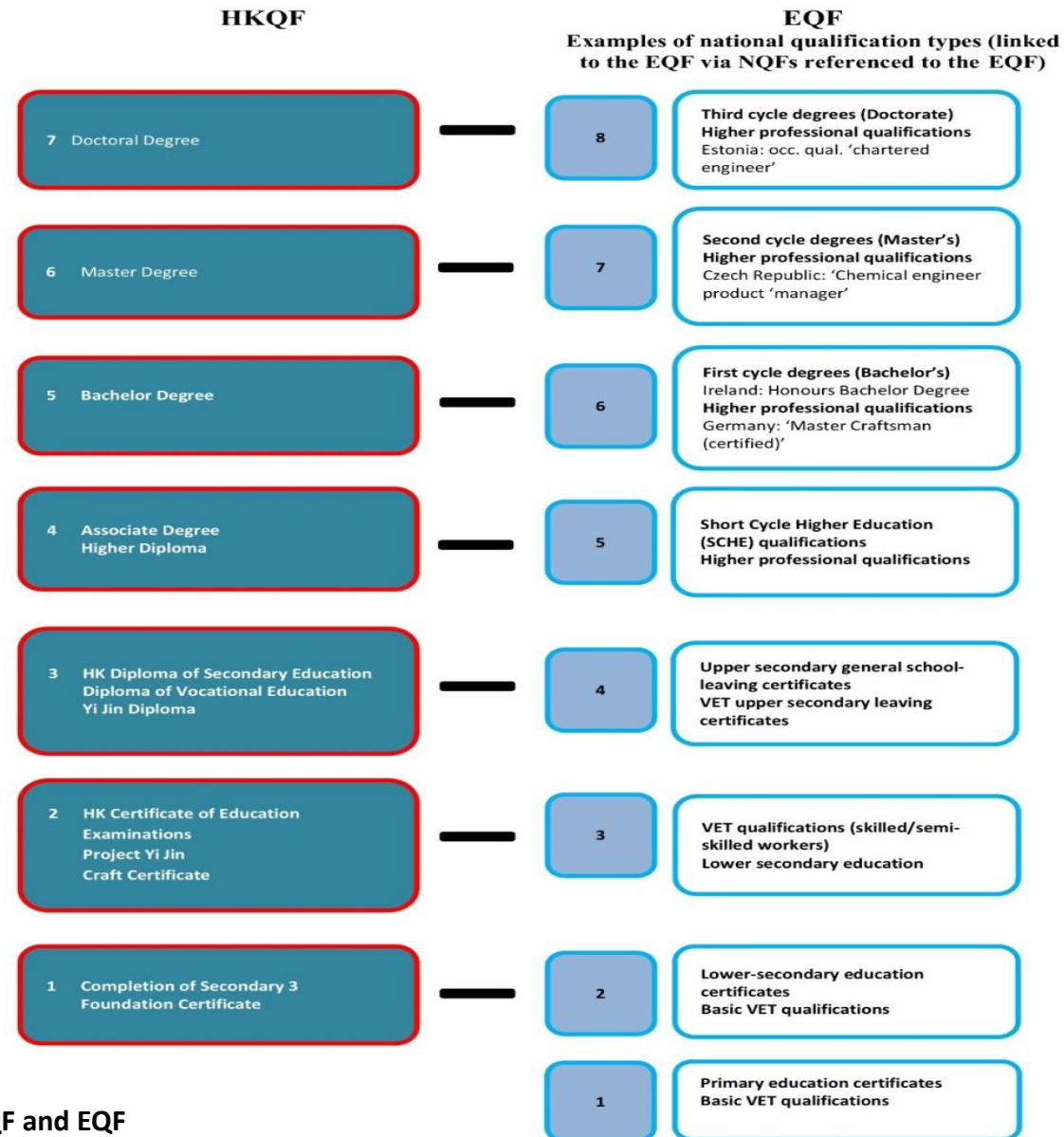
Hong Kong International Aviation Academy



# Portability between Countries/Regions

- Many countries and block of countries (e.g. European Union) have developed similar qualifications framework
- Listing programmes on QR is desirable

# Portability between Countries/Regions: HKQF and EQF (EU)



# Disruptive Technology in Education

- Web-technology has not caused major disruptions in education even up to now
- MOOCs has the potential to cause major disruptions
- 4As : any age, anywhere, anytime, any device
- It also offers great potential for continuing education

## 4 As model

Any age, Anywhere, Any Devices, Anytime



# 5G Network

- The 5G network is hundreds of times faster than the transmission speed of 4G network
- Create totally different experience for e-learning
- Enabling VR/AR, live dialogue etc

# MOOCs and Continuing Education

- Massive
  - Open
  - On-line
  - Courses
- 
- Free if just enroll for interest
  - A small fee is required to receive certification
  - A higher fee is required if credit is involved



# Types of MOOCs

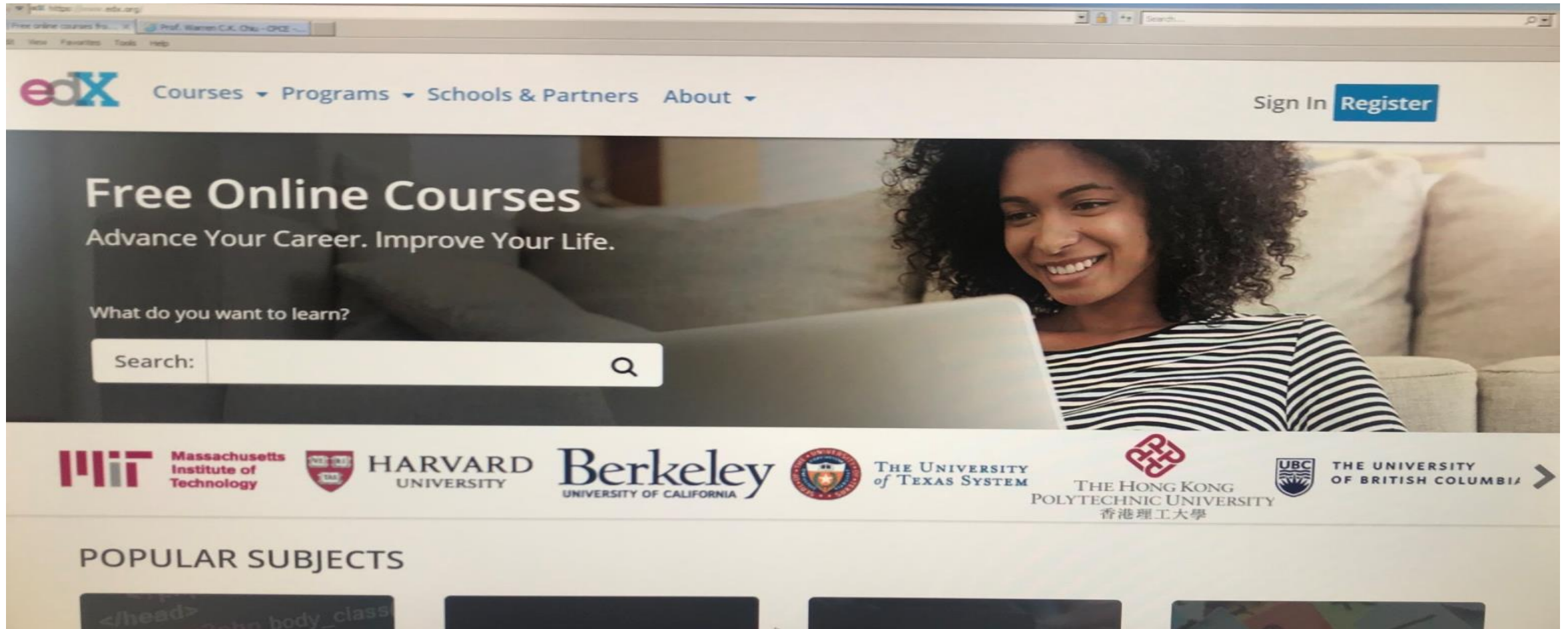
1. Just for knowledge and interest (no credentials)
2. MOOC as individual subject with credit  
e.g. Arizona State University for their global freshman programme
3. MicroMasters  
e.g. MIT, Harvard, HKPolyU : course credit 25% of a masters programme
4. Full Masters  
e.g. Georgia Tech: full on-line masters

# Reasons for Developing MOOCs

- Good advertisement for the institutions and its programmes, internationally
- Allow potential students (Associate degree students, secondary school students, non-local students) to sign up for some modules eligible for credit transfer
- Create more feeders to the programmes
- Free up some face-to-face classroom time and space
- Improve teaching quality
- Collaborate with industry/professional bodies

# Major Platforms

- edX, Coursera, Futurelearn, 學堂在線, 智慧樹



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# Factors to be Considered in Deciding Which Mode to Go for

- Mode 1 is free and is purely for social responsibility and publicity; not financially sustainable
- Mode 2 will generate a modest income from credit bearing courses; but far from being able to break even
- Mode 3 should be able to recover part of costs if a significant eventually enroll as regular students
- Mode 4 financial sustainability depends the number of fee-paying students

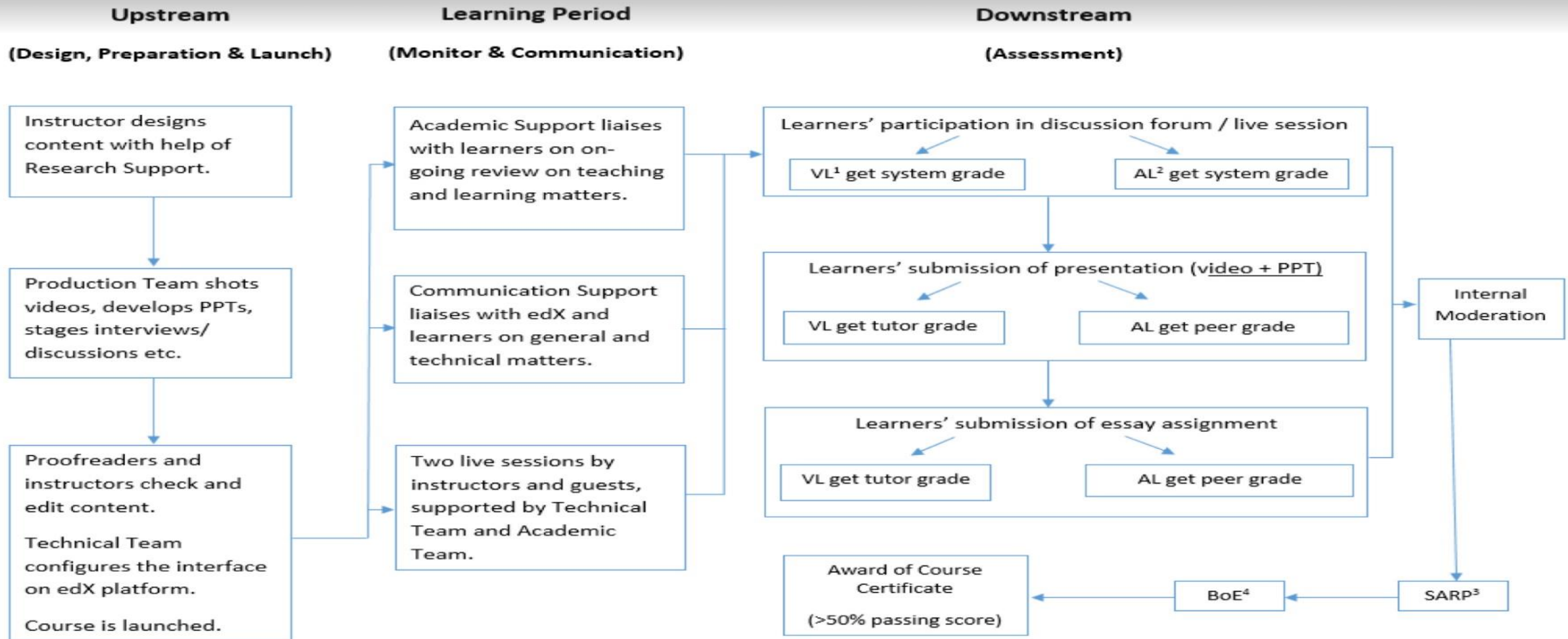
# Reasons for Developing MOOCs

- Good advertisement for the institutions and its programmes on a worldwide scale
- Allow potential students (Associate degree students, secondary school students, non-local students) to sign up for some modules eligible for credit transfer
- Create more feeders to the programmes
- Free up some face-to-face classroom time
- Collaborate with other institutions or industry/professional bodies

# Assessment and QA for MOOCs

- All processes must mirror that of off-line programmes
- Best to develop MOOC subject from already approved off-line subjects
- On-line Tutorials and feedback
- Peer learning
- On-line examinations protocols

# MOOC Processes and QA



VL: Verified (paid) learner; AL: Audit (unpaid) learners; SARP: Subject Assessment Review Panel; BoE: Board of Examiners



# Implementation Issues

- Decide on one to two modules for pilot
- Pick from approved subjects
- Launch a few single modules and eventually clustered them into a MicroBachelor/MicroMaster
- Assign staff to be responsible for overall project and modules
- Teaching remission: 1.5 subject for first year; 1 subject for subsequent years
- Training

# Milestones

- Proposal to Academic Planning and Regulations Committee,
- Senate's planning approval
- Planning, and Production
- Validation (if required)
- Promotion
- launch

# Technical matters

- Decide on platform: edX, Coursera, Futurelearn, others
- Development, production, uploading
- Launching, managing the learners



# Indicative Costs for developing one MOOC subject

	Items	Amount (\$)
1	Instructional designers (300 hr)	180,000
2	Multimedia technical officer (300 hr)	90,000
3	Video studio technical officer (300 hr)	90,000
4	Maintenance and Consumable	20,000
5	Marketing	50,000
6	edX Membership Fee	140,000
7	edX Maintenance Fee (for 3 years)	80,000
8	Teacher Relief (FTE 30% x Asso. Prof.)	300,000
	*Grand Total:	950,000

Partnership will reduce the cost

# PolyU-CPCE Partnering with Nankai University in MOOC on Futurelearn

- <https://www.futurelearn.com/courses/global-tourism-development-trends>

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Questions?