



Knowledge Exchange Conference 3+3+4 Conference

Innovation and knowledge transfer
Expectations and delivery in HK
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Hong Kong 6th of December 2011

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Messages

- Innovation and Knowledge Transfer belong together but they are separate processes
- Knowledge transfer is a difficult, complex activity requiring a high degree of professionalism
- The overall R&D environment of HK places special responsibilities on Universities
- Institutions approach knowledge transfer/exchange positively even enthusiastically
- Individual initiative is crucial in innovation and knowledge transfer

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Innovation and knowledge transfer

Highly - and increasingly - prominent role
Global challenges

- Environment
 - Climate change
- Security
 - Terrorism; pandemics
- Poverty
 - A question of conscience
- Unemployment
 - An urgent need to create jobs
- Political and Financial insecurity

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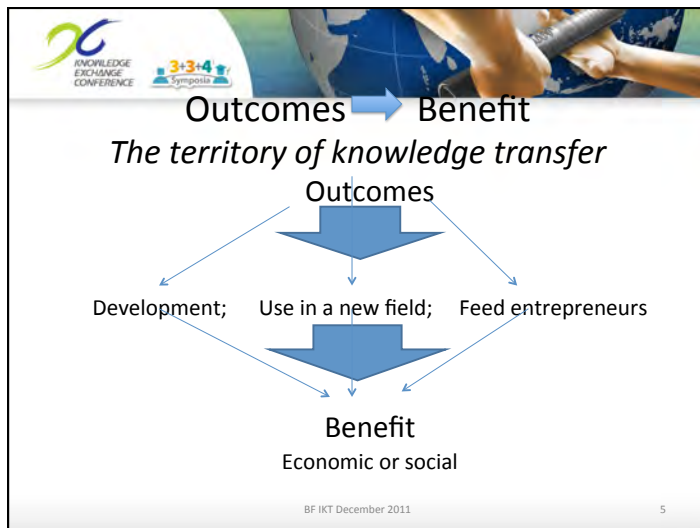


Innovation

Knowledge
+
SKILL
Problem
CREATIVITY
Outcome

The innovation environment


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-
- Principal Knowledge Transfer Mechanisms**
- Traditional technology transfer**
- Spin-off companies
 - Internal funding; government funding; venture capital – capital markets
 - Licensing
 - Source of development funding
- Engagement**
- Collaborative Research
 - Bilateral university-business; thematic clusters
 - Contract Research
 - Consultancy
 - CPD programmes to provide specific skill training
 - Joint projects e.g. Knowledge Transfer Partnerships
- Dissemination**
- Media led events
 - Publications for the general public
 - Service on Boards etc.
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-
- Challenges for Innovation and Knowledge Transfer (1)**
- High Expectation
 - Long timelines in many fields
 - High temperature super conductors first discovered 1986. Now more than 100,000 papers but commercial applications limited - specialist scientific magnets. Microfoam varicose vein treatment; clinical use in 1990's not expected on US market before 2013
 - Finance
 - Business plans based purely on the basis of the commercial exploitation of university IP are fragile.
 - **Selectivity important**
 - **Indirect benefits need to be taken into account**
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Challenges (3)

- Role of Intellectual Property
 - Complex and debated; importance varies in different business sectors and for different kinds of university; need to understand the role of “hard” (patents and copyright) and “soft” IP (open source and non-patented innovations) cf Anderson & Rossi. ‘Easy Access IP’.
- The processes of innovation and knowledge transfer require study and intellectual underpinning; engagement in the arts, humanities and social sciences is relatively recent; questions about the assessment of impact
- Management structures
 - Fit for purpose?

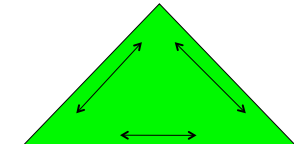
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Role of Universities and KT

strategic; professional; institutes; global competition and collaboration


Research



Teaching
Student focused;
Learning outcomes;
Impact of Web 2.0
some collaboration
Increased internationalisation

Knowledge Transfer
Recently become a **key strategic component**;
Open innovation - collaboration
Increasingly professional


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Elements of a strong KT strategy

- Alignment with mission and vision.
- Strong engagement of the senior management team.
- Interaction with the University Council
- The relation of KT to research and teaching activities
- A portfolio of policies which refer to:
 - faculty engagement in consultancy and start-up companies.
 - rewards and incentives to participate in KT including reference to promotion criteria.
 - start-up companies, investment and exit strategies.
 - ethical matters relating to engagement with outside bodies.
- The role of entrepreneurship education and the support of entrepreneurs including students
- Inclusion of KT in the budgetary planning process
- The structure and organisation of the knowledge transfer office(s)
- The relationship between a central university KT office and individual faculties
- Monitoring of performance indicators
- Targets for future performance

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Research Environment in Hong Kong

(latest available data 2008 or 2009)

	GERD % of GDP	Researchers(FTEs) per m population
HK	0.77	2746
Md. Chi	1.32	1191
Japan	3.44	5159
Korea	3.36	4904
Malaysia	0.63	372(06)
Singapore	2.61	6033
Thailand	0.21	319(07)

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Thematic Research in HK

Innovation and Technology Commission R&D Centres

- Automotive parts and Accessory Systems
- Hong Kong Applied Science and Technology Research Institute
- Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies
- Nano and advanced Materials Institute
- Hong Kong Research Institute of Textiles and Apparel

RGC Research Themes

- Promoting good health
- Developing a sustainable environment
- Enhancing Hong Kong's strategic position as a regional and international business centre


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Role of HK Universities

- Strong Promotion and Marketing of KT strengths including Continuing Professional Development courses
- Publicise successful case histories
- Demonstrate interuniversity collaboration
- **Target inward investment to Hong Kong**
- Continue to develop KT expertise in the arts, humanities and social sciences - the community focus
- **Encourage enterprise and entrepreneurs**
- **Build on the opportunities in mainland China**


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Knowledge Transfer KPIs- income related

	HK (2010-11) %	UK (2009-10) %
Income from intellectual property	4.5	3.6
Collaborative research income	25.5	32.7
Contract research income	41.6	42.9
Income from consultancy	27.5	15.8
Income from Equipment/facilities	0.9	5.0
Total Income	HK\$1.06b	GB£2.29b

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Non-financial KPI's

Hong Kong HEI's (2010-11)

- Patents filed **511**
- Patents granted **212**
- Licences granted **133**
- No of economically active spin-off companies **73**
- No of student contact hours **4.8b+**
- Number of pro bono projects **478**
- No of jobs created by KT funding **115**


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Useful Additional KPIs?

- CPD Income
- no. of public lectures, symposiums, exhibitions, and speeches to a community audience
- no. performances and exhibitions of creative works by staff/students
- no. of staff engaged as members of external advisory bodies including professional, industry government statutory and non-statutory bodies

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UGC KT Grant

Expenditure 2010-11 (HK\$m)

• Dedicated staff	17.8
• Project funding/academic support	11.6
• PR and marketing	8.7
• Patent support	5.4
• Proof of concept/seed funding	3.6
• KT management	2.1
• <i>Training</i>	1.0
• Operating Costs	0.9

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Knowledge Society requires innovation in organisation and management

The rise of mass collaboration through digital technologies

- **Knowledge and information based services**
- **Creative and cultural sectors**
 - **Media and advertising; software and entertainment;**
- **Communications and publishing**
- Research, design, marketing and communications in general manufacturing
- Education, health, public administration and **politics**
- Retail trade, financial services and business services

Are our management practices fit for purpose?

- *Greater emphasis on individual responsibility particularly true for those engaged in knowledge transfer (IKT)*

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Knowledge Transfer People

Core competencies

- Good communication and interpersonal skills
- *Management skills*
- Commercial awareness
 - **New business development skills**
 - **Negotiating skills**
 - **Understanding of IP and licensing**
 - Discipline/industry specific knowledge
 - **Understanding business model options**
- *Personal CPD plan*
- *Personal library and information access strategy or plan*
- Personal Networking - **use of social network skills**

Creation of Networks to build collaboration

• Cf Key elements of Education programme for Certified Trans- national TT professionals EC report August 2007

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Challenges (2): Quality of strategies

Independent -
Increasingly
Interacting

Government Policy & Funding

Social and Economic Markets

Intermediaries & Facilitators

Universities
Research Institutes
Hospitals

Chesbrough
'Open Innovation'
Etzkowitz
'Triple Helix'

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Knowledge Transfer/Exchange in Hong Kong Conclusion

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