Why KM
For a Global Consulting Firm?

Dr. Ricky Tsui
Director of R&D
TV Tower
Canton Tower, Guangzhou, China

Guangzhou International Finance Center
Hundreds of remarkable structures and projects

- Sydney Opera House, Australia
- Canton Tower, Guangzhou, China
- Beijing National Stadium
- Beijing National Aquatics Center
- Mumbai Airport, India
- Marina Bay Sands, Singapore
- Stonecutters Bridge, Hong Kong
- Rokko Shidare Observatory, Japan
Boeing 747

Sky-park of Marina Bay Sands
Arup is an award-winning global engineering and design firm with a portfolio of innovative and instantly recognizable buildings and projects.

Established in 1946

11,000 staff in 90 offices
• Work more effectively
• Learn from previous lessons to make better decisions
• Drive creativity and innovation

Effectiveness - Design - Growth - Everybody
Marina Bay Sands in Singapore: involved 10 offices and hundreds of colleagues
Arup Knowledge Cycle

- Project Review
- Foresight and Innovation
- Research & Skills Development
- Knowledge Dissemination
- New Knowledge
- On-job Verification
- Research Study
- Inspiring New Idea
- Lesson Learnt
- Application
- Share with External
- Knowledge Harvesting
- Internal Sharing
- Arup University
- Networks
- Arup Knowledge Cycle

Inspiring New Idea
Research Study
On-job Verification
New Knowledge
Internal Sharing
Application
Share with External
Knowledge Harvesting

Arup Knowledge Cycle

Arup University
Networks
Arup Knowledge Tools

Applying Arup knowledge to your advantage

Knowledge Handbook

Arup Essentials
- Arup Management System (AMS)
- Bid Support & Marketing
- Community Engagement
- Communications & Publications
- Finance & Investments
- Health & Safety
- Human Resources
- IT & Business Systems
- Knowledge, Information & Image Resources
- Legal & Commercial
- Policies & Guidelines
- Purchasing
- Research & Foresight
- Structure, Organisation & Strategy
- Sustainability
- Travel and Accommodation

Arup Organisation
- Businesses
- Practices
- Skills
- Regions
- Groups
- Offices
- Arup University

East Asia Region
- Emergency
- East Asia Offices
- East Asia News
- East Asia People
- Groups & Teams
- HK Telephone
- Arup Asia
- Bidding
- Advertising
- Marketing
- Projects
- Insight
- Networks
- People
- Projects
- Essentials

Insight

Networks

People

Projects

Essentials
Knowledge Portal (~YouTube)

Search by Skills, Values, Categories, etc.

Link back to Knowledge Brands

Easy to digest

3 min intro videos for easy intake

Informal Learning through various channels
Yammer

Common place to work on issues

Water Leaking?

Tagging for Harvesting

Mobility

Solving Problems on the Spot

Facilitating Discussion on Project and Knowledge Harvesting
- **Arup Wiki**
- **Platform for multiple contribution, long-term knowledge**
Instant Messenger - Lync

Graduate Engineer - Tao

Discussed with his Group Director - Vincent

Asked R&D Director for advice

Relationship built on Trust

Following-Up with Individuals
Instant Messenger - Lync

- Chat records filed in Outlook
- Mobile Access available

Following-Up with Individuals
Better organize – Mail Manager (Oasys)

Mail Manager

Project A

Centralized Storage

Project G

Project D

Project H

• Requires no installation on to a server: plug-in

• Fully compatible with mobile devices: offline filing

1. File, organize, find & share emails easily together with attachments to a secured network folder.

2. Compliance with QA process and data retention legislation.
Communication Throughout Project Life Cycle

• User friendly: just one click and learn as you file
Discussion Forum – Skills Network

Arup Intranet

Open discussion with related colleagues

Allow instant response from offices around the world

Considered as the most beneficial corporate tool by staff

Seeking Comments and Advice from other Colleagues
Oasys
www.oasys-software.com

- Commercialized Arup self-developed software
- Developed from design tools shared in different communities of practice (networks)

http://www.oasys-software.com/
Platform for Collaborative Innovation

Opal – a brainstorming app

To help (a) innovate at early stage of the project and (b) explore new business ideas
New Business Development

Arup is one of the founders of HaloIPT, who provides wireless charging technology.
Air Induction Unit

- designed by Arup
Research

(together with many external collaboration partners)

Pedestrian & Traffic Integrated Simulation

Quake Resistant Retrofit System for Existing Buildings

Arup Damper (patented) Application in High-rise Building

Computational Fluid Dynamic Verification for Air Ventilation Analysis

Concrete Protection System for Sewage Treatment Facility

More than 400 internally funded R&D projects each year
Applying result back into business
Build up capability

- Technical and soft skills
- Cross-disciplinary
- Business-focused

Company sponsored PhD study

1-year master level study co-developed with world-class universities

Advanced technical and soft skills for day-to-day work

Train up colleague to become expert in the field

More than 70 accredited internal trainers in Hong Kong

Collaborating Universities

- Imperial College London
- University of Warwick
- Manchester Metropolitan University
- The Hong Kong University of Science and Technology
- University of Salford Manchester

Arup University
Formal Learning – Moodle

Welcome to East Asia Region Learning Portal

Arup is strongly committed to your ongoing professional development. Our range of learning and development options reflects this commitment, with a variety of solutions available for people at all levels of the firm, whether in a technical or support role.

Defined Your Own Learning Path

Equipping with Necessary Knowledge
Introduction to Materials

What will this module cover?

Materials is a small community in Arup but its expertise plays a central role for a significant number of Arup activities/projects and the appropriate selection and use of materials is fundamental to Arup projects.

This eLearning module introduces individuals who may be new to Arup to important aspects of materials in our work as well as the skills of Arup Materials.

What can I expect to gain from this module?

On completion of this module, you will gain:

- Ability to identify key materials issues early in the design process
- Awareness about factors that influence materials choice
- Knowledge on how codes of practice and standards deal with aspects of materials in structural design
- Clarity on when, how and where to seek advice from Arup Materials Consulting

Is this module right for me?

The module is intended primarily for structural engineers although it will still be of use/interest to...
Network Training

More than 200 Network training activities in a year in Hong Kong

Lunch time seminar

Site Visit

Discussion Forum

Workshop

Informal Training
Records of Previous Events

Informal Learning through various channels

---

**Date:** 11 November 2014 (Tuesday)

**Time:** 12:30pm - 1:30pm

**Venue:** Boardroom, Level 5, Festival Walk Office

**Speaker:** Brian Simpson, Arup Fellow

**Registration:** All are welcomed. Register here [here](http://goo.gl/forms/mR4LZfepk) before 7 November noon. Successful applicants will receive an Outlook invitation.

**Skills Networks:**
All are welcomed. Members of Structural Engineering skills networks are highly recommended to join.

DTX Event Calendar [here](http://rd.hkgweb01.global.arup.com/Lists/Calendar/DispForm.aspx?ID=1111)

---

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Speaker/Organization</th>
<th>Video Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>21/10/2014</td>
<td>Internal Talk - Sustainable HVAC &amp; Building Management Solutions</td>
<td>Paul Tsui, Carrier Hong Kong Limited</td>
<td>Video Link</td>
</tr>
<tr>
<td>16/10/2014</td>
<td>Internal Talk - Electronic Security: Technologies leading to modern building security</td>
<td>Mr Edmond Liu, Chubb Electronic Security</td>
<td>Video Link</td>
</tr>
<tr>
<td>14/10/2014</td>
<td>Internal Talk - Maintenance for buildings adopting fire engineering approach – Problems, Issues and Benefits</td>
<td>Ir Simon Tsang, Chubb Fire Safety</td>
<td>Video Link</td>
</tr>
<tr>
<td>10/09/2014</td>
<td>Internal Talk - Extending Social Networks for Projects</td>
<td>Steve Chen, Arup Group &amp; Task Team</td>
<td>Video Link</td>
</tr>
</tbody>
</table>
Cultivate Creative Minds

1. **Design School** – annual 3-day program to incubate innovative mind set

2. **Design, Creative and Innovation modules** under Arup University – systematic training to build up design capacity and promote Arup design culture

3. **Creative Problem Solving & Out of the Box Thinking** – training on different creative thinking methods

4. **Drivers of Change Summer Challenge** – 6-week long competition to explore drivers of future world

5. **Structural Skills Network Annual Competition** – a fun competition for all Arup staff to design and make an innovative structure on special topic

6. etc…..
Rethinking Design - Antiquity versus Modernity

The 2008 East-Asia Design School will focus on rethinking two concepts apparently on the two ends of a scale, w

Theme – “Spec. Zero”

The 2009 East-Asia Design School will explore the potential synergy by c

Theme – “Crossing Boundaries”

The 2010 East-Asia Design School will explore the potential synergy by c

There is no doubt that the humanity has benefited much from specialization, b

Brilliant Failure

The notion of “failure” is associated with such downward spiral of depression or irredeemabl

The Plan Z

Living in a fast changing world, we are oft

CSI – Collective Sense-making to Innovation

Highly successful TV series CSI has shown resilience over 13 season New York and CSI Miami. The show is set around a team of cri
• Designed & implemented a lift-aided evacuation strategy in 3 highrise buildings in China
• Reduce the evacuation time by ~36%
Innovation from past experience

Eden Project, Cornwall (2001)

Water Cube, Beijing (2008)

Tram Line 1 Station Canopy, Zhuhai (2015)
Informal Gathering
Foresight Tools and Studies

Equip thought leaders with future knowledge

Drivers of Change
Major drivers affecting future environment

Future Buildings
How buildings in our cities could look and function in 2050
Future Positioning

http://www.driversofchange.com/publications/
Ticketless technology will remove gate-lines in stations. Authorisation to travel will be universal and payment processed automatically when the journey is taken.
Foresight Event
Occasions to discuss future problems and possible solutions with clients and public
Arup Penguin Pool events

Idea exchange with the design community

Beijing

Hong Kong

Shanghai

Product design, Textile/Garment, Photography, etc.
1. Build up an environment of “Trust”
2. Provide convenient idea exchange platforms
3. Invest in research and development
4. Equip staff with necessary skills (training)
5. Understand future needs & learn from others

Enhance corporate innovation
Innovation Awards

HKIE Champion of the Innovation Award for the Engineering Industry 2012/2013

The Hong Kong Institution of Engineers Innovation Awards for Young Members

CIC Zero Carbon Building
Arup Business Success

Our East Asia offices received 80 projects and people awards in 2013-14, including:

- HKIE Champion of the Innovation Award
- The Quality Excellence Award
- HKIE Structural Excellence Awards
- Green Building Award - Grand Award
- HKIE Hong Kong People Engineering Wonders
- Tien Yow Jeme Civil Engineering Prize
- Quality Building Award - Grand Award

Thank You