

Global Innovation Ecosystem Conference

Singapore and the New Face of Innovation

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Global issues and new trends

- 1. Outsourcing industry
 - Software services
 - R&D services
- 2. Industrial upgrading
- 3. New sectors
 - Services
 - Creative industries
- 4. Broader notions of innovation/invention
 - Creative products' development
 - “social” phenomena
 - Internet/service business models

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my focus within these

■ Studies of India, China, (software), Philippines (ITES)

■ Singapore R&D system (new sectors)

■ US videogame industry

Global issues and new trends

- 1. Outsourcing industry
 - Software services
 - R&D services
 - 2. Industrial upgrading
 - 3. New sectors
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 - Creative industries
 - 4. Broader notions of innovation/invention
 - Sources
 - Domains
 - Problem types
- my focus within these
- Studies of India, China, (software), Philippines (ITES)
 - Singapore R&D system (new sectors)
 - US videogame industry
 - traditional innovation vs. games etc.
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Singapore case

Singapore: Recent issues

Actors

- Private cos.
- Public research institutes (PRIs)
- Universities
- Finance (VC)

Issues

- SMEs - weaker capability, government-linked firms
- Mission changes
 - spinoffs
- Role?
- Is “VC” VC?
- Little interaction on innovation (interaction via government goals)

Singapore Near Recent case

- public research institutes
 - Availing of Technopreneurship program (1997)
 - 20+ spinoffs from 1 IT institute
 - Despite dotcom fallout, survivors still ok
 - Good capability,
 - While engineers think technically, not much interaction field (having project client helps)
 - Changes being made – “required” interactions
 - Small market, small nos. syndrome
 - global market trends have major impacts
 - “VC” issues

Singapore: Recent efforts (sector-specific)

- 3 new sectors (2006-)
 - Interactive and digital media
 - Water and environmental tech
 - Biotech (adds to already existing)
- Inputs
 - Singapore 5 bill (~US 3+ bill) over 5 years
 - New campus of “world class” research centers (MIT SMART center...)
- Wishes
 - Double jobs from 40,000 to 80,000 by 2015
 - Value added from S 8.9 bill (~US 6 bill) to S 27 bill

Singapore: Recent efforts (general)

Mechanisms

- Bring in the knowledge creators (foreign talent)
e.g. Biotech
- Increase creativity of the population...
 - Education reform, entrepreneurship etc.
- Hubs and clusters
- Other aspects of US model, e.g. standards, infrastructure

Possible issues

- Exit strategy unclear (e.g. US Pharma)
- Still “top-driven”
- Do clusters matter?
- US outcomes were “organic”, historical,
 - modeling outcomes, not process?

e.g. Interactive and Digital Media Sector Issues

■ Institutions

- Intermediaries (publishers) hold power
- What's the role of univs., PRIs?

■ What's needed?

- Finance, creativity, talent?
- vs. Florida's "talent, technology, tolerance" for attracting creative classes

Singapore strengths

■ Nature of innovation

- IP and cultural content, sheer creativity
 - not (just) technology
- Near term or long-term
- Where to start and who to fund?

Changing Nature of Innovation

Changing Nature of Inquiry (by location)

Consider traditional means of R&D, problem inquiry

- Public research institute inquiry

- Public goods, mission-led

- Corporate inquiry

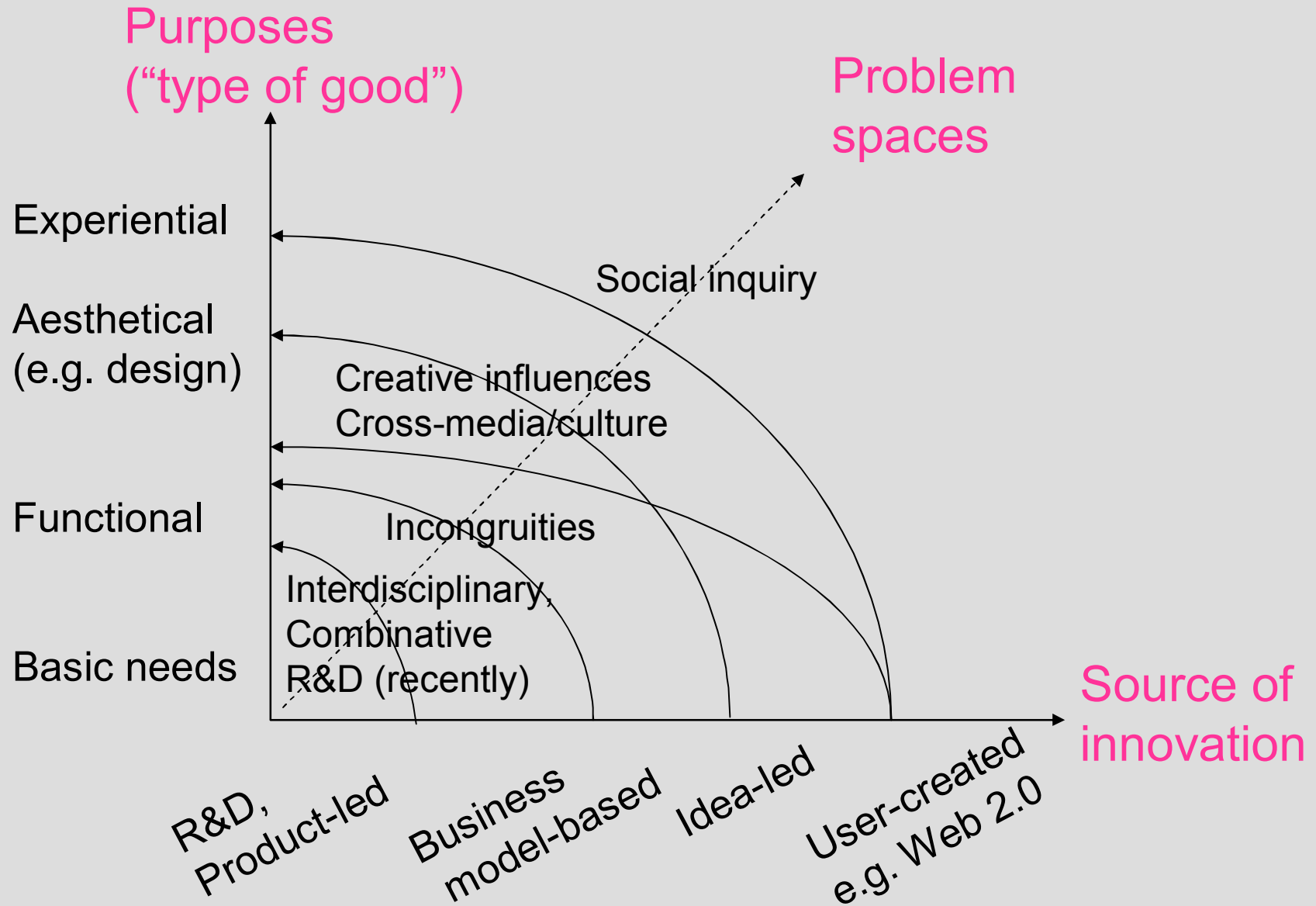
- Applied research, Product-led

- Academic inquiry

- Theory, knowledge-led?

Most actors still struggle at interdisciplinary, combinative innovation

The 3 Dimensions of Innovation



Changing Nature of Innovation

■ From

- R&D- and science-led (corporatization, new knowledge) and
- Product-led (combinative **technological** innovations)

■ To

- Business models (Internet-, information-based)
- Idea-led (creative virtual products, entertainment)
 - **combinative in cultural, media spaces**
- User-created innovation (Internet, Web content)
 - **Collaboration, participation, long-tail etc.**

Issues in Firm/Industry Growth

- Idea generation
 - for virtual products - no shortage of ideas but...?
- Entrepreneurship
 - “Shortage” of entrepreneurs in some regions
 - Two in one problem (idea and entrepreneur)?
 - Nature of entrepreneur in creative sectors (e.g. games)
 - Based on individual creativity, broad skills
 - Less important to be technology experts
- Innovation (e.g. biotech)
 - With startup emphasis, question is “exit by selling out too early?”
 - -> Ladders to becoming large firms

Issues in Firm/Industry Growth

- Changing the interactive field and its notions
 - From academic-industry interactions
 - To awareness of different “problem domains”
 - new actors and changing academic incentives
- Industry-level
 - Catch-up philosophy is path dependent
 - is importing foreign talent still path-dependent?
- Global system
 - E.g. Singapore imports talent/entrepreneurs into a “(financial) resource”-rich region
 - Does this complement relative scarcities across countries, or exacerbate shortages?

Summary

- Singapore wants in to new sectors
 - putting its money down
- New (creative) sectors operate somewhat differently than science ones
 - Demand new thinking
 - Singapore: Path dependence from historical approaches
- Is nature of innovation generally changing as we know it?