



Dynamics of Demand-led Innovation: What role for policy?

*Joint CIIE- CSTP Workshop
on Demand-led Innovation
Policies*

14-15 September 2009₁

Outline

- Defining demand : public and private
- Innovation value chain
- Rationale for demand-policy
- Demand-side policies
- Challenges/Open questions
- Further work

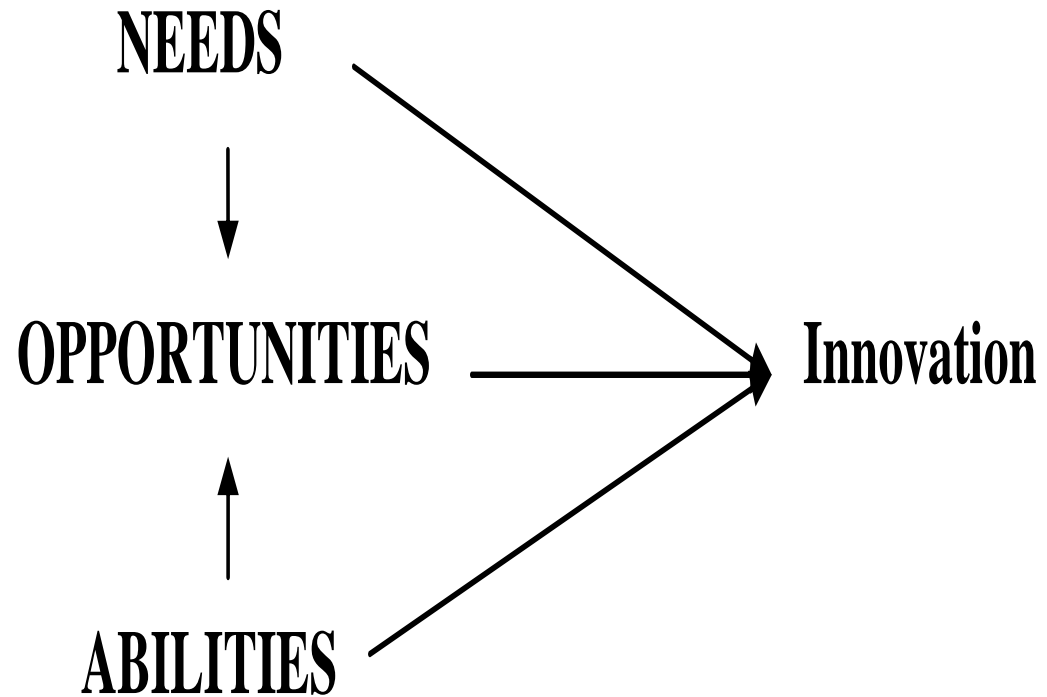
What is demand?

- A 'demand' implies the existence of a need, although needs can be created or revealed.
- This need may remain unmet (latent), or a source of consumption (effective).
- Needs may be public or private

Demand is an important driver of innovation

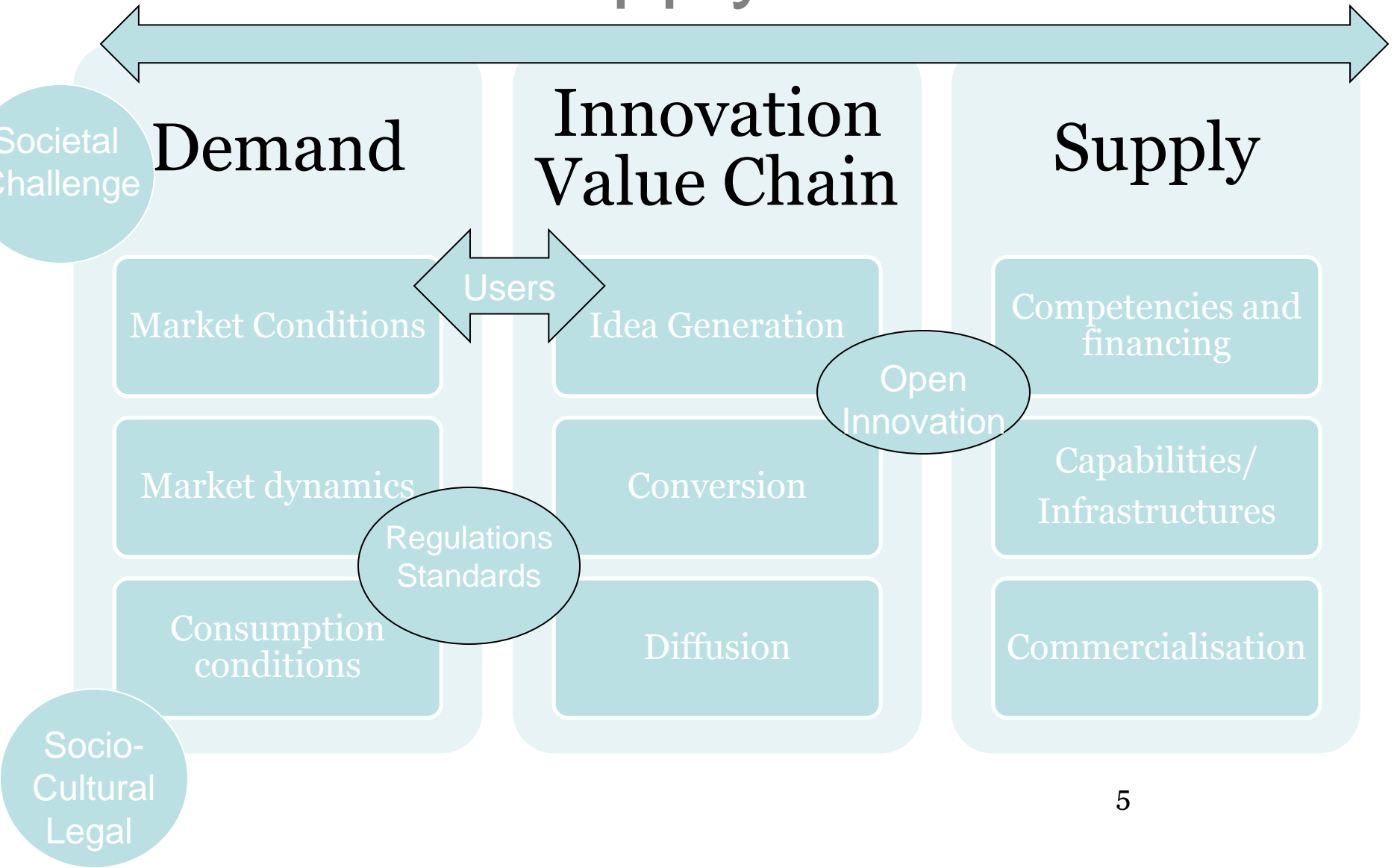
- Efforts to satisfy demand create opportunities for innovation.
- Creates opportunities for diffusion of existing innovations (“not new, but new in this context”)
- Exploiting these opportunities require the existence of certain abilities
- Societal demand (clean air, water) can create both public and private opportunities

From Demand to Innovation



Innovation Value Chain

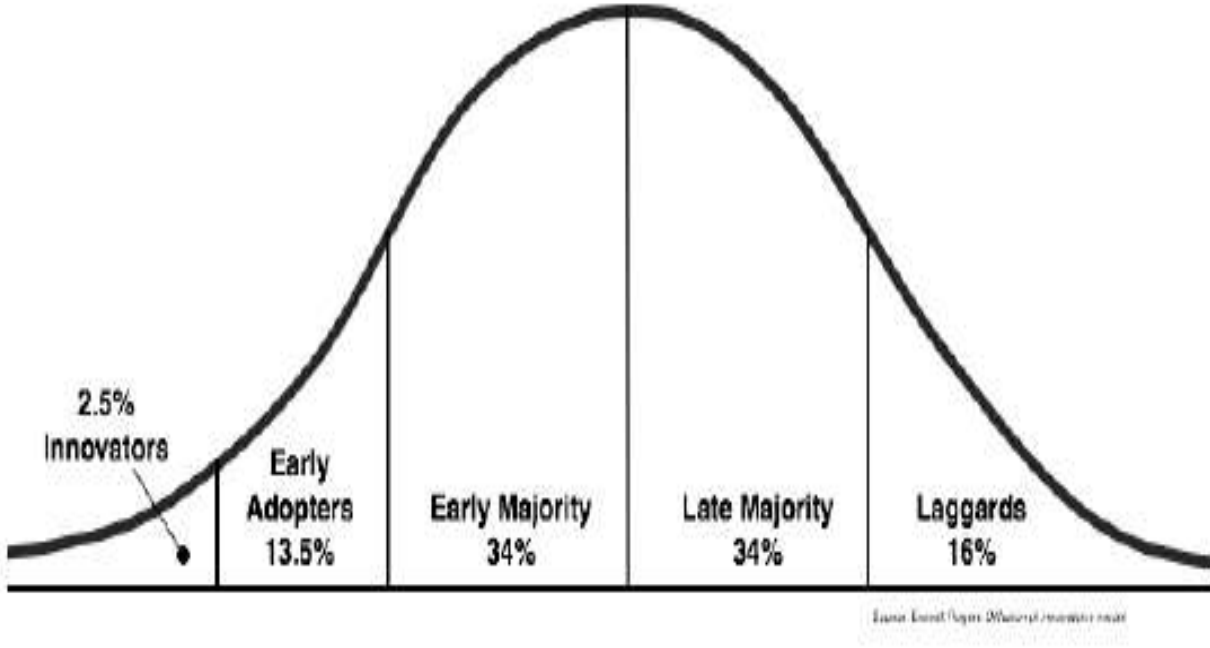
between: supply and demand



Rationale for Demand-based policies

- Market failures
 - Information asymmetries, lack of information on innovation prevents articulation of needs
 - Scale effects. User-needs are fragmented, limit market.
 - Consumption conditions (income effect, cultural factors, edu)
- Techno-economic failures
 - Technology lock-in
 - Unforeseen gaps in the supply chain interrupt or delay the development, or bring the cost up
- Systemic failures
 - Lack of intermediaries to link supply and demand

Market-Failures- Diffusion Cycle



What can government do?



Public and Private Needs

- **Public Procurement**
 - Government as a main articulator of a specific need.
- **Regulation & Standards-Setting**
 - Government puts in place new requirements that reflect or create new needs.
- **Policies to foster user -driven innovation.**
 - Stakeholder involvements, users labs, etc.
 - Consumer education

Opportunities

Re: Market failures

- Subsidies, etc to share cost & risk
- Lead Markets to infant value chains

Re: Market conditions/Structural policy

- Competition policy (e.g. Public utility)
- Fiscal & Monetary policy
- Regulatory reform
- Pricing policy
- Entrepreneurship policy

Abilities

Re: Techno-economic failures

- Investing in competence building.
- Specifying technical standards/platforms.
- Supporting innovation diffusion and take-up (e.g. awareness, and subsidy of private demand).
- Creating necessary physical, institutional and legal infrastructure.

Targeted demand-side innovation policies

: Adapted from J. Edler and L. Georghiou (2007)

- *Public Procurement*
- *Regulation & Standards*
- *Lead market*
- *Systemic policies*
- Support of private demand
- Policies to foster user driven innovation

Public Procurement for innovation

- PP4 Innovation = the purchase of goods or services that do not yet exist or require new features, and hence require research and innovation to realize the requirement
- UK: *Guideline for Procurement*(DIUS/OGC)
Innovation Procurement Plan (each Department)
- General vs. Strategic procurement (sectoral)
- Public procurement in connection with private users (Public-private partnerships)
 - *Co-operative procurement* and *Catalytic procurement*

Public Procurement for innovation (2)

- Defense R&D Procurement
 - U.S.: DARPA
 - 54.6 billion \$ annual spending on defense R&D
- SME Procurement
 - Provides quotas and preference to remedy discrimination
 - e.g. Korea: New Technology purchasing assurance scheme
 - Platforms: e.g. France's SME Procurement Pact
- Green Public Procurement

Regulations & Standards

- Regulation
 - Regulations on *Product information, use of innovation (labeling)*
 - Effect of Regulation on innovation is still controversial. But in the environmental area, regulations stimulate innovation
- Standards
 - Having an *international dimension* is not easy: *Compatibility and Interface across border*
 - Standardization is *voluntary process*
 - Many successful platforms are based on *Open standards*
 - In fast changing areas, *Dynamic standards* are more appropriate

Lead market & Systemic policies

- Lead markets: *“Innovation taken up one market eventually spread and adopted in other market” (EC)*
 - Bridge the gap between innovation generation and market success
 - Increases rate of return; attracts further R&D – virtuous cycle of growth and jobs
- Systemic Policies
 - both supply and demand side aspects.
 - e.g. Public-Private Partnership, Clusters
 - Voucher programmes : e.g. UK, Denmark, Netherlands

Challenges to demand-side policies

1. Public procurement can be at odds with competition policy (e.g. WTO GPA rule) and favours large players.
2. Standards-setting might lock-in inferior know-how.
3. Problems in *Timing of demand policy intervention* in the innovation cycle – too early or too late
4. Evaluation of demand-side policies
5. Lead-Markets initiatives might be neutralised by larger market and techno-economic forces.
6. Important links in the value chain might lie largely in other jurisdictions (i.e. countries, or regions with legislative powers) - global open innovation

Open issues

- Linking public and private demand through “societal challenges”
- Demand-side policies to foster new innovation or to foster diffusion?
- Evaluation metrics and impact methodologies for the demand-side
- Adopting a value-chain-approach to innovation policy that links supply and demand

Further DSTI work on Demand

- TIP Steering Group on demand-led innovation (7 countries)
 - Literature survey
 - Policy inventory ; TIP Break out session; CIIE-CSTP Workshop
 - Country/sector case studies
 - Analysis and identification of best practices
 - To be finalised in 2010
- CIIE work
 - Demand value chain
 - Consumers/users innovation (in co-operation with TIP on new forms of innovation)
 - To be finalised in 2010