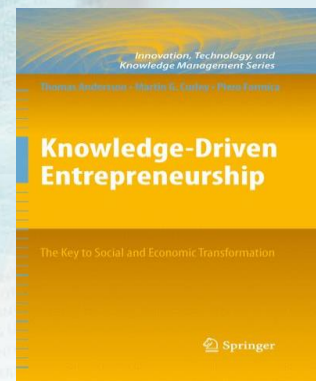


from intention to action

Devising and Implementing Innovation Strategies

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Outstanding Challenges

- Uneven progress end-of-pipe, processes/ products, recycling, systems
 - Frustrated policy coordination
 - Lack of willingness to pay among general public,
 - Lack of funding to cover initial costs, dearth of investment in research & renewal, heavy subsidization of incumbent waste
 - Weak information systems/certification, action-reward linkages, lack of accountability
 - Barriers to innovation and entrepreneurship
- ... issues of externality/problems with internalisation/global commons remain unresolved**

Evolution of innovation metrics

First Generation Input Indicators (1950s–60s)	Second Generation Output Indicators (1970s–80s)	Third Generation Innovation Indicators (1990s)	Fourth Generation Process Indicators (2000s plus emerging focus)
<ul style="list-style-type: none"> •R&D expenditures •S&T personnel •Capital •Tech intensity 	<ul style="list-style-type: none"> •Patents •Publications •Products •Quality change 	<ul style="list-style-type: none"> •Innovation surveys •Indexing •Benchmarking innovation capacity 	<ul style="list-style-type: none"> •Knowledge •Intangibles •Networks •Demand •Clusters •Management techniques •Risk/return •System dynamics

On Mindset

	Reactive	Receptive	Constructive
Attitude	We follow the rules	We do what we have to in smartest way	We look for competitive advantages
Position	Defensive	Acceptance	Conscious decision
Perceived impact	Threat	Competition neutral	Opportunities
Typical solution	Filter on pipe	Process change	Product development/innovation
Collaboration partners	Technical specialists	Responsible within the industry	Customers, suppliers, competitors
Focus	Cut costs	Optimize investment	Carve out strategic edge



Education for maturity and mindset change...

- Quality education and learning for life
- Entrepreneurial training, experimentation
- Mobility, brain circulation
- Inspiration and engagement:
 - ▶ *Transpassing borders*: building alliances between disciplines, age groups, nation states
 - ▶ *From push to pull, from turf to inclusion*
 - ▶ *Role models*: authority and mentoring, not authoritarian rule...
 - ▶ Learning in action



Entrepreneurship and innovation, engagement, learning in action



Pressures and opportunities building

- Mounting scientific evidence on serious systemic risks
- Impacts increasingly felt in practice (extreme weather events, fires, seawater level)
- Information society increases transparency, rewards and punishments ...
- Higher incomes increase demand for green solutions
- Quality, value-added and green go together
- The power of human ingenuity using technology, organisational change and the new tools
- **Linear → Thresholds**



The opportunity to revamp agriculture

- Reforming state agencies (grain, machinery leasing, and agricultural credit markets) while increasing presence of private service providers to agriculture;
- Public investment to remove deficiencies in transport infrastructure, water and land management, plant and animal health and food safety;
- Public goods provision, enabling private sector growth and managing risks in agriculture
- Integrate small-scale producers into agricultural markets and diversify rural incomes.
- Governance and evaluation and policy monitoring by stakeholders
- Culture; maintain link to the past



Hydrological systems and biomass



- Water savings of some 60-90% compared with conventional drip irrigation.
- Water wastage, e.g., through evaporation, is dramatically reduced (e.g. water diffused underground, without air contact).
- Pioneering knowledge of local species and root systems
- Increased efficiency, reduced costs of fertilisers.
- Reduced maintenance costs and high robustness enabling greening and restoring now useless lands to productive purposes, and absorb CO₂



Turning policies constructive

- Holistic view
- Carving out interface research niches and industry
- Applying regulations and tax incentives
- Phasing out unproductive subsidies, water and energy
- Procuring and enabling waste management, new water and energy solutions
- Stakeholder engagement, financing, social pressure
- Information management, monitoring, auditing, disclosure, certification, "naming and shaming"



It is about people

- Use “Champions”, Trust builders, Creative individuals capable of transcending traditional boundaries (cultural, institutional and geographical) that prevent knowledge sharing.
- An approach to customers as partners, and knowledge workers as revenue creators.
- Caring and sound governance of our environment
- Management of the environment in which knowledge is created.
- Informal networks of alliances: Knowledge entrepreneurs usually emerge from a network of complementary ideas and people.
- Build bridges between different communities and societies

... national/regional mobilisation around addressing key issues and opportunities



Regulatory Framework and Incentives

- General incentives vs. research & innovation ecosystem (enabling tangible and intangible investment, incl. innovation support, not fiscal incentives)
- Governance, public goods provision coupled with strong stakeholder engagement and influence
- Public – private partnership (pooling of risk, diverse contributions, requires: legal structure that is transparent and lenient, operational modalities, principles for funding and for participation)
- IPR (flexibility to negotiate win-win, qualified support by institution to innovator)
- Start-ups and investment (all funding components)
- Employment (e.g., 40-40-20 for faculty in university, under responsibility)

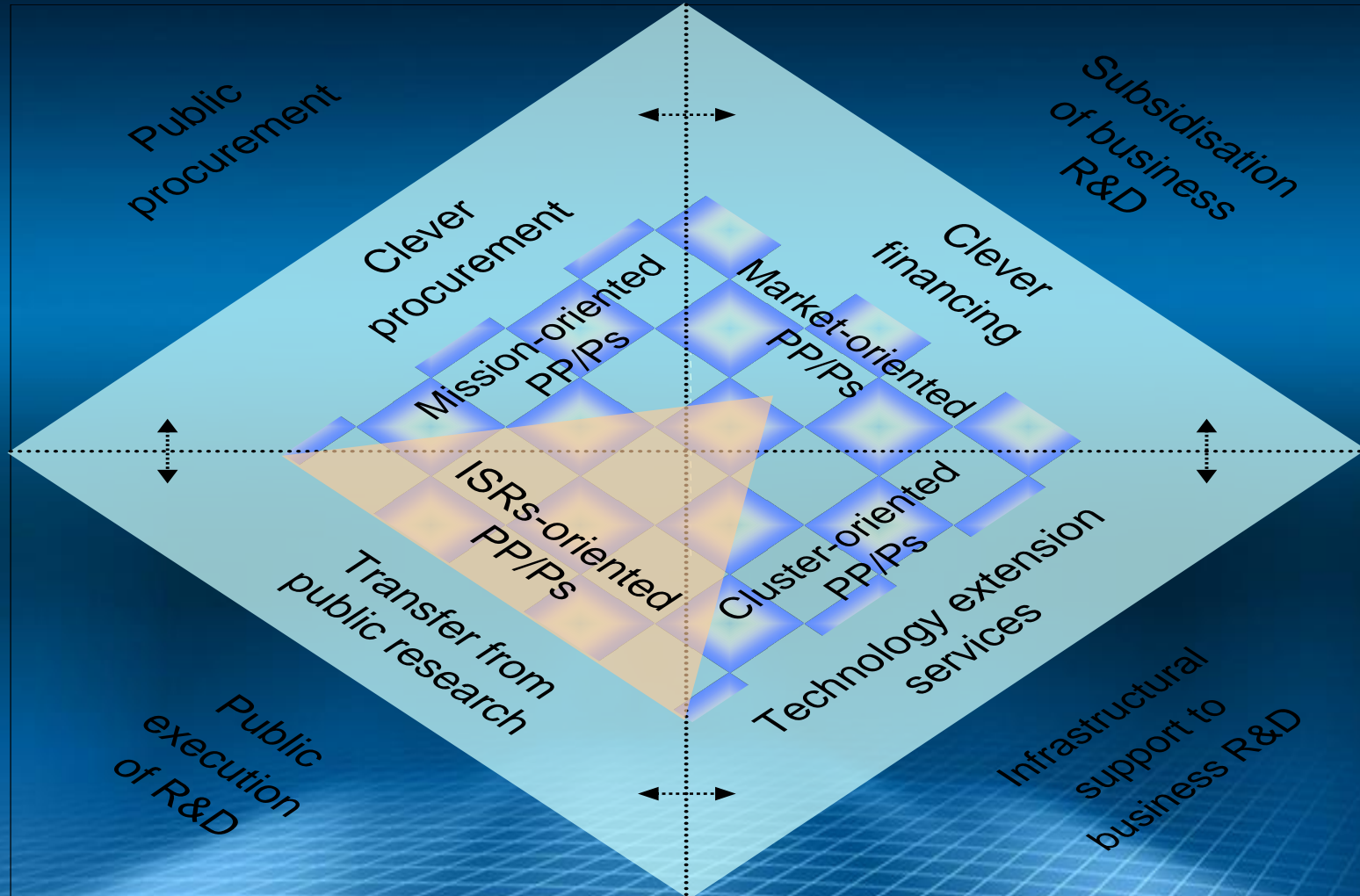


PPPs

- *Complementary and inter-dependent*
- *Fill gaps in innovation systems*
- *Require sustainable cooperation*
- *Require adjustment (speed/acceptance)*
- *Optimizing investment*
- *Embedding in innovation system*
- *SMEs*
- *International linkages*
- *Evaluation*



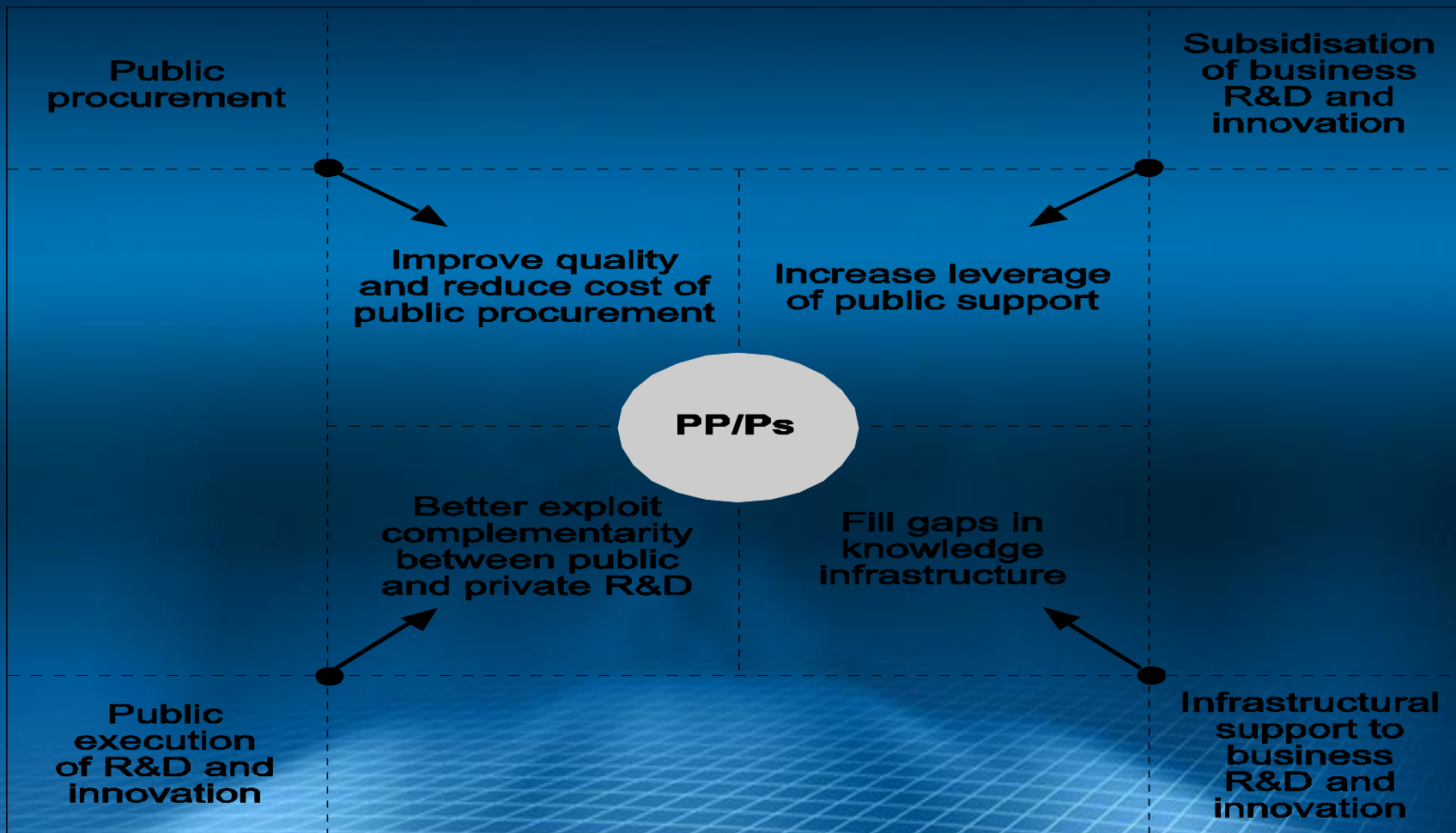
Typology of PP/Ps



Source: OECD (2007)

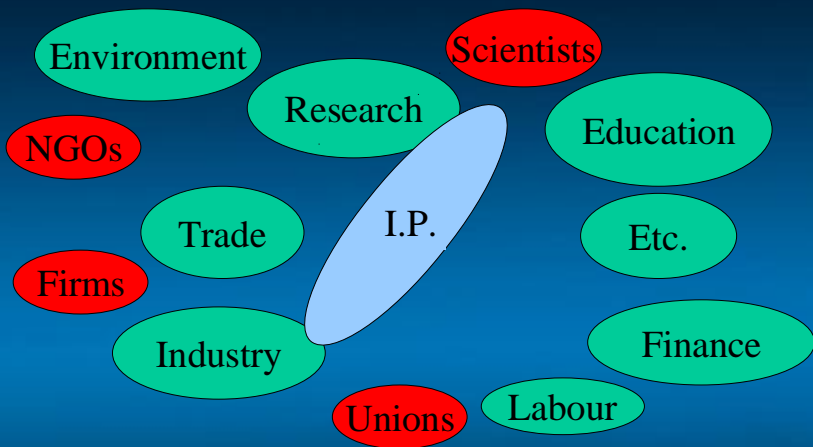


Expected benefits of an PPP approach to Innovation

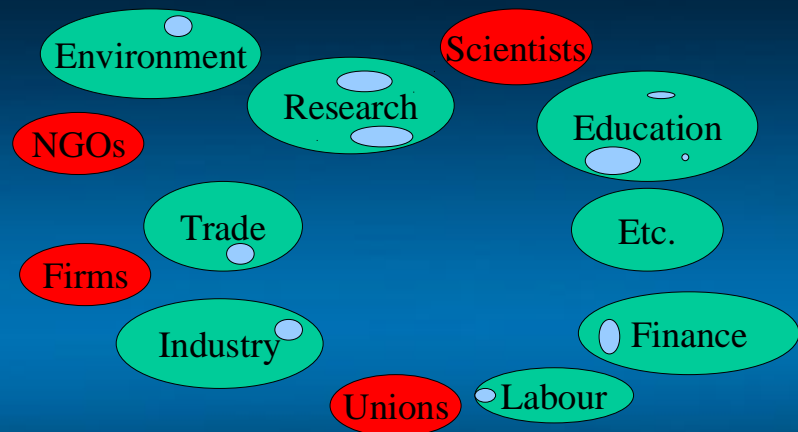


Source: OECD (2007)

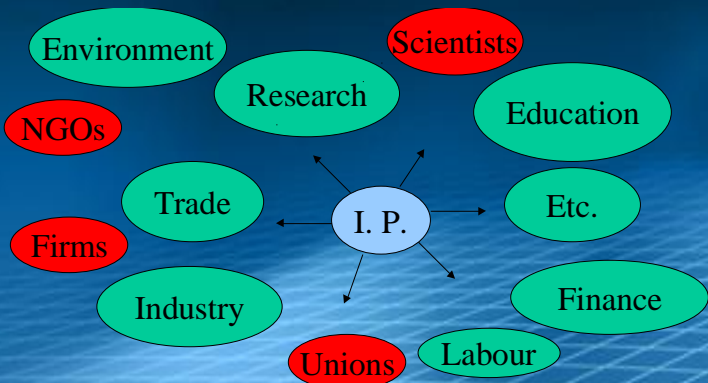
Traditional positioning of innovation policy



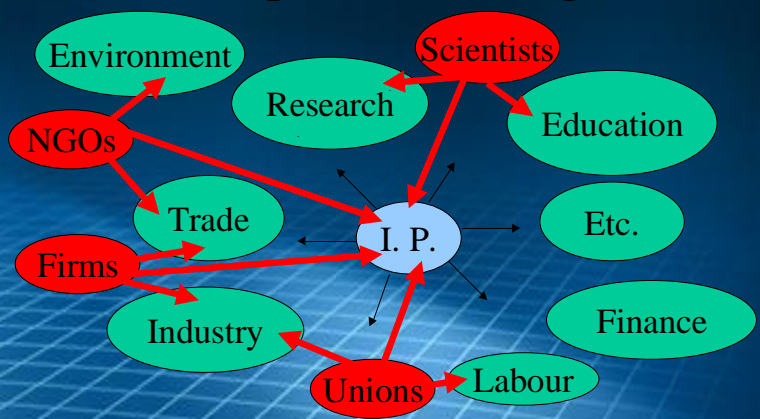
Implicit positioning of innovation policy



Explicit positioning of innovation policy



Explicit positioning of innovation policy with interactions



Source: IKED (2003)