

Strategic Intelligence in Demand Based Innovation Policies

**Presentation to the Joint CIIE-CSTP Workshop on
Demand-Led Innovation Policies.
Session 3: Evaluation of demand-side innovation policies**

Paris, September 15

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Purpose

How can Strategic Intelligence support demand based innovation policy (DBIP)?

Strategic Intelligence: all concepts, tools and methods used to support policy decision-making and implementation throughout the whole policy cycle (foresight, TA, CTA, evaluation)

Structure

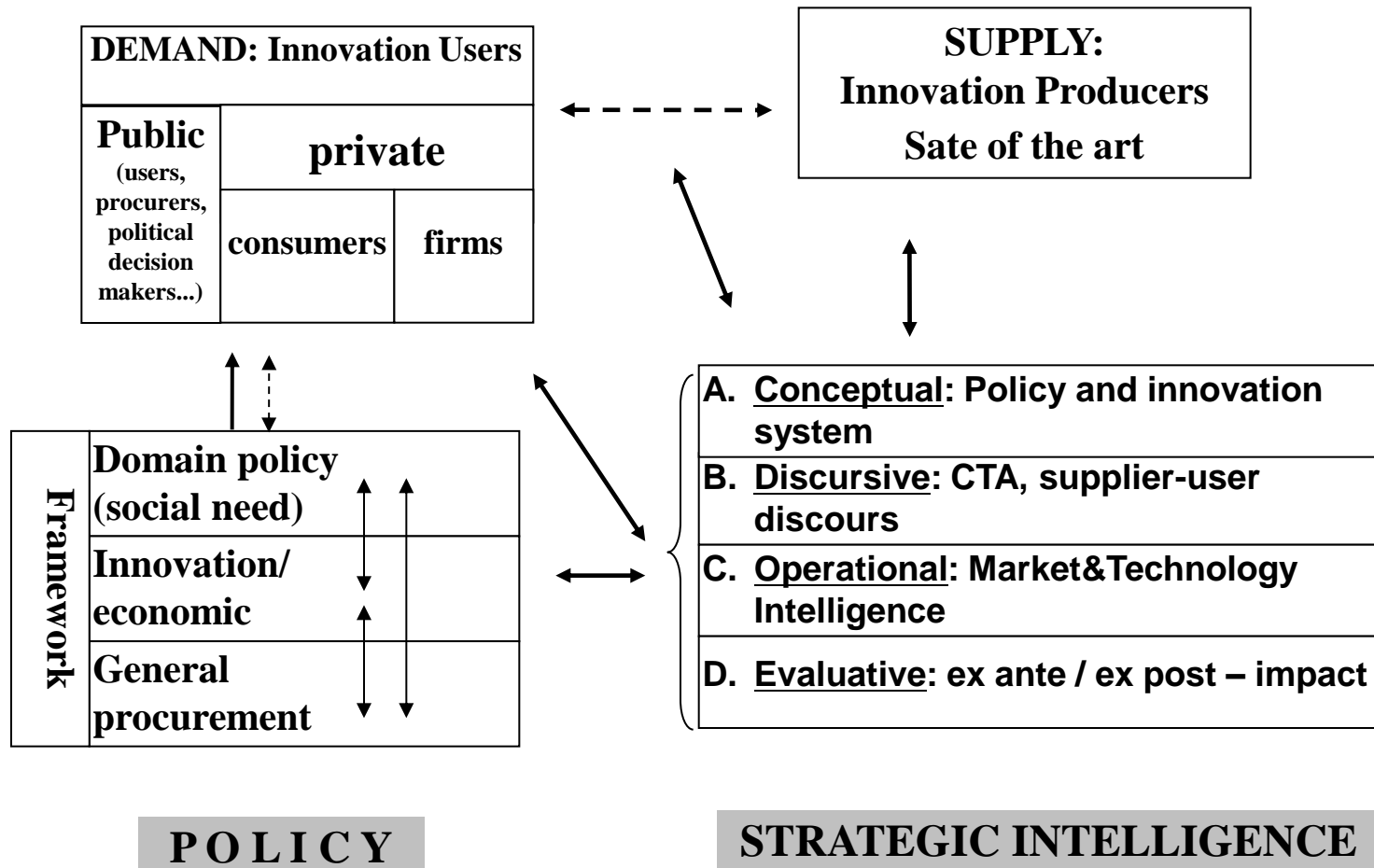
The Four Building Blocks of Strategic Intelligence in DBIP

- A. Conceptual
- B. Discursive
- C. Operational
- D. Evaluative (LMI example)

Conclusion: Challenges of strategic intelligence

The Building Blocks of Strategic Intelligence in DBIP

INNOVATION PRACTISE



POLICY

STRATEGIC INTELLIGENCE

A. Conceptual Intelligence

Big questions:

- Finding **sound justification** of public action: what is the "failure"?
- How do **societal demand** and **innovation** and **economic benefit** meet?
- **What is an area? Definition and delineation of**
 - Functional requirements – needs
 - Certain bundle of technologies
 - Certain bundles of innovative products (sub-)sectors (markets?)
- **What major impacts** to expect?
- Where are the **bottlenecks** in the **relevant partial innovation system**?
 - Innovation systems analysis – actor preferences and interactions (change?)
 - » Demand, supply, policy, intermediaries,
 - » Institutions, regulations..
 - Technology / knowledge base

B. Discursive intelligence –support in identifying, defining and shaping demand

How to ensure **targeted innovation** meets **preferences of users**

- foster the organisation of demand articulation and bundling

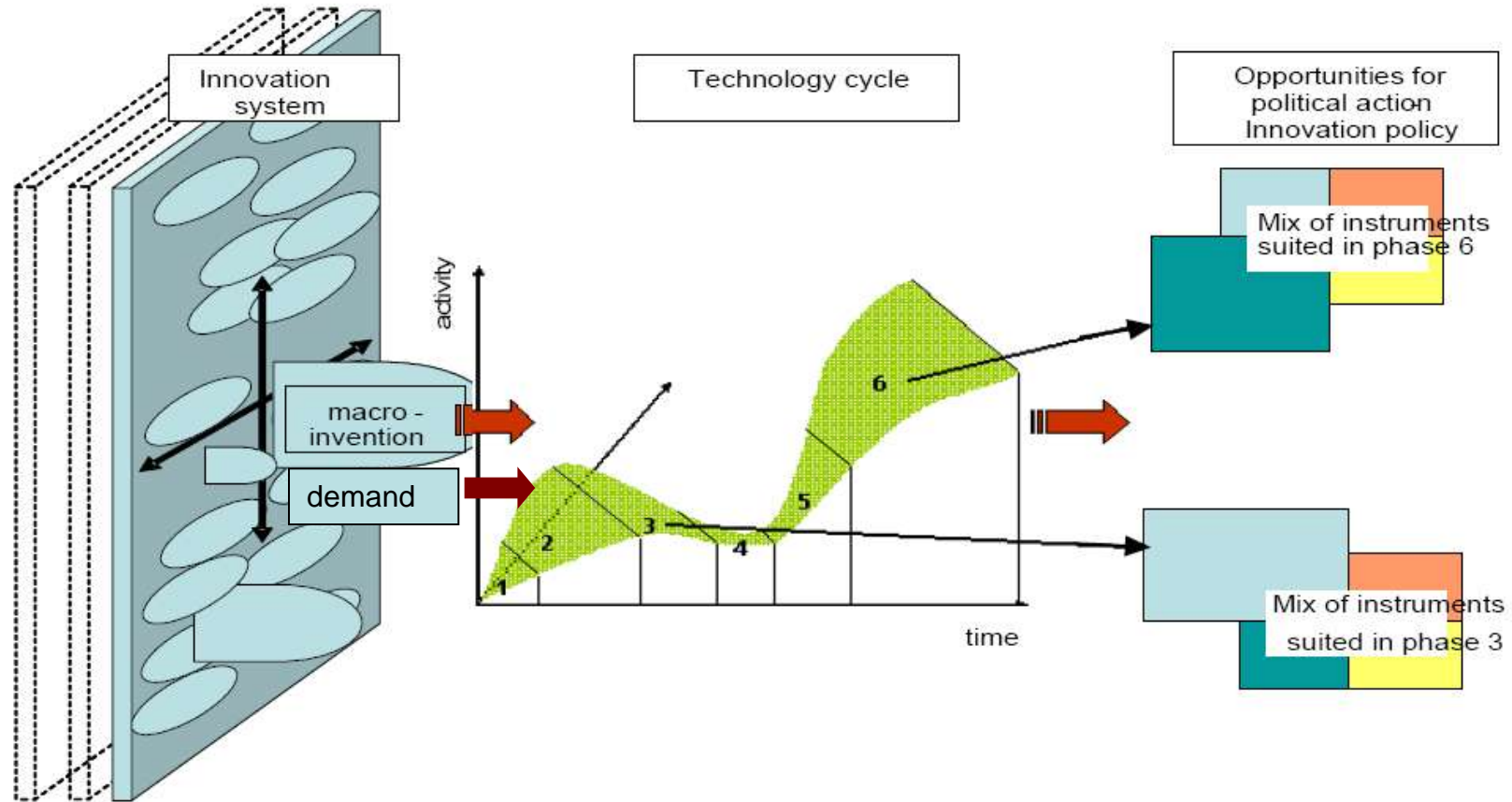
Private demand:

- To know/construct: match **long term user preferences, societal goals** and **market responsiveness**
- To know/influence: User awareness, capabilities, transaction costs, risk adversity
- To **enhance responsiveness**: constructive technology assessment, user-driven foresight, user – producer interaction etc.

Public demand:

- only “apparently” less problematic,
- often internal use not straightforward, departmental discourse, awareness building

C) Operational Intelligence: Technology / Market Intelligence



If certain technologies are targeted: Where is the targeted technology? What can suppliers deliver?

Methods: market / technology analysis, indicators and qualitative

D. Evaluative intelligence - impact

- Impact:
 - On **what**: Technological (which), economical (which markets), societal
 - On **whom** (users, producers)
 - **Time**: sequence of impacts
 - **Geography** (lead market spill over, by definition)
- Method mix: right delineation / indicators? Practicabilities? Light post fallacies?
- Sound ex post needs sound ex ante: Evaluation to
 - build on sound basis (previous steps A to C)
 - Include constant formative element, not summative only
- Formative: use data gathering and discourse to support learning

Example: Lead Market Initiative of the EU Commission Concept development*

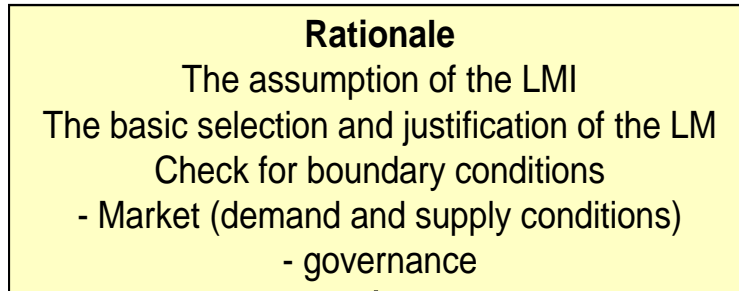
- See presentation by van Eijl
- Combination of **different instruments** (public procurement, standards, other legislation and complementary actions).
- **Six target markets:** eHealth, recycling, renewable energy, sustainable construction, protective textiles and bio-based products.
- defined around '**broad market segments**' , not picking winners (different kinds of innovations can flourish).
- All linked to wider **societal needs** (sustainability, efficient and effective health care etc.)
- Commission sees a **strong economic potential** within Europe that can be realised through concerted, coordinated and flexible action

* Based on Blind, K.; Edler, J.; Georghiou, L., Uyarra E. (2009), Monitoring and Evaluation Methodology for the EU Lead Market Initiative. Concept development for the EU Commission, DG Enterprise, January 2009
http://ec.europa.eu/enterprise/policies/innovation/files/monitoring_evaluation_methodology_for_the_eu_lmi_en.pdf

Evaluation logic

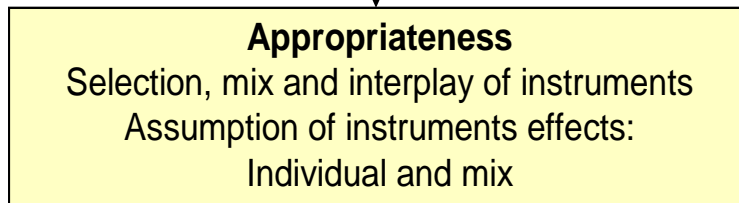
Indicator needs

Q. A

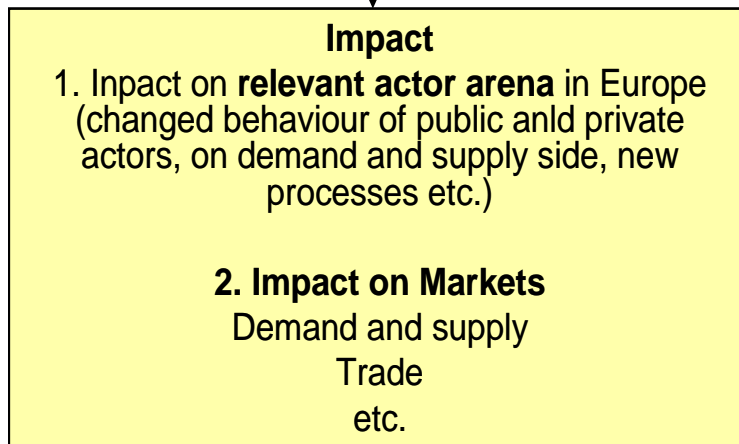
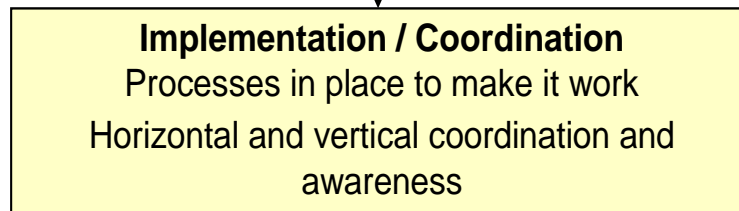


Delineating the 6 Markets
Appropriate Indicators

Q. B



The Concept Flow



Impact on Actors
qualitative/quant. Indicators

Q. C

Impact on Markets
Quantitative Indicators and
approp. data sources

Lead Market: Illustration: three selected questions

Q. a) When is it a Lead Market?

Q. b) Challenges to delineate the markets

Q. c) How to tackle impact dimensions

a) When is it a Lead Market?

- To analyse: what are **pre-conditions**, what conditions **can be created through LMI?**

Literature based characteristics – to test empirically:

- specific, innovation-driving **problem pressure** (high significance of **political goals**)
- High **tendency for (quick) acceptance of innovations** (demand advantage, transfer advantage):
- **critical mass of demand** (within Europe *and* potentially abroad)
- **good framework conditions** for rapid learning / adaptation processes for **suppliers**
- **pioneering regulations**
- adequate technological and productive **competence** in the entire valued added chain and supporting services:
- high per capita income and/or **low price elasticity** (depends on market, private demand)

b) **Delineation** of Markets to capture developments : Challenges

- **Innovation as aim:**
 - in the **long** run, the existing products are completely substituted by the new ones, and many new firms may serve the needs
 - How to capture and measure the transition in **complex transition period?**
 - **with** decreasing degree of substitutability related to existing markets and increasing degree of “emergence” lead markets **cannot** be defined by recurring on traditional classification of industries, like NACE, or products, like PRODCOM or the Harmonised System

b) Delineating markets: Challenges

- **Illustration: some common Indicators** for defining the six Lead Markets
- Supply side
 - patent applications (volumes/companies) – concordance needed
 - trademark registrations (volumes/companies) – concordance needed
 - foundation of companies (volumes/companies)
 - survey among the above identified companies and their customers (but: new entrants?)
- On the demand side?
 - public procurement (volumes/public procurers/winning companies), (targeted) *procurer survey*

c) **LMI** and definition of multi-layered **impacts**

To capture **impact on all levels and for all instruments**:

- **Logic Chart**
- Formulation of
 - **leading questions** for each dimensions
 - **Key Methods** to be used

c) LMI and definition of multi-layered **effects** in a nutshell

**Revised Lisbon Agenda:
Innovation for growth, creation of jobs**

**LMI
objectives**

LMI activities

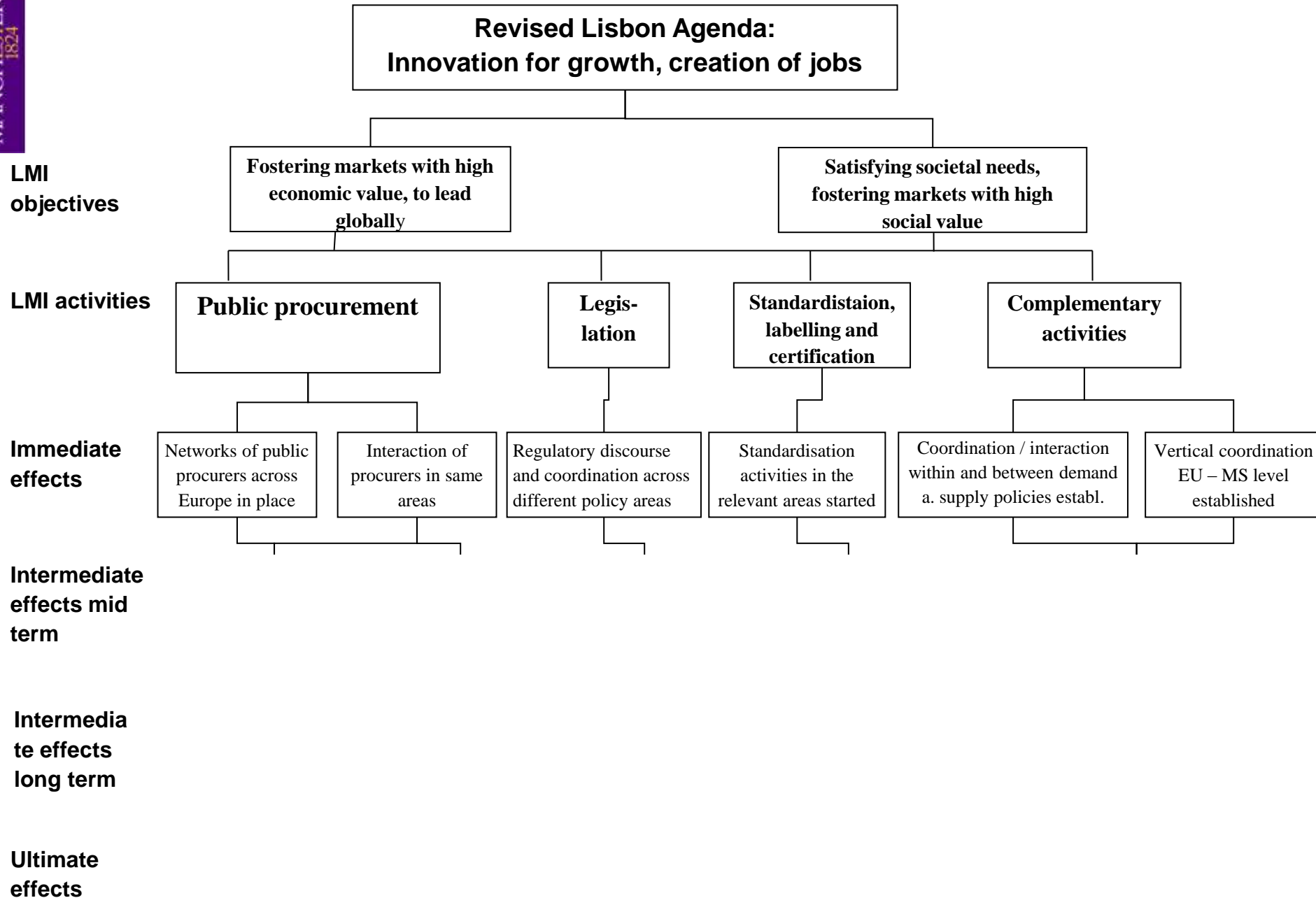
**Immediate
effects**

**Intermediate
effects mid
term**

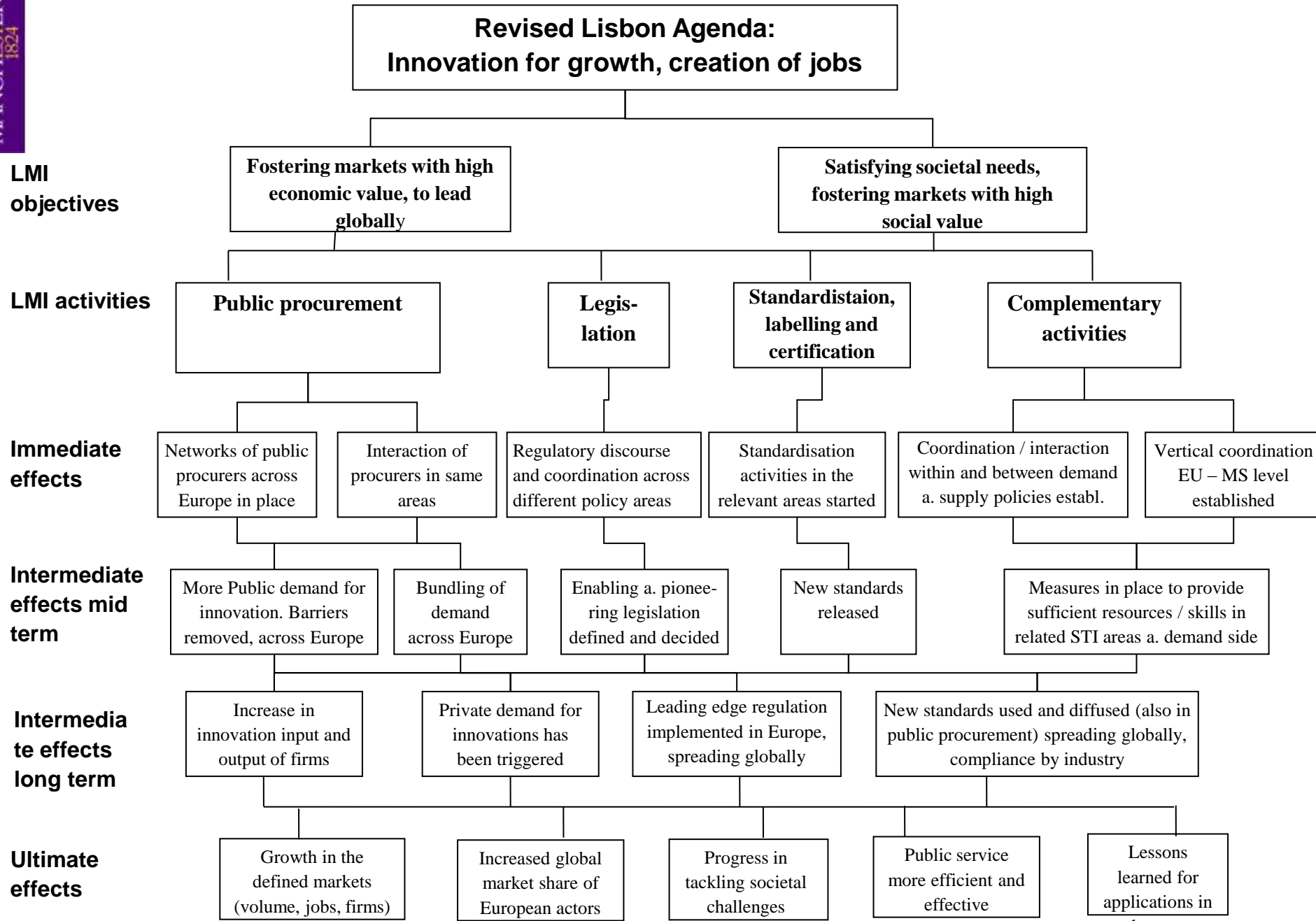
**Intermedia
te effects
long term**

**Ultimate
effects**

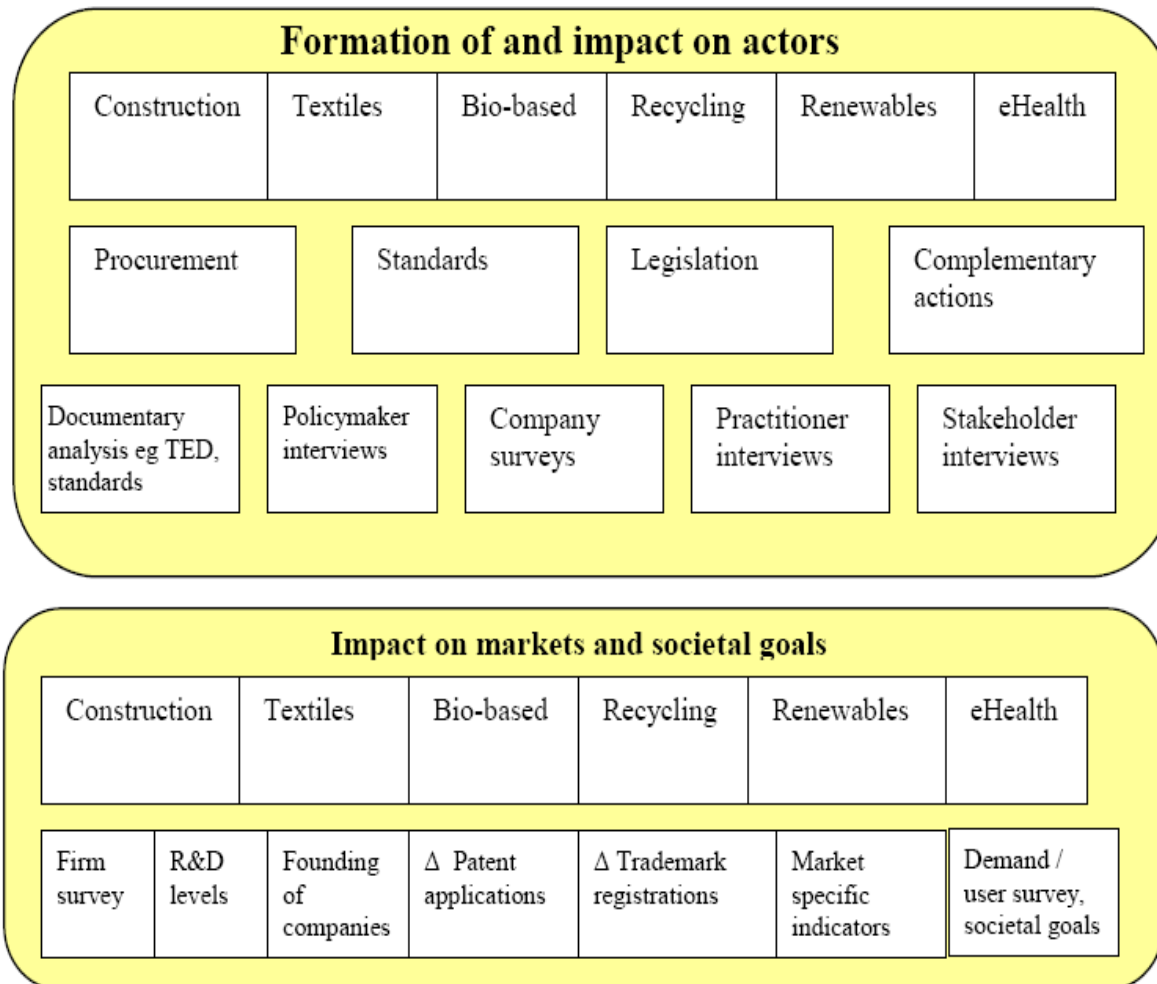
c) LMI and definition of multi-layered effects in a nutshell



c) LMI and definition of multi-layered effects in a nutshell



c) LMI Impact: Methods to be used for impact assessment



Evaluate Lead Market initiatives – some principle thoughts

- LMI is **entirely novel** approach
- **Learning** on all levels, coordination
- **Critical mass** of action?
- To design action for markets not yet delineated – **pragmatic approach**
- **Evaluation challenge**
 - how to capture **markets in transition**: demand and supply delineation, concordance problems, what/who is in – out (newcomers, radically new solutions): Knock on effects on market impact measurement
 - **Change of actor behaviour**
 - **Interplay of instruments** – systemic evaluation
 - **Patience**: effects take time, multi step learning and changes
 - **Formative evaluation** essential, not too big a focus on market impact, make sure that the „culture“ and incentives can be changed

General Conclusions: Critical Factors for Strategic Intelligence in Demand Based Policies

- Truly holistic and cyclic approach needed
- Keep in mind two policies (economic, societal)
- High demand on conceptual, methodological and discursive skills
- No one size fits all approach:
 - area delineation (needs/functional, technological, markets)
 - Responsive vs. triggering demand
- Bottleneck: Systems analysis and technology / market analysis
- Patience
- Analysis
 - Supply and demand!
 - public / private demand
 - Instruments – framework conditions
- Attribution problem

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Some background slides

1. Precondition for evaluation: Understanding policy rationales for DBIP

Demand based IP:

Systematic set of public intervention that seek to

- **induce** innovation and/or
- **speed up** the **diffusion** of innovation through
- **increasing the demand** for innovation (*responsive*) and/or
- **defining new functional requirement** for products and services (*triggering*).

Distinguish

- **Responsive** and **triggering** demand
- Preferences and demand

1. Precondition for evaluation: Understanding policy rationales for DBIP

- 1) Innovation policy to tackle a **set of market and system failures** – market entry and diffusion is hampered:
 - **information asymmetries** (producers do not know preferences, users do not know innovations),
 - **lack of interaction** between users and producers
 - **lack of capabilities** and **willingness** (switching costs) to use new technologies,
 - **high entry costs** (in areas with a high potential for network effects)
 - technological **path dependencies**
 - **Lack of awareness** and articulation (consumers and policy makers)
- 2) Demand based **policy** can be understood as a means **to contribute** to **societal needs** and goals.
- 3) Demand orientation as a means for **industrial policy**: e.g. deliberate creation of lead markets (dominant designs, global producers etc.), to give local/national/European producers an advantage.

1. Precondition for revaluation:

A typology – more than public demand

1) Public Demand / Procurement

- General procurement
- Targeted Areas, State as Lead User of Innovations

2) Support of private demand

- Cooperative and catalytic procurement
- Demand subsidies (Tax, feed in-tariffs etc.)

3) Enable / Marketing

- Adjustment of training programmes, curricula etc.
- Awareness Measures
- Labelling / Marketing (eco-labels)

4) Regulation

- Norms for product information
- Norms as for performance of products and services
- Legal security for usage of new products/services (electronic signature)

5) Demand construction / articulation

- Various forms of (interactive strategic intelligence/private and even public demand)

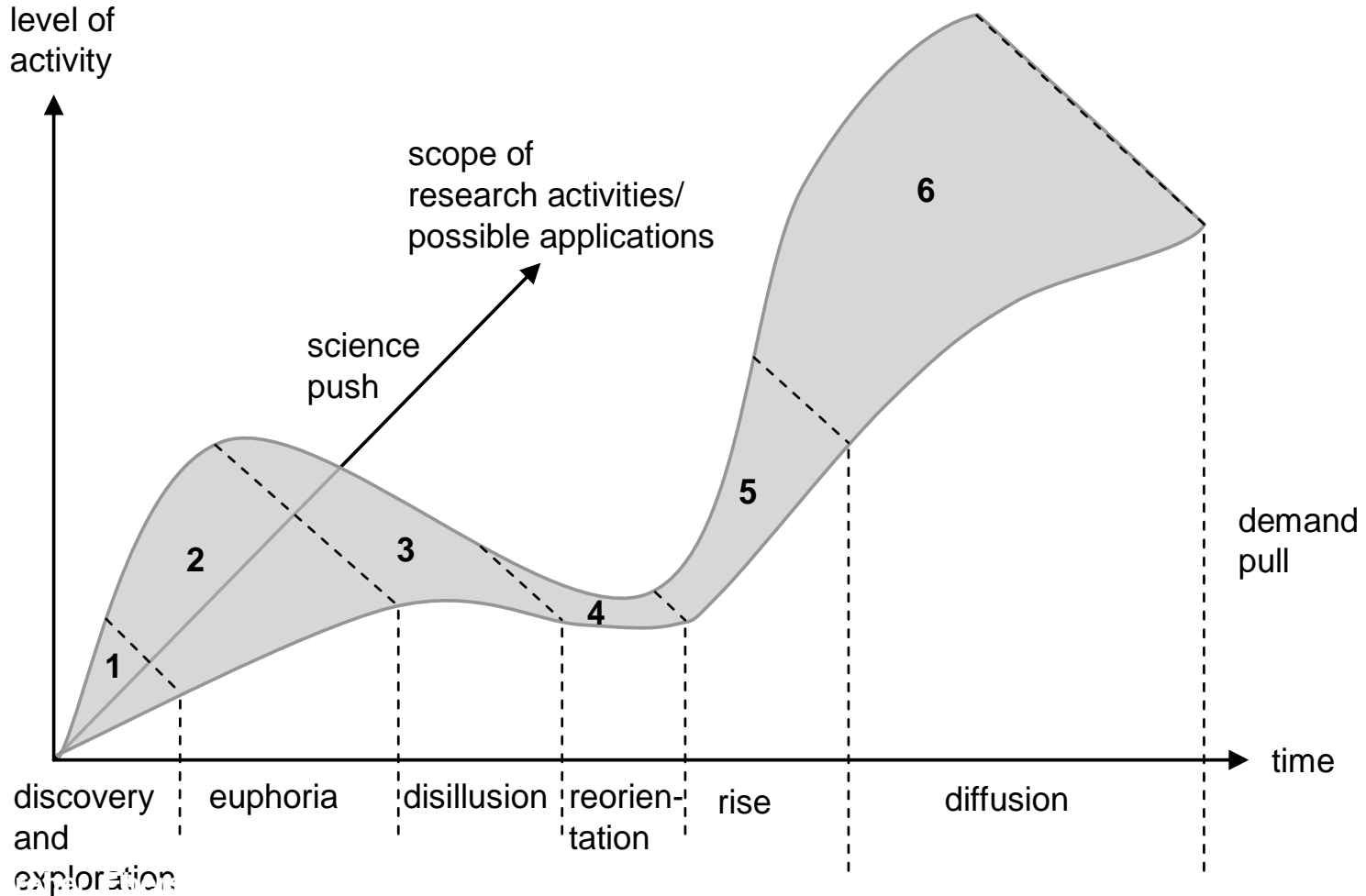
6) Systematic Approaches:

- Combination of demand measures
- Plus: **combination of supply and (public/private) demand**, e.g. **Lead Markets** (e.g. ambitious regulations in connection with support programmes)

C. Operational: Technology Intelligence

Supply Measures

Demand-Measures ?



If policy has certain technology in mind: Strategic intelligence support to define the right demand measure at the right time
(*illustration* only, no mentioning of adequate supply measures here)

1. Discovery and exploration

- disciplinary and interdisciplinary research investigates the opportunities for the new technological principals.
 - In principle issues are in supply
 - *Need driven definition of new demand for new technology / application*

2. Euphoria about the new technological possibilities among the growing community of scientists and applied researchers (stage 2).

- Danger: technology success taken for granted
- *Constructive technology assessment / foresight (technological and demand)*

3. Sobering up: Several options turn out to be either technically or economically unfeasible. Therefore, research activity in these areas is reduced or stops altogether (stage 3).

- Strongly supply oriented: get it right
- *Check demand - keep up public awareness*
- *Demonstration project to raise awareness and build trust*

4. Reorientation (stage 4):

- only those actors with the greatest endurance or radical new approaches contribute to the reorientation of the technology's development
 - Again strong support on supply side, but
 - *Focused user involvement (lead user, key user)*
 - *Focused technology assessment – lead market testing*
 - *Early public procurement (if public need)*

5. Critical industrial breakthroughs. The breakthrough which is the fastest to achieve market acceptance shapes the future handling of the technology (dominant designs) (stage 5).

- Strong shift to demand side:
- *Very technology specific mix, clear choice*
- *Lead market policy, combination of mix of demand measures: regulation, subsidies if needed/desirable, procurement, catalytical procurement, broad awareness measures, training etc.*
- *Potential PPP?*

6. Diffusion (stage 6), applications expand again because economies of scale result in a price reduction and allow new application areas and low cost markets to be tapped.

- Shift to broadening, but :
- Think of next generation (supply again!)