Innovation Intermediaries and Innovation: Changing Dynamics and Future Perspectives

Workshop, Birkbeck Centre for Innovation Management Research, Birkbeck, London

Jeremy Howells, Kellogg College, University of Oxford
4 December 2015
jeremy.howells@kellogg.ox.ac.uk

1. Introduction: I

Innovation intermediaries important for three reasons:

- important *actor set* in innovation (growth, economic development & change) and change element

- a *conceptual lens* on the dynamics and evolution of systems of innovation, institutional aspects of innovation, organisational dynamics…. particular interest in intermediaries in terms of a *new organisational form(s)*

- major *policy* significance

On this basis, will focus on 3 conceptual relating to intermediaries…..

1. Introduction: II

1. Systems and institutions (systemic)
2. Flows (function and nodes (‘back box’ perspective)): diffusion and network geometry
3. Unpacking the nodes (organisational): intra- and inter-organisational transformation

- Conceptualisation of innovation intermediaries also tracks these different levels through their
  - wider systemic or institutional setting
  - organisational dynamics and implications for evolutionary change

2. Systems and Institutions: I

- A good start is Dalzeil's (2010) question of 'Why do innovation intermediaries exist?'
- In response would argue they provide:
  - *macro* systemic level roles
  - *meso* level regulating functions (mediation and arbitrage)
  - *micro* firm & organisational role in assisting and facilitating innovation

2. Systems and Institutions: II

- A worse innovation landscape without them and would make them up if we did not have them (see later)….
- a Darwinist, niche emergence and trajectory here
- However, equally realise that this is rather a subjective approach and need a harder, quantitative analysis
- How might the effect of innovation intermediaries be better evaluated in policy terms?

2. Systems and Institutions: III

a) Basic level: *presence*/absence (existence/ number) of innovation intermediaries in innovation system and effect on firm performance

b) Intermediary level: effect of different *types* of innovation intermediaries on firms and the overall system

c) High level: *predictive* level of a) and b) both for policy advice but also to be a ‘proper’ theory

2. Systems and Institutions: IV

- For example, in UK context introduction of Catapult Centres (‘Fraunhofer envy’)…. impact on direct engagement with industry by university UK c.f. Germany

- Evidence that innovation intermediaries do have an important role to play in networks and systems as ‘animateurs’….

- …. however depends on the system and accept, that as direct partners, innovation intermediaries may have a less significant impact than firms (customers, suppliers, etc.) (Howells et al., 2012)

2. Systems and Institutions: V

- Context is all…..
- Easier to evaluate on smaller scale systems (networks, sub-systems)….
- … than at national innovation system level (e.g. comparing German and UK research systems (Howells and Edler, 2011); problems of counter-factuals, controlling for variables/factors, etc.
- Institutional aspects more important at these levels, especially translating from developed to developing economies

2. Systems and Institutions: VI

- In a systemic and evolutionary sense, therefore, they fulfil a key role
- “How the Netherlands became a bicycle nation: users, firms and intermediaries, 1860–1940” Tai et al. (2015, *Business History*)
- Role of intermediaries in the architecture of innovation systems: e.g. Technical Information Agency (Rijksnijverheidsdienst, RND) in early C20th Netherlands

2. Systems and Institutions: VII

- **Definition** also an issue, not so much the definition, but its interpretation has widened over time

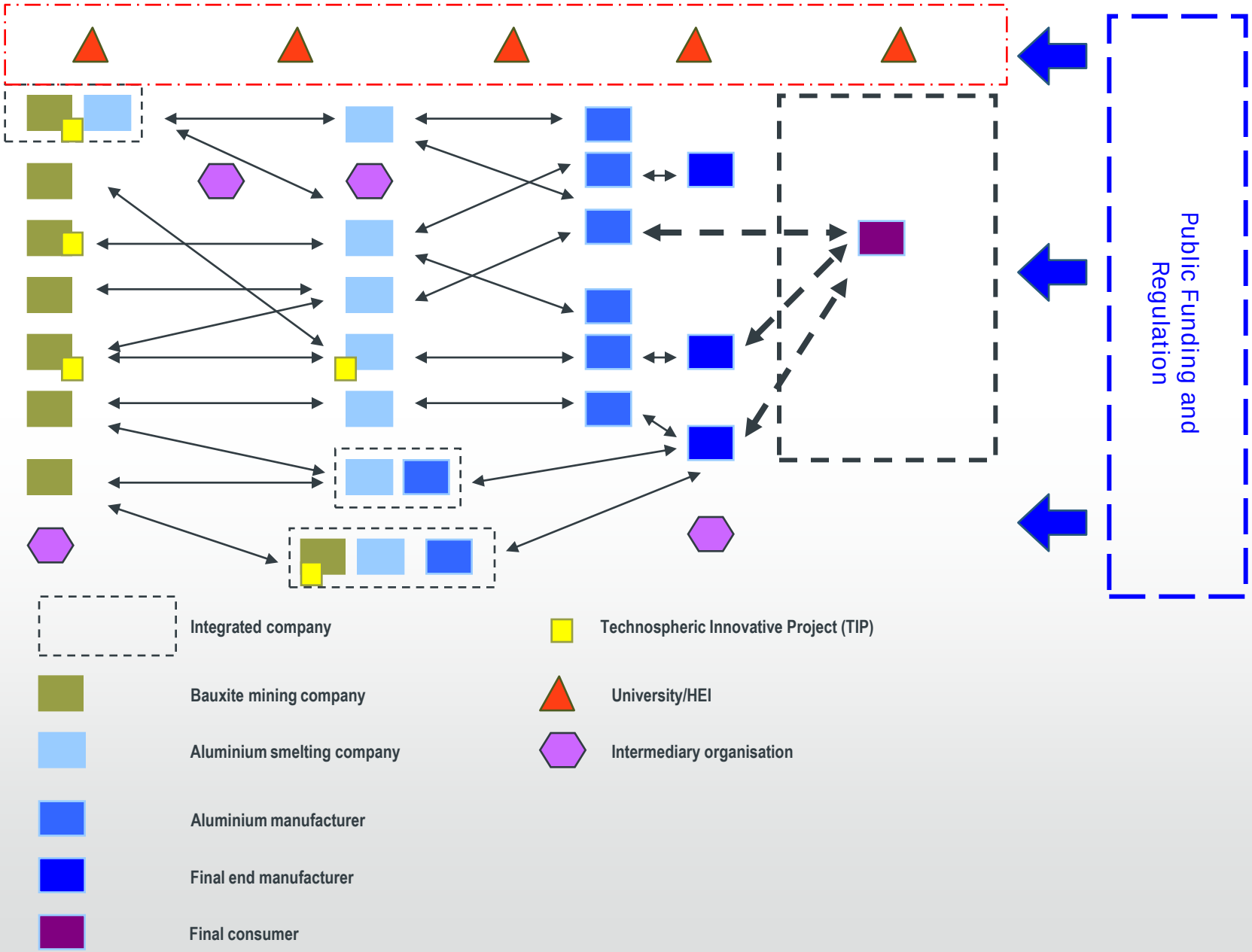
- Various definitions: “Organisations, either public or private, that help other organisations, especially firms, to develop innovations (but not directly involved in the ‘production’ of) in goods, services and ‘ways of doing’ and organising.”

- When is an organisation an innovation intermediary?

2. Systems and Institutions: VIII

- Admittedly application of term much wider than I initially defined and expected, e.g. Technology Transfer offices (TTOs)
- Need to distinguish between intermediary as an organisation and as a function or activity
- Fractional ‘part time’ intermediaries… e.g. 40% role, but always recognised this (e.g. Ricardo Engineering)

Bauxite Residue Innovation System



3. Flows and Networks: I

Diffusion in relation to innovation and economic development currently undervalued:

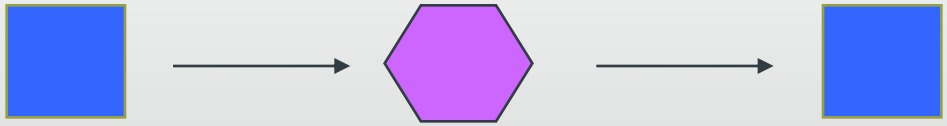
1. A primary change element within the system….. major evolutionary impulse (Metcalfe, 1998)
2. Diffusion through innovation has a major impact on productivity change (‘productivity puzzle’)
3. Major spatial shaping force
4. Above all, diffusion and adoption/adaption is overwhelming the way most firms and organisations *experience* innovation through imitation, adaption, etc. – incremental innovation (v. heroic, ‘high peaks’ radical innovation)

3. Flows and Networks: II

Innovation intermediaries have a key role to play in diffusion processes:

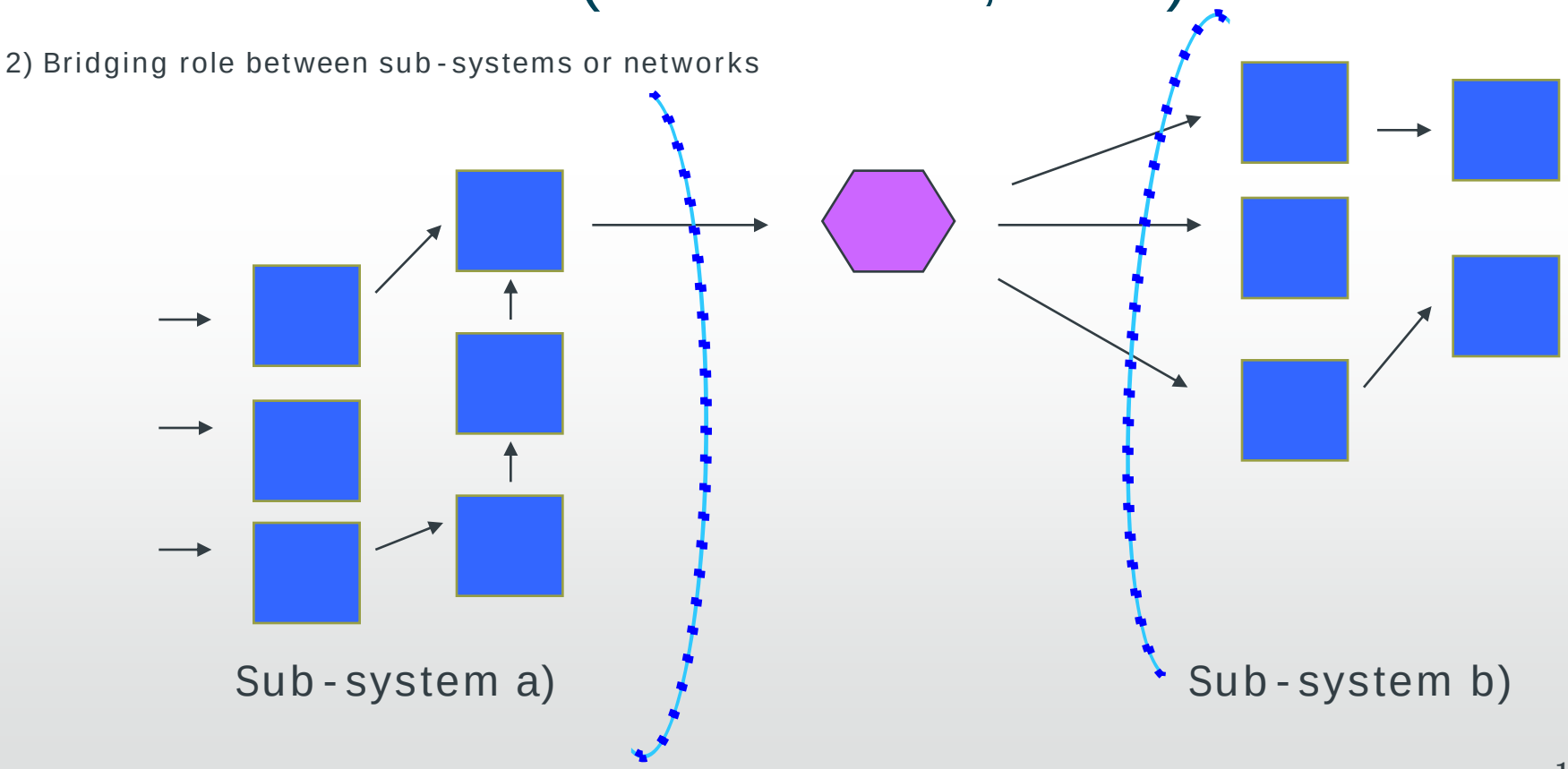
1 *Simple (but different) onward transmitters:* similar to other actors, but additional actor type provides stronger, more resilient diffusion system (Attewell, 1992; Pittway et al., 2012; Corsaro et al., 2014) through ***increased system heterogeneity*** (h+1)

1) Increased system heterogeneity = resilience



3. Flows and Networks: III

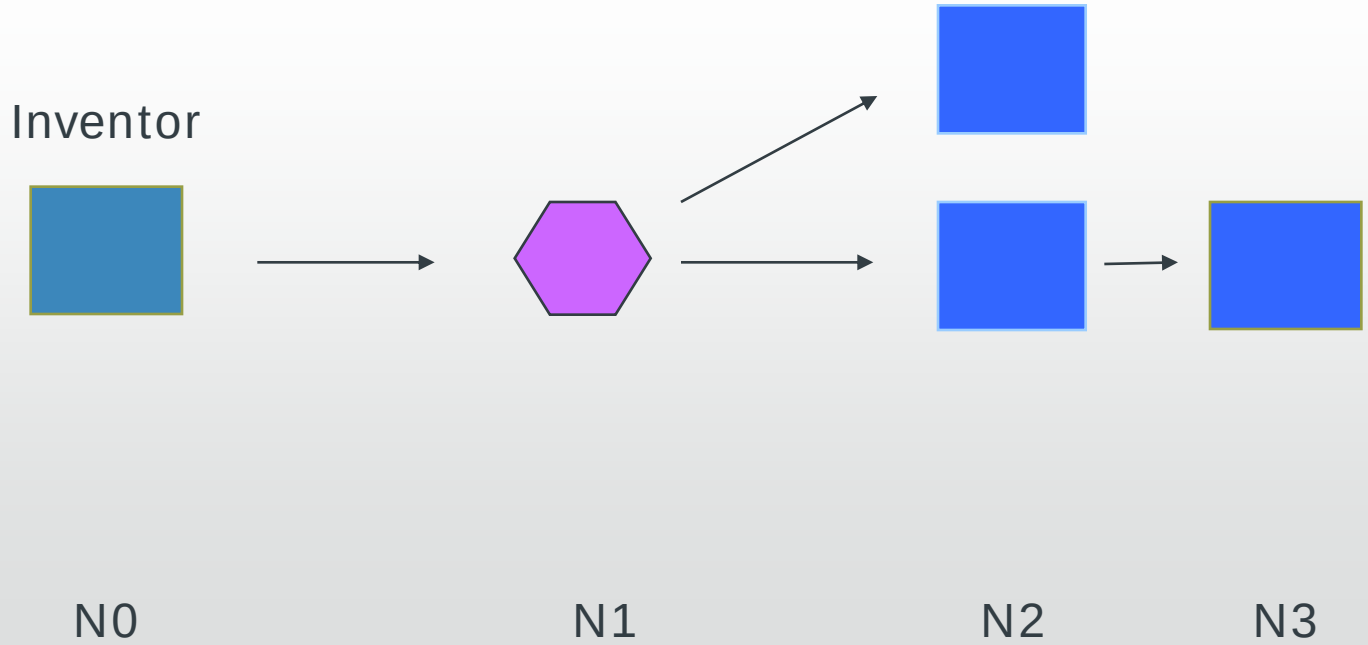
2 Enhanced network connectivity: providing a ***bridging or boundary spanning role*** connecting disparate sub-systems in networks; extends spatial 'reach' in a network (Verona et al., 2006)



3. Flows and Networks: VI

3 ***First adopters and leaders***: Intermediaries are often the first (n1) in the diffusion system to adopt the innovation. In this realm they can also be valuable *opinion leaders* (Valente and Davis, 1999) and *idea leaders* (Burt, 2004) within a system or network

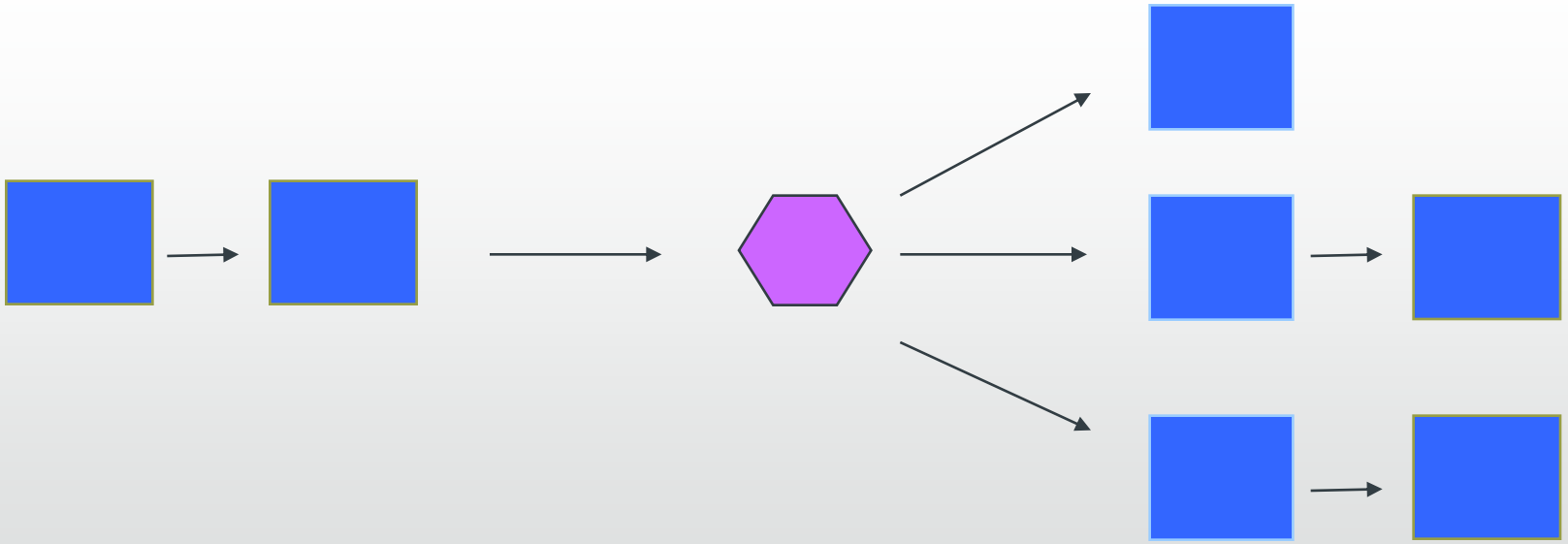
3) First adopters and idea leaders



3. Flows and Networks: V

4 *Network amplifiers:* increased conductivity because institutional or knowledge position they propound and **amplify** the innovation ‘message’ (the benefits), leading to an explosion of innovation adoption (helped by accreditation, standard setting and trust)

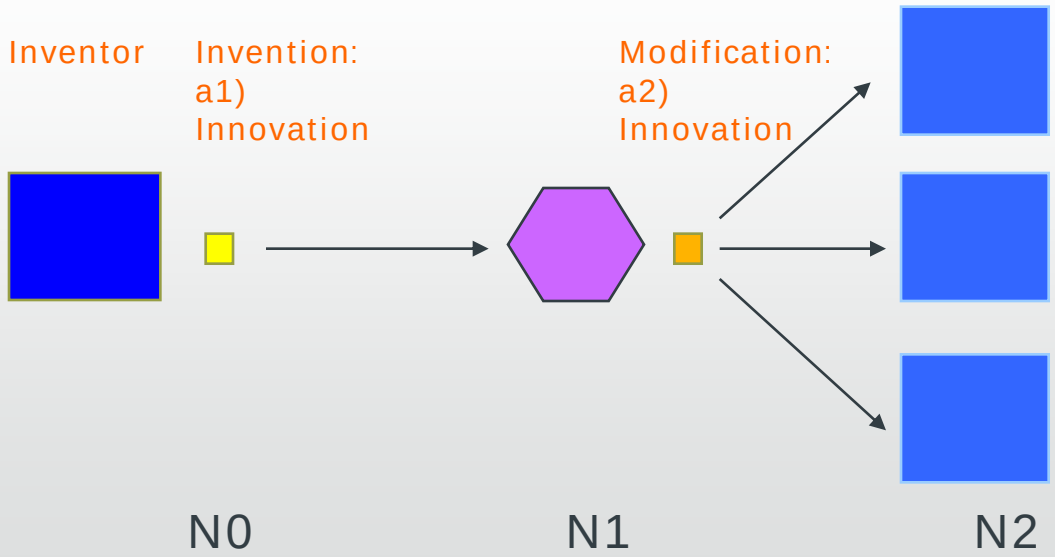
4) Diffusion network amplifiers



3. Flows and Networks: VI

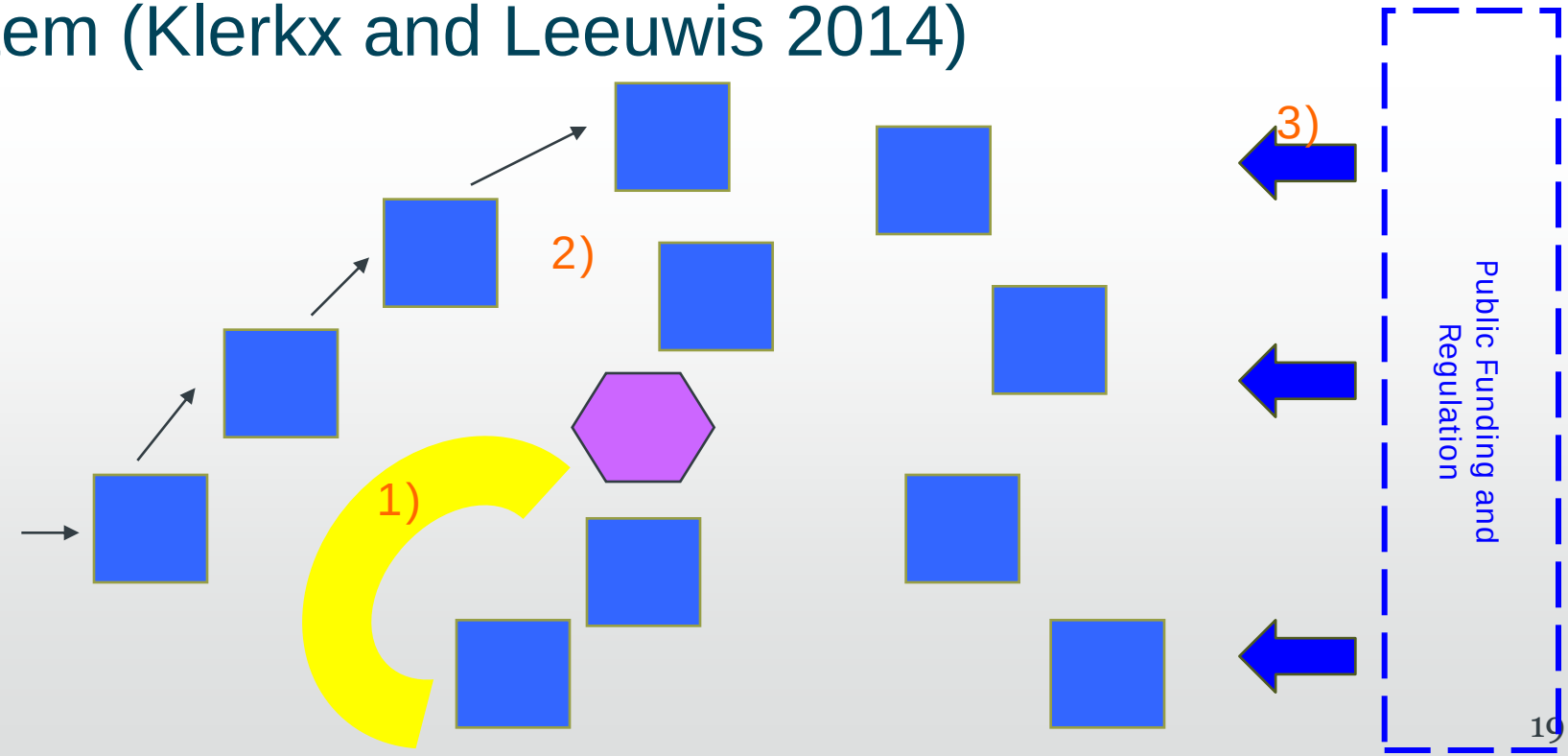
5 *Diffusion modifier - innovation:* Not just onward transmission but **innovation *modifying*** and improving consumer acceptability. Not restricted to intermediaries (Arundel and Hollanders, 2006; Arundel et al., 2007), but something intermediaries perhaps do more frequently or with greater influence

5) Diffusion modifier: innovation



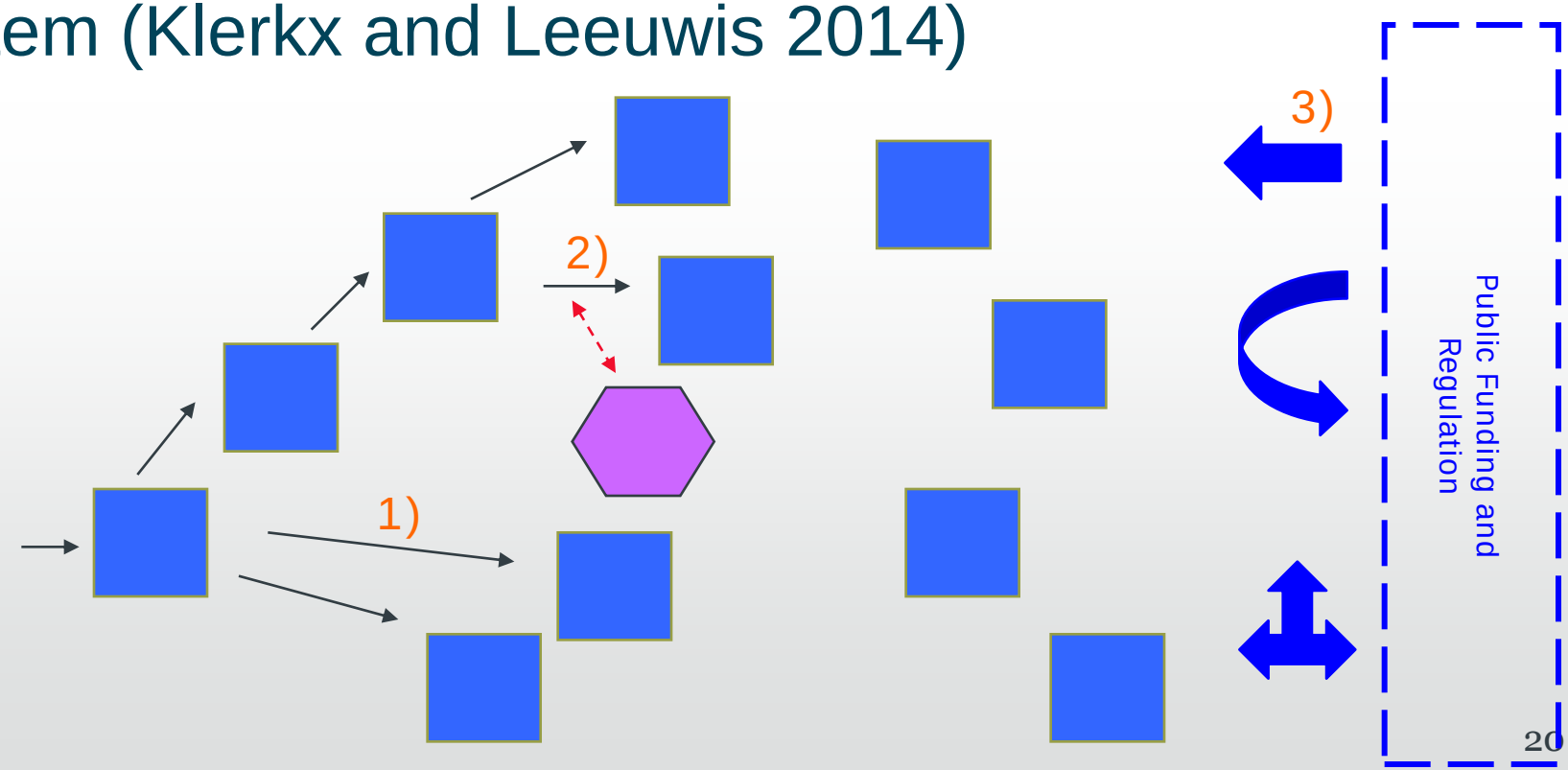
3. Flows and Networks: VIIa

6 Diffusion modifier - network: innovation intermediaries also ***network modifying*** by: 1) reducing barriers to onward transmission; 2) supporting new links; and, 3) by altering the institutional and regulatory frameworks that frame an innovation diffusing through a particular system (Klerkx and Leeuwis 2014)



3. Flows and Networks: VIIb

6 Diffusion modifier - network: innovation intermediaries also ***network modifying*** by:1) reducing barriers to onward transmission; 2) supporting new links; and, 3) by altering the institutional and regulatory frameworks that frame an innovation diffusing through a particular system (Klerkx and Leeuwis 2014)



4. Organisational Transformation: I

- Presented the case for importance and growing significance of intermediaries, but in an increasingly web based economy and society do we still need the kind of support that intermediaries provide?

- In short, have innovation intermediaries got a future?

- Rise of the internet, disintermediation, open innovation platforms, privatisation, more functional systems and network…… all still point to a declining role for intermediaries

4. Organisational Transformation: II

Breaking up? Disintermediation and dismantling of innovation intermediaries

versus….

Breaking through? Continuance but change and development - transmogrification

4. Organisational Transformation: III

Breaking Up?

Case for diminution and decline of intermediation:

1. Direct innovation disintermediation: cost savings and more effective search facilities around innovation activities
2. Indirect disintermediation impacts: e.g. in tourism, on wider innovation system and intermediaries' roles as in certification, standards and testing (Trip Adviser c.f. AA)

4. Organisational Transformation: IV

Breaking Up?

3 Privatisation & shifting public-private boundaries (major effect in UK, but also elsewhere in Europe and developed economies) (e.g. Water Research)

4 *'Coopetition'* strategies, by firms grouping together to circumvent traditional and/or dominant intermediaries (but….!)

5 Open innovation platforms by large firms themselves (e.g. in healthcare & pharmaceuticals Proctor & Gamble and Unilever, AstraZeneca) and other organisational forms (Orange case study; Thomas et al., 2014)

4. Organisational Transformation: V

Breaking Through?

1. Many of the benefits not realised, complexity has increased and intermediaries have crept back in to help manage such complex relationships - open innovation platforms, move from ‘go it alone’ to ‘supported openness’ (e.g. Orange; Thomas et al., 2014)
2. Innovation intermediaries have entered the online space in terms of structuring knowledge (Dong & Pourmhamadi 2014; Ye et al. 2012)

4. Organisational Transformation: VI

Breaking Through?

3 New forms of intermediary and activities have emerged, such as innovation contests and prizes, open innovation facilitators (e.g. 100%Open)

4 Also more *strategic function* for innovation intermediaries, both at the fuzzy '*front end*' in demand and innovation articulation and in '*post innovation*' phasing, such as intellectual property (IP) protection

4. Organisational Transformation: VII

Breaking Through?

5 Importance of *neutrality and trust* in intermediary role as seen in *'selective revealing'* (Henkel 2006; Alexy et al. 2014) and 'mediated revealing' (Perkmann and Schildt, 2014)

5. Conclusions

- Selected three cross-cutting themes here which seek to show innovation intermediaries are a major *change agents* and *catalysts* within a system
- Major impact on changing *the routines and behaviours* of firms and organisations especially in terms of their innovative activity and overall growth trajectories
- Innovation intermediaries provide a major *evolutionary dynamic* that should not be ignored