Networks in Entrepreneurship

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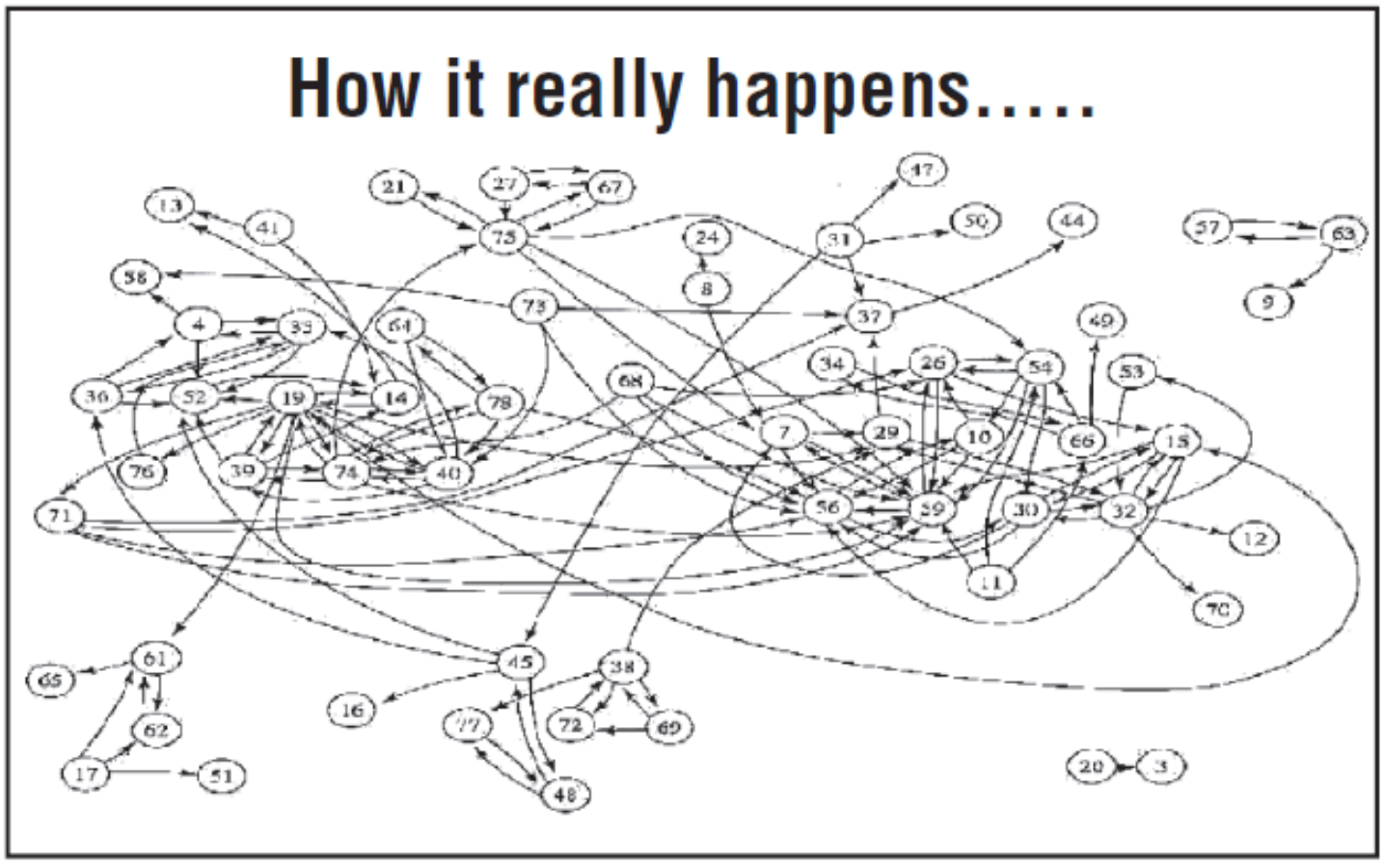
Innovation is not a simple neat system

- Some like to view innovation as a serial process.
  - Great Idea → Nice neat and well understood serial process → Great Success!!
- But as Bessant and Tidd observe it looks more like the spaghetti model:



Innovation is a complex process

- Innovation is a complex process that cannot be boiled down to a few simple rules.
- Instead it is a process of learning, research, knowledge, perseverance, and especially interactions.
- Interactions are with many stakeholders: customers, employees, co-founders, venture capitalists, angel investors, banks, family, and events.
- Remember Steve Blank's Customer Development Process in the Lean Launchpad? This is one kind of critical interaction and type of networking.
- The "Pivot" that we discussed earlier is an example of how one can change direction after learning something from the network.
- Computing and Communications led to social networking and this led to the creation of even more powerful ways to interact and network.
- The network is a complex and interconnected group or system.

Learning in Networks

- in shared learning there is the potential for challenge and structured critical reflection from **different perspectives**
- different perspectives can bring in **new concepts** (or old concepts which are new to the learner)
- shared experimentation can **reduce perceived and actual costs or risks** in trying new things
- shared experiences can **provide support** and open new lines of inquiry or exploration
- shared learning helps illustrate the systems principles, **seeing the patterns** (separating the forest from the trees)
- shared learning provides an environment for surfacing assumptions and exploring mental models **outside of the normal experience** of individual organizations (helps prevent 'not invented here' and other effects)
- shared learning can **reduce costs** (e.g. in drawing on consultancy services and learning about external markets) which can be particularly useful for small/medium-sized enterprises (SMEs) and for developing country firms.

Rothwell: Fifth Generation Innovation

- Roy Rothwell, Sussex University, proposed that innovation was entering the fifth generation.
  - http://www.provenmodels.com/575/five-generations-of-innovation/roy-r.-rothwell
- First and Second -simple linear models
  - Need Push and Technology Pull models
- Third A coupling model of interactions with a feedback loop between different elements.
- Fourth -The parallel model
  - Integration within the company, upstream to key suppliers and downstream with demanding and active customers.
- Fifth –Systems Integration and extensive networking
  - Flexible and customized response and continuous innovation

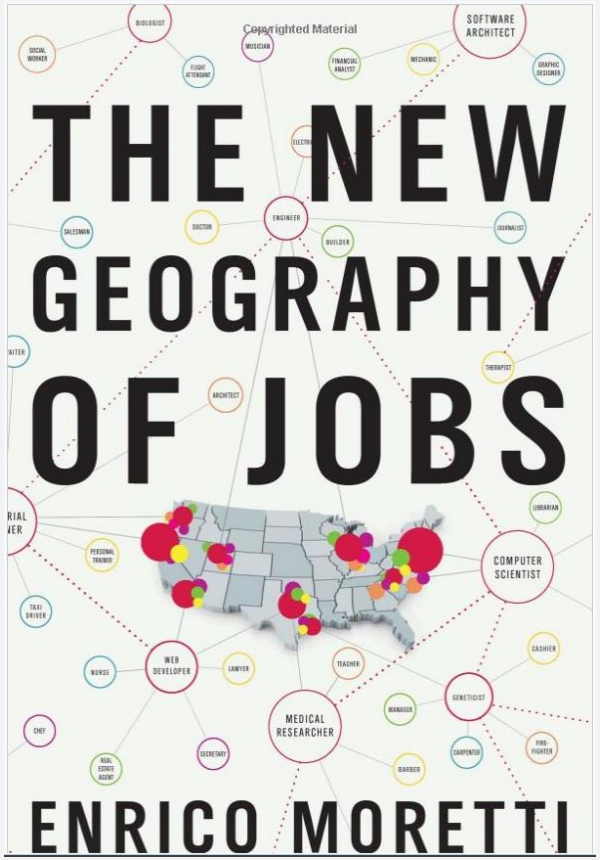
Types of Networks

- Entrepreneur-based
- Internal project teams
- Internal entrepreneur networks
- Communities of practice
- Spatial clusters
- Sectoral networks
- Development consortia
- Standards groups
- Supply chain learning
- Learning networks
- Recombinant innovation networks
- Managed open innovation networks
- User networks
- Innovation markets
- Crowdsourcing and funding networks

Cluster Formation

- Computers in Silicon Valley
- Mini-Computers on Rt 128 in Massachusetts (1965-1990)
  - Wang, Digital, Data General and many others –all gone now
- BioTechnology in Cambridge, MA today.
- https://en.wikipedia.org/wiki/Cluster_development

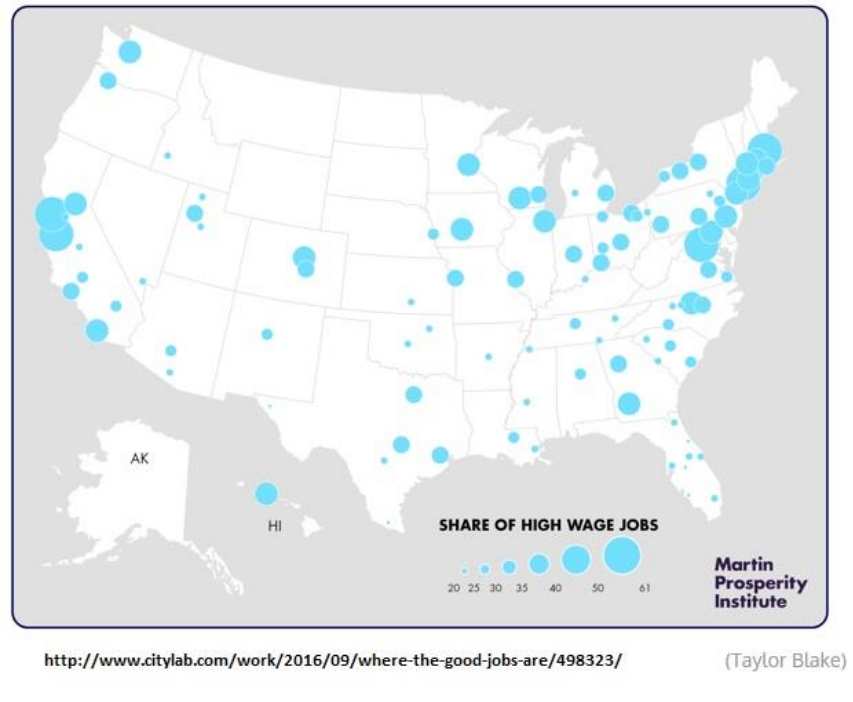
Cluster formation and economic development.

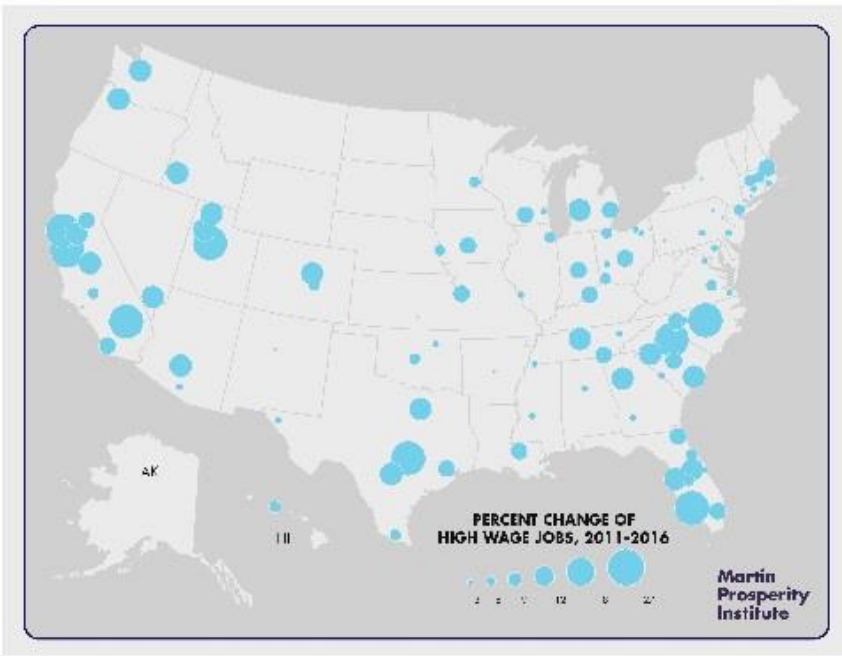


- Researchers have show that the growth of high paying jobs is related to cluster formation. They are also beginning to understand the factors that lead to cluster growth (and decline).
- Cluster growth has led to inequality of opportunity that is based upon both education and geography (and many other factors.)
- This work is based upon a number of researchers including Enrico Moretti of Stanford who wrote "The New Geography of Jobs."
  - https://www.gsb.stanford.edu/insights/enrico-moretti-geography-jobs

High Wage Job Growth and Share

- Richard Florida has written several books on what causes clusters of good jobs to grow.
- A glance at the maps below reveal the power of clusters. They show where the largest share and fastest growth in high paying jobs is occurring in the US. You can quickly see the size and growth in the clusters in Massachusetts, northern California, North Carolina, Texas, and south Florida. Note that the Northeast and Northern California are well established players, but South Florida is growing rapidly.
  - http://www.citylab.com/work/2016/09/where-the-good-jobs-are/498323/





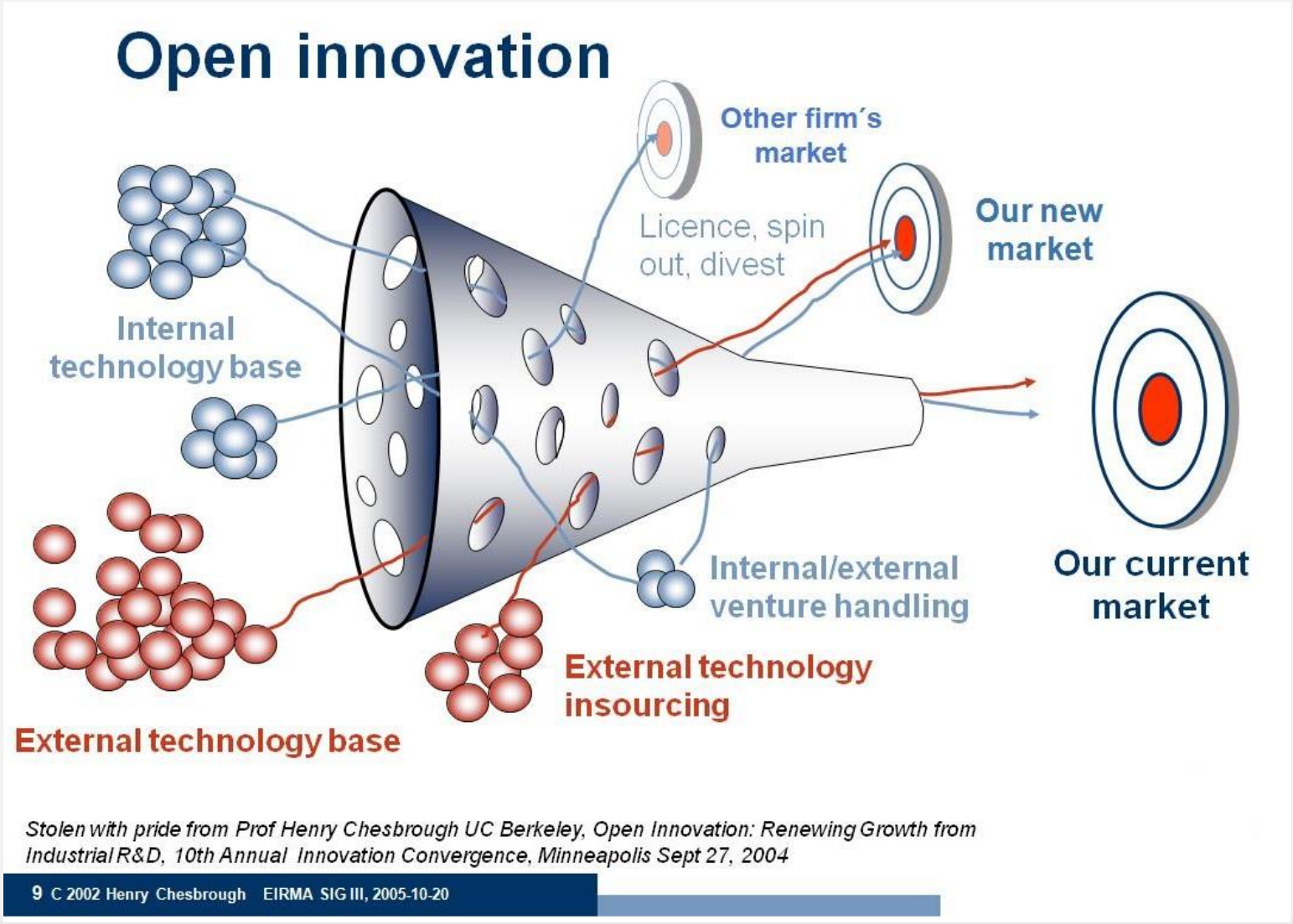
Remember our comments on Open Innovation

- http://www.jackmwilson.net/Entrepreneurship/Principles/8-SearchStrategies.pdf

- “Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology”. Alternatively, it is "innovating with partners by sharing risk and sharing reward." The boundaries between a firm and its environment have become more permeable; innovations can easily transfer inward and outward.
- The central idea behind open innovation is that, in a world of widely distributed knowledge, companies cannot afford to rely entirely on their own research, but should instead buy or license processes or inventions (i.e. patents) from other companies. In addition, internal inventions not being used in a firm's business should be taken outside the company (e.g. through licensing, joint ventures or spin-offs).
- The open innovation paradigm can be interpreted to go beyond just using external sources of innovation such as customers, rival companies, and academic institutions, and can be as much a change in the use, management, and employment of intellectual property as it is in the technical and research driven generation of intellectual property. In this sense, it is understood as the systematic encouragement and exploration of a wide range of internal and external sources for innovative opportunities, the integration of this exploration with firm capabilities and resources, and the exploitation of these opportunities through multiple channels.

  - https://en.wikipedia.org/wiki/Open_innovation
  - Henry Chesbrough used the term for his book.

Open Innovation – A Graphical Representation.



https://glennas.wordpress.com/tag/open-innovation/

Open Innovation from B&T

INNOVATION IN ACTION 17.1

Chesbrough's Principles of Open Innovation

- Not all the smart people work for you
- External ideas can help create value, but it takes internal R&D to claim a portion of that value for you
- It is better to build a better business model than to get to market first
- If you make the best use of internal and external ideas, you will win
- Not only should you profit from others' use of your intellectual property, you should also buy others' IP whenever it advances your own business model
- You should expand R&D's role to include not only knowledge generation, but knowledge brokering as well

Source: H. Chesbrough (2003) *Open innovation*. Boston: Harvard Business School Press.

TABLE 10.3 Potential benefits and challenges of applying open innovation

Six principles of open innovation	Potential benefits	Challenges to apply
Tap into external knowledge	Increase the pool of knowledge	How to search for and identify relevant knowledge sources
	Reduce reliance on limited internal knowledge	How to share or transfer such knowledge, especially tacit and systemic
External R&D has significant value	Can reduce the cost and uncertainty associated with internal R&D, and increase depth and breadth of R&D	Less likely to lead to distinctive capabilities and more difficult to differentiate
		External R&D also available to competitors
Do not have to originate research in order to profit from it	Reduce costs of internal R&D, more resources on external search strategies and relationships	Need sufficient R&D capability in order to identify, evaluate and adapt external R&D
Building a better business model is superior to being first to market	Greater emphasis on capturing rather than creating value	First-mover advantages depend on technology and market context
		Developing a business model demands time-consuming negotiation with other actors
Best *use* of internal and external ideas, not *generation* of ideas	Better balance of resources to search and identify ideas, rather than generate	Generating ideas is only a small part of the innovation process
		Most ideas unproven or no value, so cost of evaluation and development high
Profit from others intellectual property (inbound OI) and others' use of our intellectual property (outbound IP)	Value of IP very sensitive to complementary capabilities such as brand, sales network, production, logistics, and complementary products and services	Conflicts of commercial interest or strategic direction
		Negotiation of acceptable forms and terms of IP licences

Strategies for Open Innovation

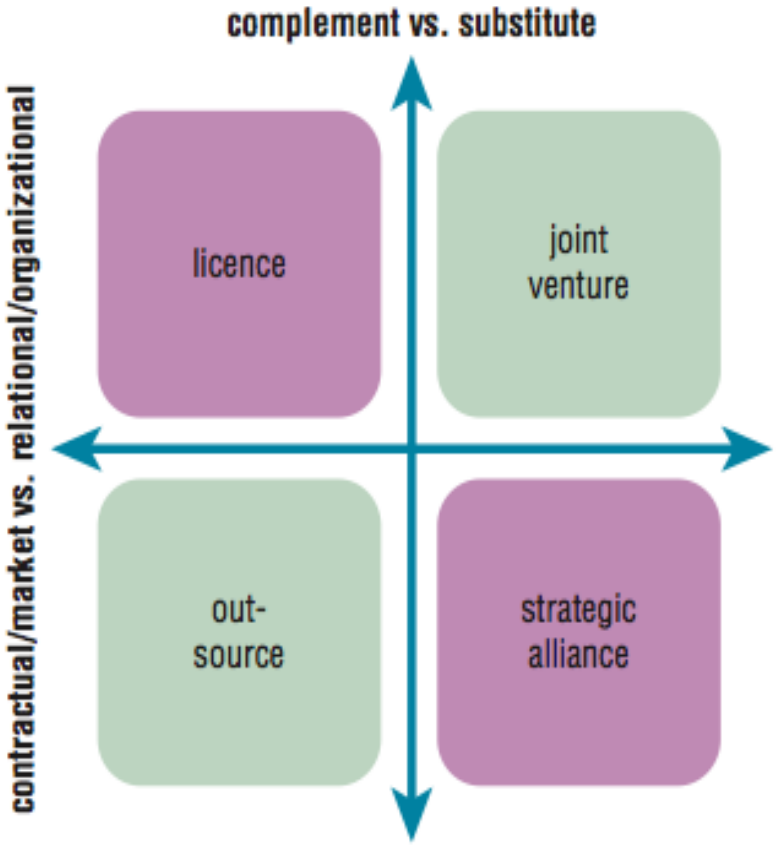


FIGURE 17.1 Strategies to support open innovation

Characteristics of Partnership Models

- Fewer suppliers, longer-term relations
- Greater equity – real ‘cost transparency’
- Focus on value flows – the relationship, not the contract
- Vendor assessment, plus development
- Two-way or third-party assessment
- Mutual learning – share experience, expertise, knowledge and investment

Engaging Users

- Co-development
  - Originally joint work by suppliers and customers but has evolved in networks of users. Linux might be one example. Bitcoin another.
- Lead users ethnographic design
  - Recognize requirements early-lead users adopt seven years before typical
  - Expect a high level of benefits
  - Develop their own innovations and applications
  - Are perceived by their peers to be the leaders.
- Crowdsourcing (http://www.wired.com/2006/06/crowds/)
  - Dell: Idea Storm got 15,000 ideas and implemented over 400.
  - Facebook- 8000 volunteer translators in 2007 and a year later site was available in 100 languages.
  - Wikipedia is a crowdsourced effort to create an online encyclopedia
  - Kickstarter does crowdsourced funding
- Extreme users
  - These are individuals or organizations with atypical needs that require atypical solutions.
    - M-Pesa
    - Sadly, Bitcoin and drug, weapons, and porn pureyors.

Tools for working with Open Networked Innovation

- Innovation markets – e.g. innocentive.com
- Innovation contests
- Innovation communities (Linux or iPhone Apps)
- Innovation toolkits (Ex: Lego Factory)
- Innovation technologies
  - Ex: Quirky (https://www.quirky.com/)
    - Invention and inventor support
  - Ponoko (https://en.wikipedia.org/wiki/Ponoko)
    - On demand manufacturing

Challenges of open innovation

- how to manage something we don't own or control
- how to see system-level effects not narrow self-interests
- how to build trust and shared risk taking without tying the process up in contractual red tape
- how to avoid 'free riders' and information 'spillovers'

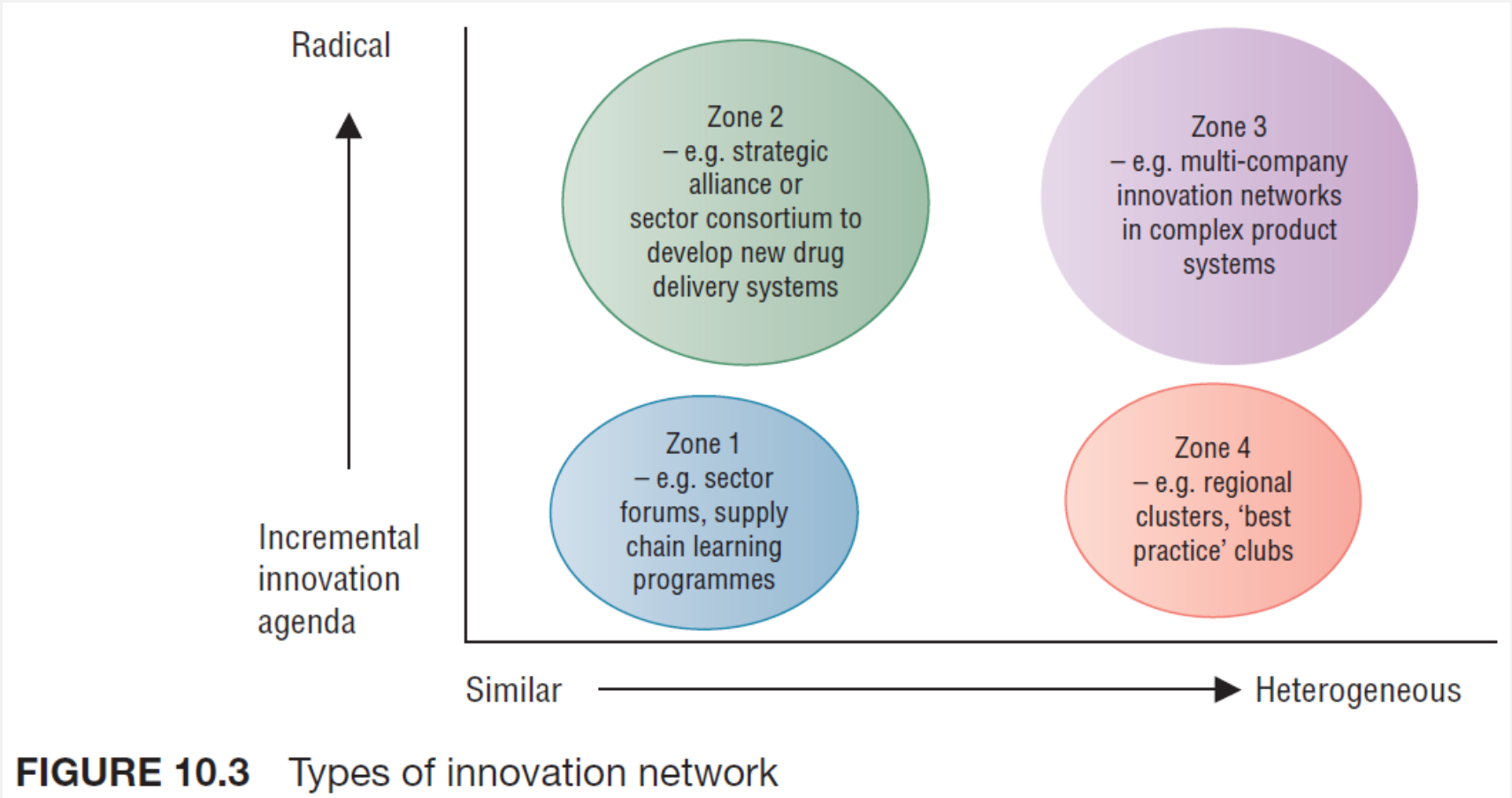


FIGURE 10.3 Types of innovation network

Managing Innovation Networks

- Network boundary management. How the membership of the network is defined and maintained.
- Decision making. How (where, when, who) decisions get taken at the network level.
- Conflict resolution. How conflicts are resolved effectively.
- Information processing. How information flows among members and is managed.
- Knowledge management. How knowledge is created, captured, shared and used across the network.
- Motivation. How members are motivated to join/remain within the network.
- Risk/benefit sharing. How the risks and rewards are allocated across members of the network.
- Coordination. How the operations of the network are integrated and coordinated.