

Massey University 2014

Network stars and Innovation brokers:
An empirical insight of how collaborative research
and development is enabled in temporary
networks

Barbara King
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Context

- ▶ Temporary research and development networks
 - ▶ Multi, inter and transdisciplinary participants
 - ▶ External expectations of (instant?) collaboration
 - ▶ Challenge for participants to balance short term and long term relationships and accountabilities
 - ▶ Need to address structural and relational capability of innovation networks at project outset
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Key ideas

Theoretical ideas to explain how network structure and relational qualities provide context for innovation work

1. Network collaboration
2. Sticky knowledge and sharing knowledge
3. Network roles for innovation networks
Emergent findings add further ideas
4. Distinguish brokers as Tertius gaudens and T. iungens
5. Double peripherality

Key ideas 1: Network collaboration

(Hecksher, 2007)

- ▶ Leadership, facilitation and coordination
 - ▶ Ability to develop 'quick trust'
 - ▶ Mix of social capital resources
 - ▶ Structural and relational diversity
 - ▶ Dedicated and 'add-on' roles
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Key ideas 2: Stickiness and sharing knowledge (Szulanski, 2003)

- ▶ ‘stickiness’ predisposes knowledge sharing within innovation processes to be ‘eventful’ and require significant effort
 - ▶ Depends on the complexity of knowledge, social processes or/and both
 - ▶ Sharing knowledge needs active relationships (engagement, trustworthiness)
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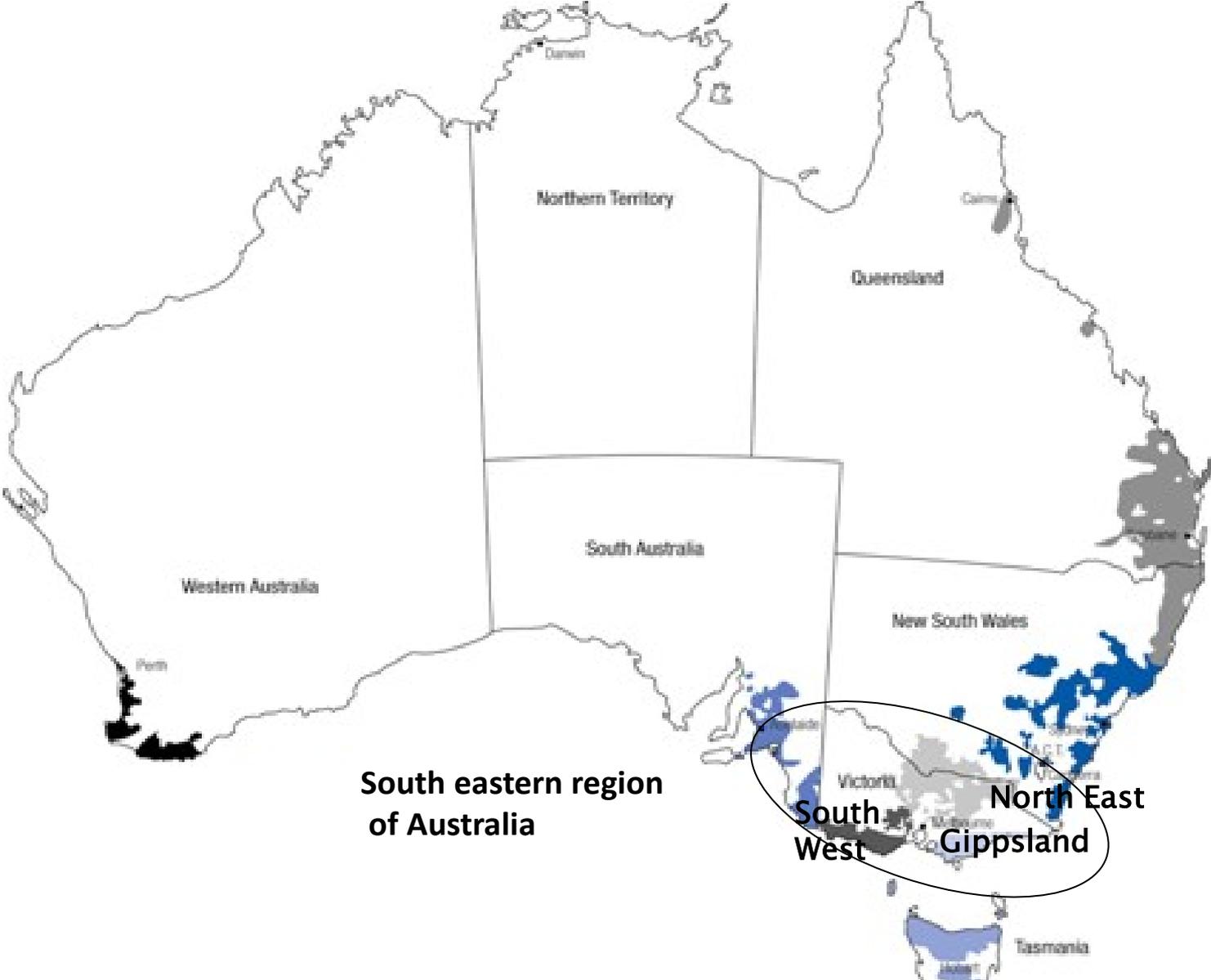
Key idea 3: Network roles for innovation networks (Cross and Parker, 2004)

- ▶ What are the key roles in innovation networks?
 - Network stars
 - Brokers
 - Boundary spanners
 - ▶ How does each role foster, support and manage the human and social dimensions of innovation?
 - ▶ Where are they found in network structure?
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Case Study: Project 3030

- ▶ Major dairy industry Research & Development project in south eastern Australia 2004 – 2011
 - “ *to increase return on assets in the dryland dairying regions of Victoria by 30% through a 30% increase in consumption of home grown forage* ”
 - ▶ Transdisciplinary participation of agricultural researchers, farmers, public extension advisers, private farm consultants, service providers
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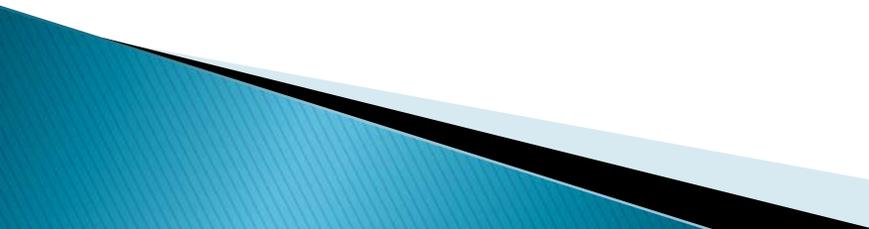
Locating Project 3030



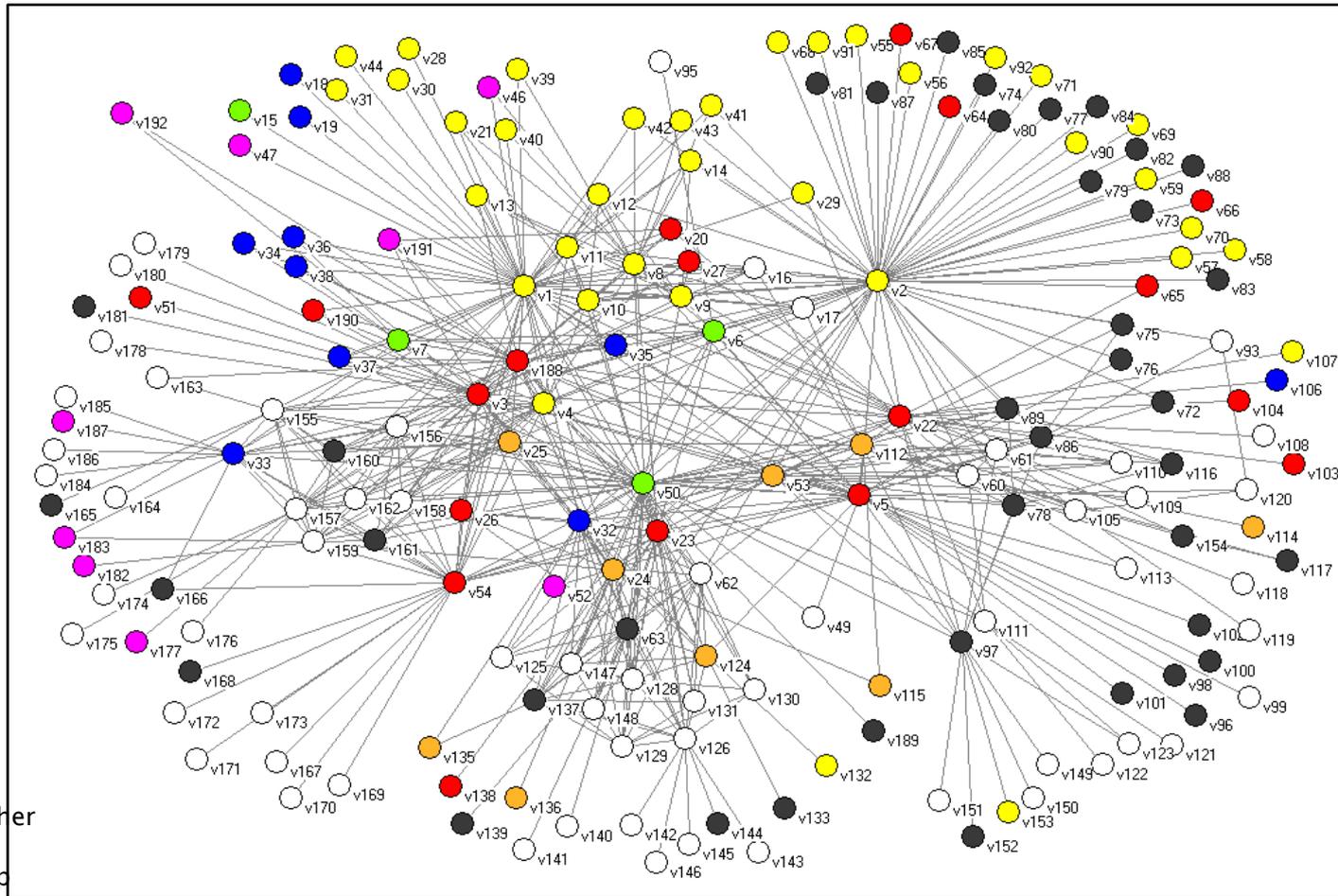
South eastern region of Australia

South West North East Gippsland

Methodology

- ▶ Empirical study
 - ▶ SNA (Pajek) + ethnography – mixed methods
 - ▶ Qualitative data derived through interviews and participant observation used to make sense of ‘the line between the dots’ (Campbell)
 - ▶ Networks graphs discussed with 3030 respondents to provide opportunities for reflection and further insight to improve innovation opportunities
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Project 3030 network (192 nodes)



- Ag researcher
- Social researcher
- Public adviser
- Steering group
- Private adviser
- Farmer
- Service provider
- Other

Key idea 4: Network brokers and the notion of 'tertius' (the third who joins)

Tertius iungens and tertius gaudens (Burt, 1992, Obstfeld, 2005)

- **T. iungens** – the 'third' who joins' by creating connections between otherwise unconnected individuals. Smooths knowledge sharing through relational trust
 - Project 3030 example: public service extension advisers
- **T. gaudens** – knowledge sharing 'stickiness' arising from conflict of interests, brokers who play off people against each other for their own benefit)
 - Project 3030 example: some private consultants

Network stars

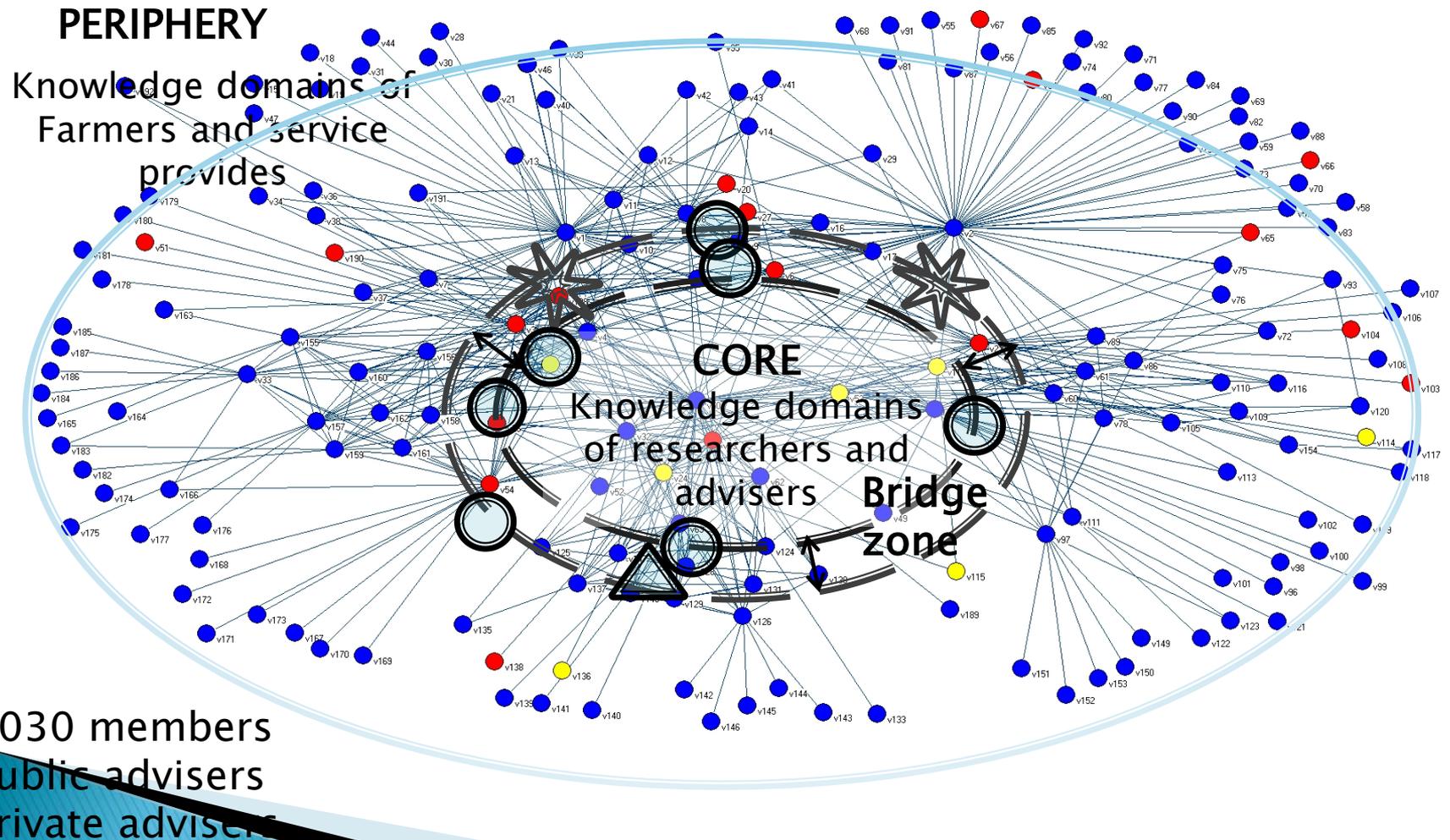
- ▶ Project and research leaders with proven technical expertise
 - ▶ Highly (too?) connected
 - ▶ Boundary spanners across networks
 - ▶ Internal brokers
 - ▶ Multiple roles and ties predispose them to become unintentional gatekeepers
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Key idea 5: Double peripherality

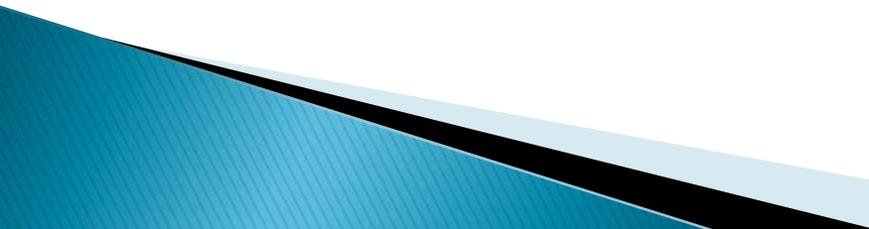
(Meyer, 2010)

- ▶ Structural zone identifiable in temporary innovation networks
 - ▶ Interface through weak ties that connect different activities, participants, practices
 - ▶ Brokers gravitate here?
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Stars, brokers, bridge zone and 'double peripherality'



Emergent finding: the bridge zone

- ▶ The bridge zone is structurally and relationally for interaction between different knowledge domains
 - ▶ Innovation interface opportunities
 - ▶ Need brokers who can act as ‘iungens’ to enable knowledge sharing and reduces ‘stickiness’
 - ▶ Innovation capability of the network depends on brokers’ structural and relational management of knowledge sharing and gate keeping
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Implications for innovation networks

- Relational – gate-keeping strategies
- Structural – double peripherality zone or network clusters

Recommendations

- ▶ Innovation processes requires clear understanding of not only technical issues, but also social processes involving multiple network stakeholders
 - ▶ Relational and structural roles of brokers and stars need to be explicitly understood by all network participants
 - ▶ Network participants need awareness of conditions that predispose knowledge transfer to 'stickiness'
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Further work...

- ▶ Further work is needed to test and explore the structural and relational implications of the 'bridge' zone' in temporary innovation networks
 - ▶ What functional processes do brokers enable for any given innovation network? (Hekkert, 2007)
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