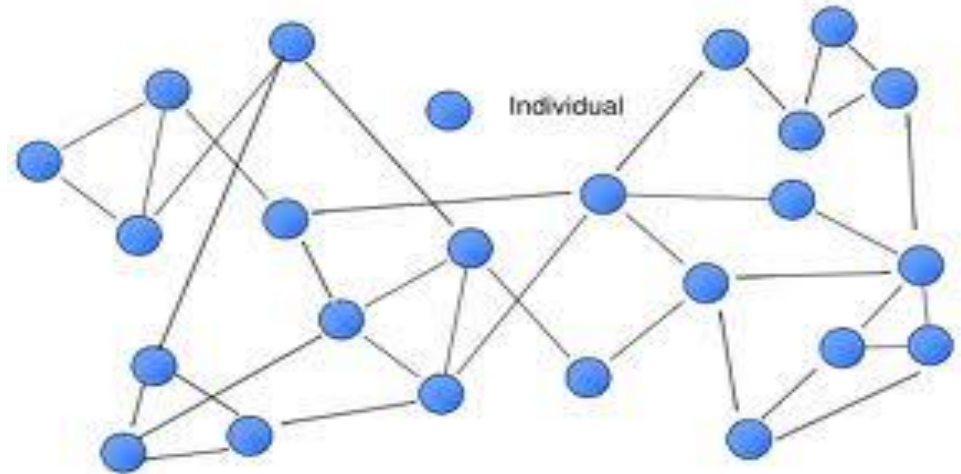# Measuring Collective Impact: Using Social Network Analysis for Diagnostic and Evaluative Functions

Professor Robyn Keast
Chair: Southern Cross University Collaborative Research Network: Policy and Planning for Regional Sustainability

COLLECTIVE IMPACT 2014

Presented by CENTRE for SOCIAL IMPACT SOCIAL LEADERSHIP AUSTRALIA

Keast, February 2014

Background

- Working together & collective effort – 'holy grail'

- Many models that aim for participating bodies to leverage from their shared resources, build common purpose and generate collective impact.

  - require many different actors and organisaitons to work together and therefore function on a different operating logic: demanding changed thinking, behaviours and ways of evaluating

  - CONNECTING VIA RELATIONSHIPS!

- Despite promise – collective models are hard to establish and even harder to sustain.

- Research indicates that in some industries 50-70 % of joint efforts fail.

- Two main factors have been isolated as contributing to the failure: incorrect decisions on when and how to work together and a lack of tools from which to empirically assess levels of connectivity as well as (individual) and collective impact.
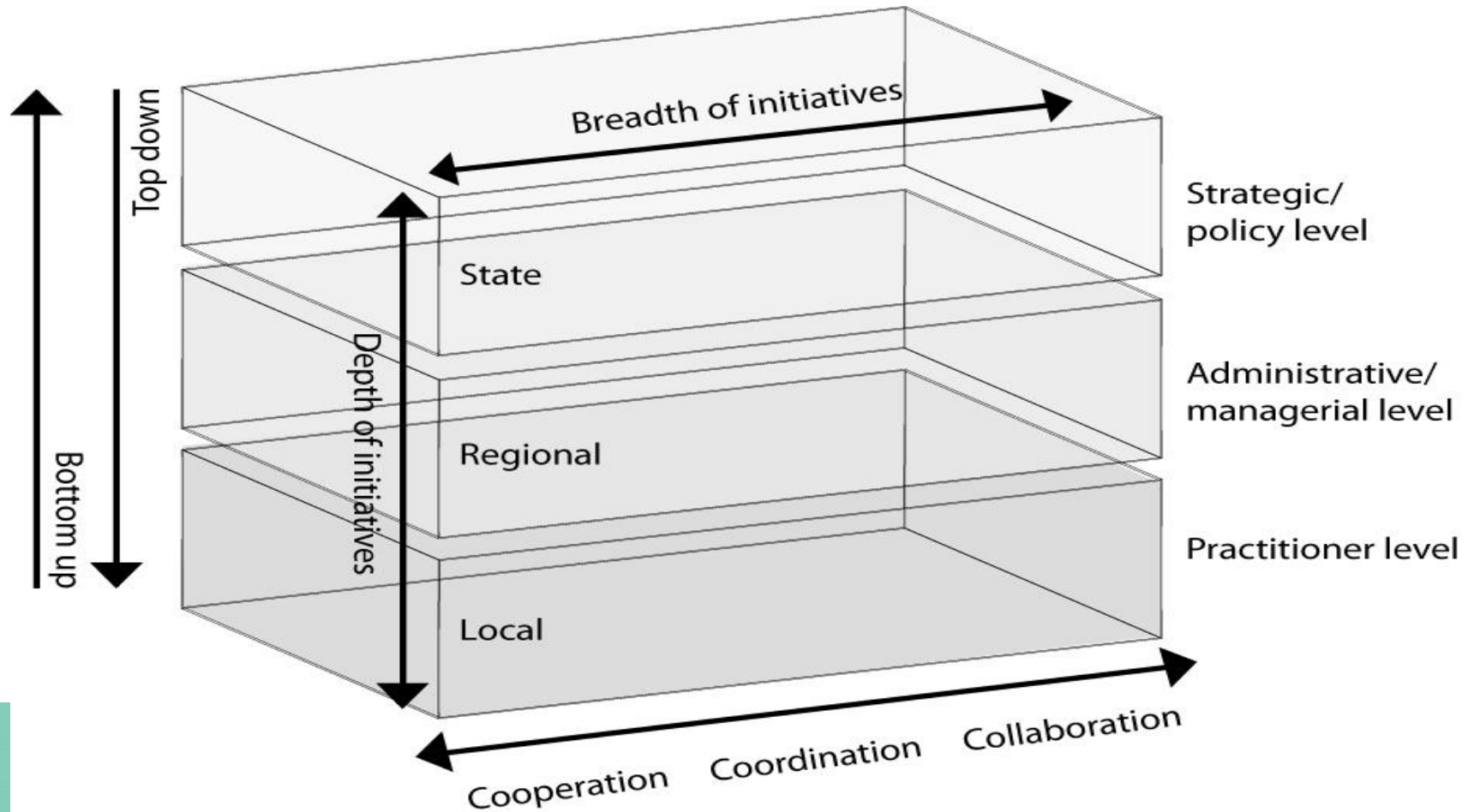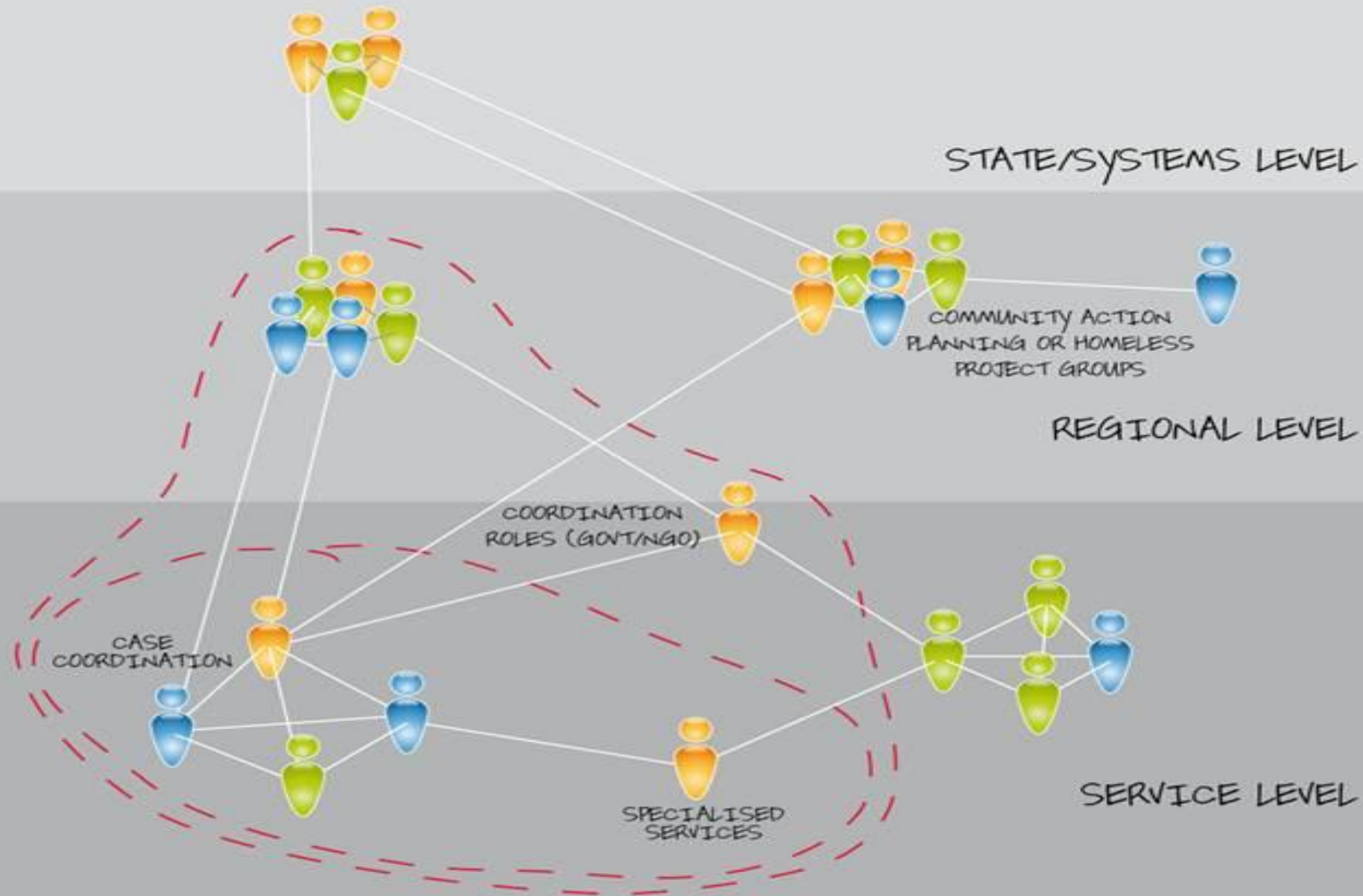
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Today ....

- Understand and identify the different ways of working together, their various merits and limitations

- Be aware of the suite of tools available to determine levels and types of connections & structures between agencies and diagnose points of weakness

- Demonstrate, using social network analysis how to uncover, map, empirically measure and analyse service connections and relationships in order to optimally configure service arrangements to achieve collective impact and

- Examine their network connections in order to strategically leverage for optimal outcomes.

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Integration – unpacked: connections

STATE/SYSTEMS LEVEL

COMMUNITY ACTION
PLANNING OR HOMELESS
PROJECT GROUPS

REGIONAL LEVEL

COORDINATION
ROLES (GOVT/NGO)

CASE
COORDINATION

SPECIALISED
SERVICES

SERVICE LEVEL

Integration relationship continuum

COOPERATIVE	COORDINATIVE	COLLABORATIVE
Low trust — unstable relations	Medium trust — based on prior relations	High trust — stable relations
Infrequent communication flows	Structured communication flows	Thick communication flows
Known information sharing	'Project' related and directed information sharing	Tactic information sharing
Adjusting actions	Joint projects, joint funding, joint policy	Systems change
Independent/autonomous goals	Semi-independent goals	Dense interdependent relations and goals
Power remains with organisation	Power remains with organisations	Shared power
Resources — remain own	Shared resources around project	Pooled, collective resources
Commitment and accountability to own agency	Commitment and accountability to own agency and project	Commitment and accountability to the network first
Relational time frame requirement — short-term	Relational time frame medium-term — often based on prior projects	Relational time frame requirement — long-term 3-5 years

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Fit-for-purpose designs

- ☐ All relations have merit & application
- ☐ Approaches & relational strength must be *requisite to purpose*

  - ◼ Independent, adjusting actions & information sharing: cooperation
  - ◼ Do same, but more efficiently through joint working, aligned resources & action: coordination
  - ◼ Systems change: collaboration
- ☐ Also – need to consider the vertical relations

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Key relational essentials

☐ Trust
- ■ Companion trust: goodwill & friendship based on association
- ■ Competence trust: confidence in capacity of others to fulfil tasks
- ■ Commitment trust: contractual or enforceable agreement
- ■ Shared values: - the most essential

☐ Reciprocity: give & take – not an "I will if you will" (self interested)
- ☐ Take a risk & put something on the table
- ☐ Reputation – hard to will/fast to go

☐ Mutuality: replace independent interests – collective mutually beneficial outcomes

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When to work together

☐ Some services are best provided by single organisation/department

☐ What are the 'tipping' points?

    ❑Nature & complexity of presenting problem

        ■ Crisis- mandate – 'doing it because it is the right thing to do"

    ❑Sense of interdependency (can't do this alone)

    ❑Willingness to engage in new thinking & behaviours – new ways of working

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EVALUATING COLLECTIVE IMPACTS: SOME APPROACHES

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Need to assess the impact of different ways of working

Different ways of working – different ways of evaluating

- Emphasis first is on the relationships (intangibles)
- This is not to say that conventional evaluation is discounted (tangibles)

Looking at:

the relationships and processes that enable wtg

• the level of participation and engagement of members

• how well the structure allows participants to contribute to and influence work and outcomes

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Check list

Relationships and processes

☐ Are there good relations between members**?**

☐ What is the trust level?

☐ Is time spent on members getting to know each other and their problems/limitations?

☐ Do members feel a strong or weak bond, or commitment, to each other?

☐ Are there processes in place to enable these bonds?

☐ Is relationship building (internal and external) an accepted part of the work program?

☐ Do members communicate openly and frequently?

☐ Do members have a sense of commitment to the collaboration as well as their own organisation? What are the power relations?

☐ Is power shared or does it appear to rest with specific members of the collaboration?

☐ Are there mechanisms to resolve conflict?

☐ Is there a culture of learning?

Participation Level

☐ Do all members participate in the collaboration, in terms of decision-making and resource provision?

☐ Are there barriers to participation?

☐ Are there processes in place to check 'engagement level'?

☐ Are people participating as much as they can/wish

☐ **Structure and control**

☐ Is the way the collaboration is set up appropriate for the aims?

☐ Is the structure too tight (strangling), too loose (lacks cohesion) or just right (facilitates action)?

☐ Where/how are most decisions made?

☐ Democratically or centralised?

☐ Is there support for the collaboration by key actors outside the collaboration, eg: parent organisations' powerful stakeholders & respected people in the community?

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Contribution assessment

This tool helps to uncover and understand the level of contribution and commitment that members make to the collaboration, what resources (financial, skill, expertise, knowledge and materials) are available to the collaboration, and where (or with whom) they are located and how they can be used.

The tool:

• identifies the contributors to the collaboration, e.g. the individual members of the collaboration, their parent organisation or stakeholder groups

• specifies the aims of the collaboration and the types of contributions/resources required

• asks members to indicate their actual and potential contributions and how they will deliver on this e.g. by participation or funding

• considers how easily the collaboration facilitator has been able to shift resources around the collaboration or leverage from resources to generate added value

Assessment can then be done to evaluate:

• whether the collaboration has generated the appropriate resources (time, money, participation of key people, staff time, support of the parent organisation)

• whether the collaboration has been successful in facilitating the sharing of these resources between members

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Participatory evaluation processes

Participatory evaluation involves collective members more directly through a process of self-reflection on actions and behaviours as well as uncovering the critical stages and events of the collaboration. Members are asked to reflect on issues such as:

☐ • how far strategies and understandings of the collaboration /collective context are shared

☐ • how far the information, ideas, documents and resources and analysis circulating within the collaboration have been distributed and their impact on critical moments

☐ • how members have been able to work creatively and collectively

☐ • how connected members are to others in the 'network'

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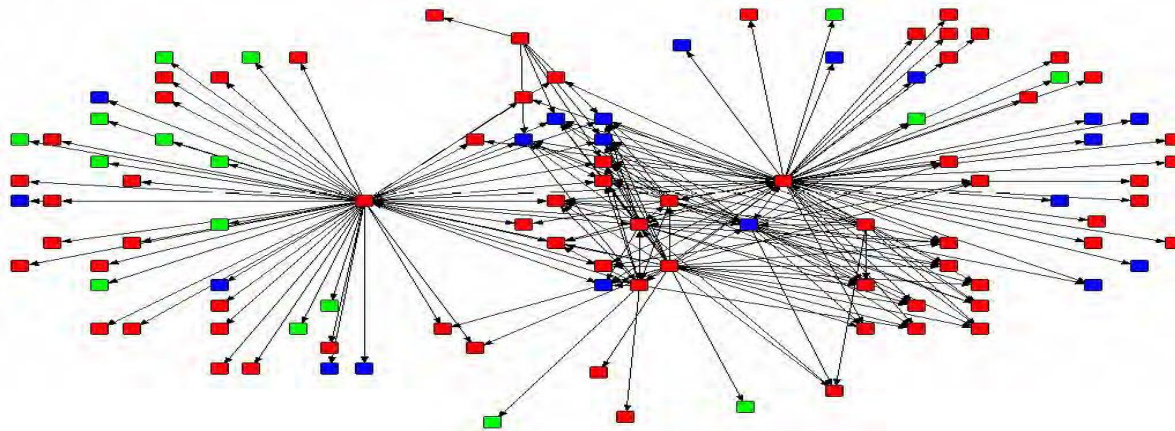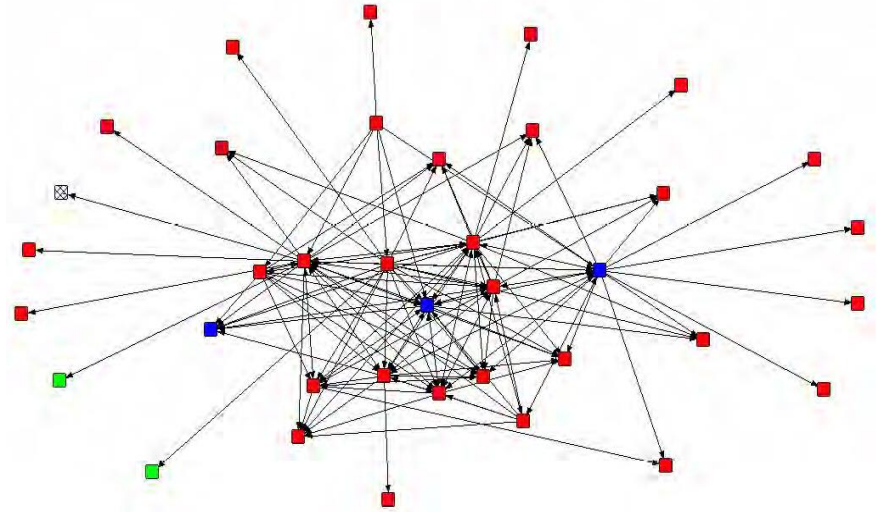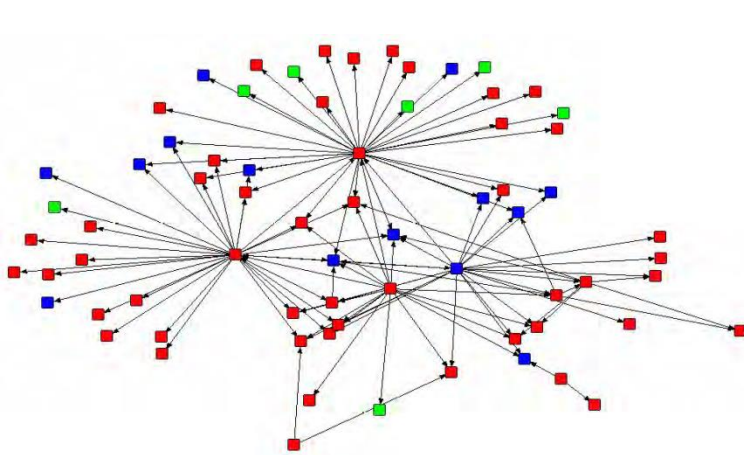
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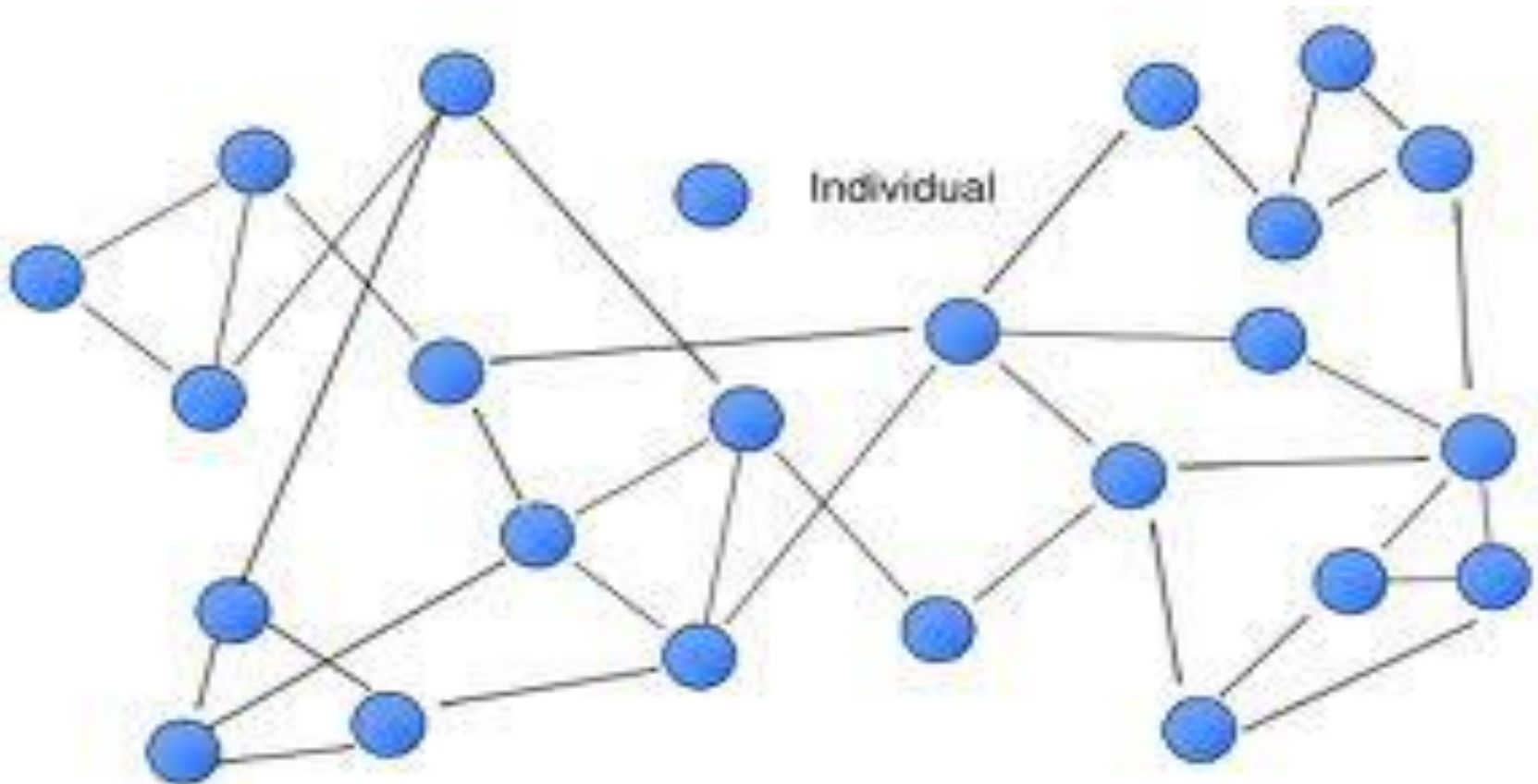☐ • how connected members are to others in the collaboration 'network'

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The SNA way!

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Social networks : uncovering connections

Individual

Network analysis – Levels

Metaphor
- Web of connections,
- Working together

Maps
- Uncovering actual connections
- Composition
- Bridges, core – periphery

Measures
- Strength of connections – density, centrality, centralisation

History

- 1934 Moreno sociometry - drawn socio-gram
- 1970's advancement in computational power of computers - larger networks
- Risen to prominence in a number of fields
  - Organisational behaviour, anthropology, sociology & medicine
    - Patterns of connections between business outcomes – e.g. Performance & adoption of new ideas
- social networks operate on many levels, from families up to the level of nations, and play a crucial role in determining the way problems are solved, people are acting together, organizations are run, and the degree to which individual units succeed in achieving their goals.
  - SNA is focused on uncovering the patterning of interaction.

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What is SNA – the deeper details

"Social Network analysis encompasses theories, models, and applications that are expressed in terms of relational concepts or processes (…) The unit of analysis in network analysis is not the individual, but an entity consisting of a collection of individuals and the linkages among them (…)

Social network analysis consists of a finite set or sets of actors and the relation or relations defined on them. The presence of relational information is a critical and defining feature of a social network." (Wasserman/Faust 2008:4ff.)

SNA is (1) guided by formal theory organized in mathematical terms, and (2) is grounded in the systematic analysis of empirical data.

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Put simply

Intuition not enough!

Network Analysis
- Way to empirically assess/confirm relationships
- Delivers
  - visual representations – (maps)
  - metrics (statistics for analysis/review)

Diagnostic & evaluative tool
- Configure & reconfigure patterns of sales relationships
  - Where to put effort for maximum gain

Within networks, across networks & overtime

Turbo-charges other methods ie. case studies

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Keast, May 2011

Where else applied …

Track terrorist networks

- Saddam Hussein; Al Qaeda

Disease contagion

Innovation diffusion

Communication flows

Business – supply chain patterns

Integrative services

Business clusters

Corruption

Collaborative Medical Research Publication Outcomes

- Who is working with whom, on which topics, who are the key links

More than methodology

In the process of working in this field, network researchers have developed a set of distinctive theoretical perspectives as well. Following Borgatti (2003) some of the hallmarks of these perspectives are:

- focus on relationships between actors rather than attributes of actors
- sense of interdependence: a molecular rather atomistic view
- structure affects substantive outcomes
- emergent effects
- Social capital theory, theory of weak ties; social embeddedness; structural holes

Conducting SNA: 3 elements

Determine the unit of study

- People involved in software development project, community; football matches; transport network
  - Individual entities are referred to as actors or nodes

Interactions –relationships/connections/ties

- Personal, $, resource exchanges, communication, transport
  - Pattern of interaction = network

Attributes – can link relations to attributes

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Levels of analysis

Community
- Effectiveness criteria: social capital, aggregate indicators wellbeing

Network
- Effectiveness criteria: membership growth, range of services, relationship strength – fit for purpose

Organisation/Actor
- Effectiveness criteria: client outcomes, linkages to people and services

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Gathering data & software

Numerous ways
- Diary
- Questionnaire/survey
  - Linkage Survey – list
  - Question – who do you go to for X information?
- Text analysis - e.g. Official documents
- Interviews
  - Formal & informal

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Integrated services – Example

Agency	Shared Information	Joint Planning	Shared Resources	Joint Projects	Quality of Interaction 1 - 5
Share House					
CTNC					
Shelter					
Connect					
Dept Housing					
Medical Centre					

Collating data: Matrix

Actor	Sarah	Bob	Toby	Jim
Sarah	-	1	1	1
Bob	1	-	1	0
Toby	1	0	_	1
Jim	0	1	1	-

Key SNA concepts

Centrality – extent to which a node is in the centre of the network - central people have greater influence, receive more information/resources, more satisfied with jobs

Tie strength

Social capital

Structural holes – entrepreneurship

Brokerage –

Core/periphery

Key SNA measures & statistics

Centrality –
- Betweenness – node others must go through to reach others
- Highest closeness score goes through fewest
- In-degree – number of nodes coming to a node

Density – how closely a network is knit. Measure for cohesion & integration 0-1, closer to 1 higher

Centralisation -

Average Path Distance – number of steps it takes for one person to 'reach' another – quasi measure of effectiveness – 2.6 (& cohesion)

Sub-group identification – number of closely linked sub-groups or 'cliques' within a larger network
- Overlapping members, highly segregated sub-groups = lower cohesion

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SNA in social/human services?

Reliance on networked, joined-up, collaborative service models

Effective networks built 'fit for purpose'

Hard to prove integration & connections

Intuition not enough – topology of links needs to be uncovered to examine actual properties of the network to configure & reconfigure

Need to assess the impact of different ways of working

Different ways of working – different ways of evaluating

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Looking at:

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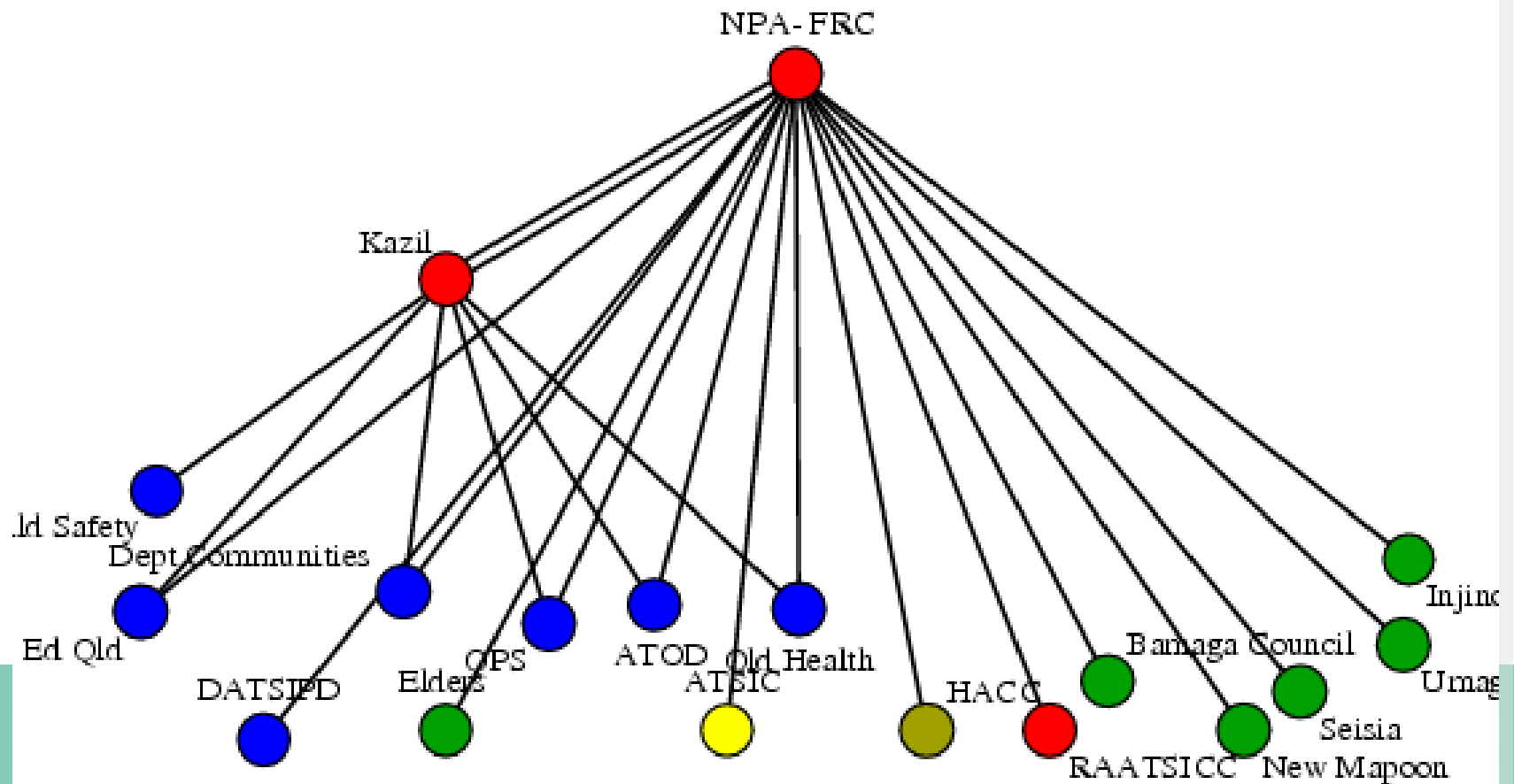• how well the structure allows participants to contribute to and influence work and outcomes
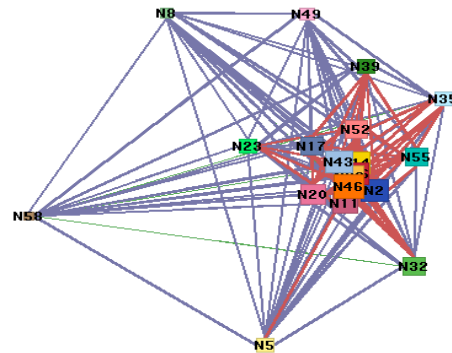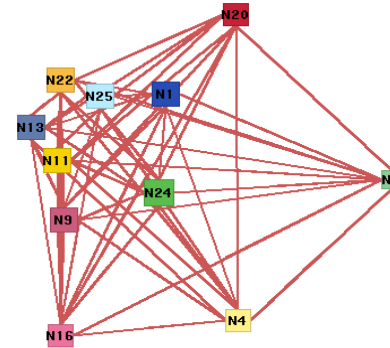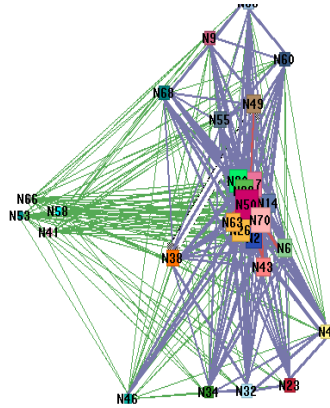
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Single network map
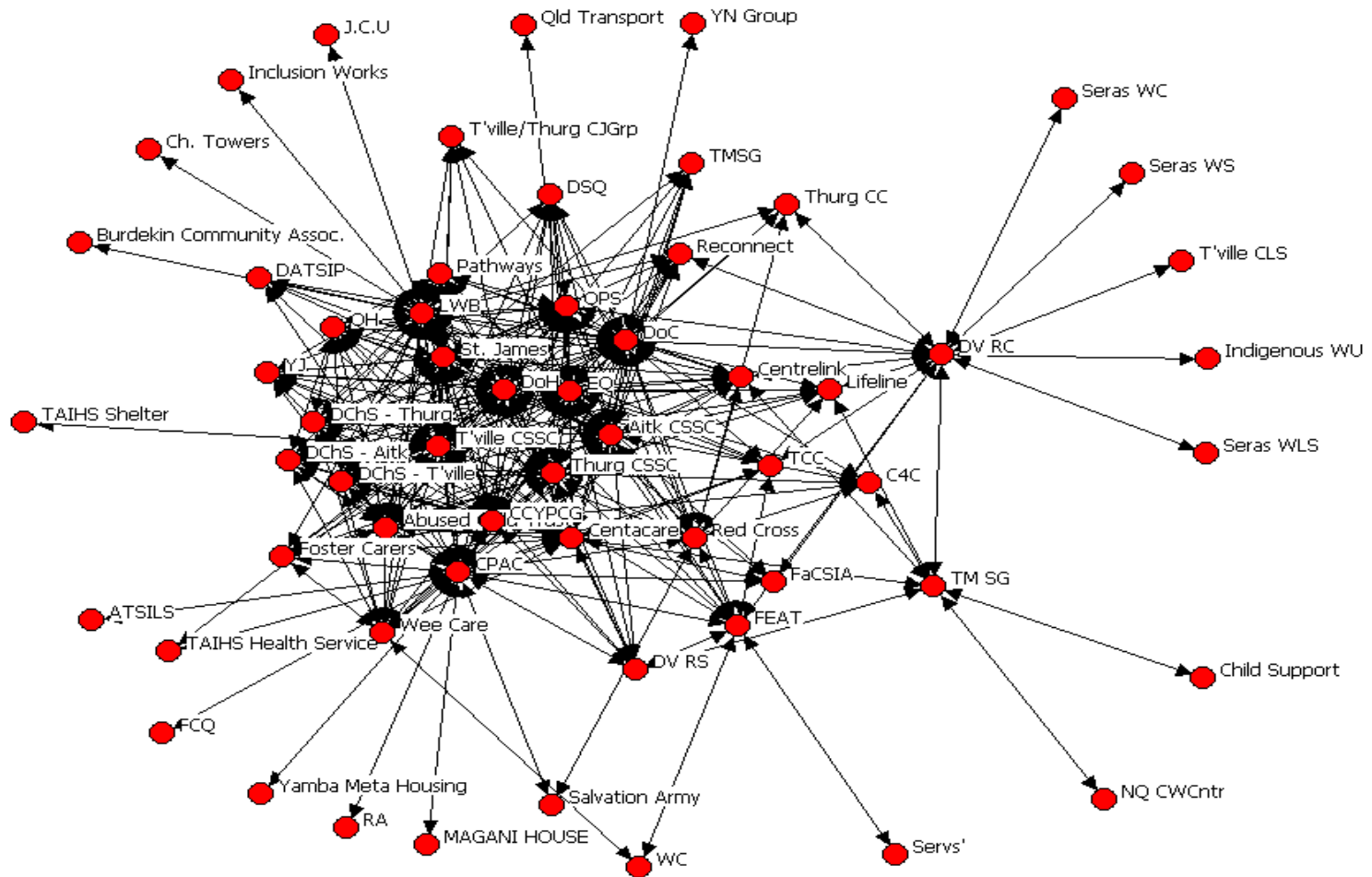
Alternative view

Looking across networks
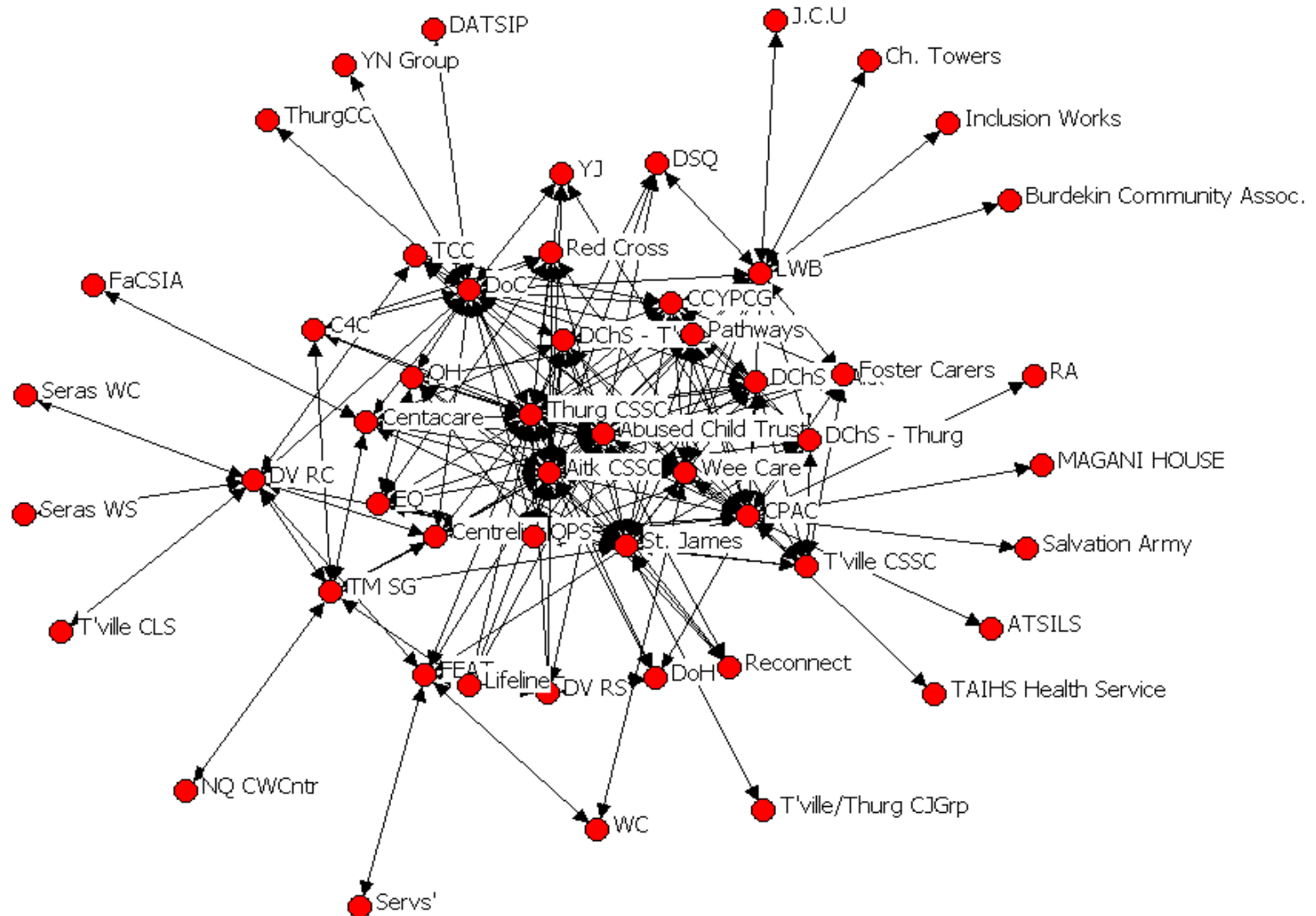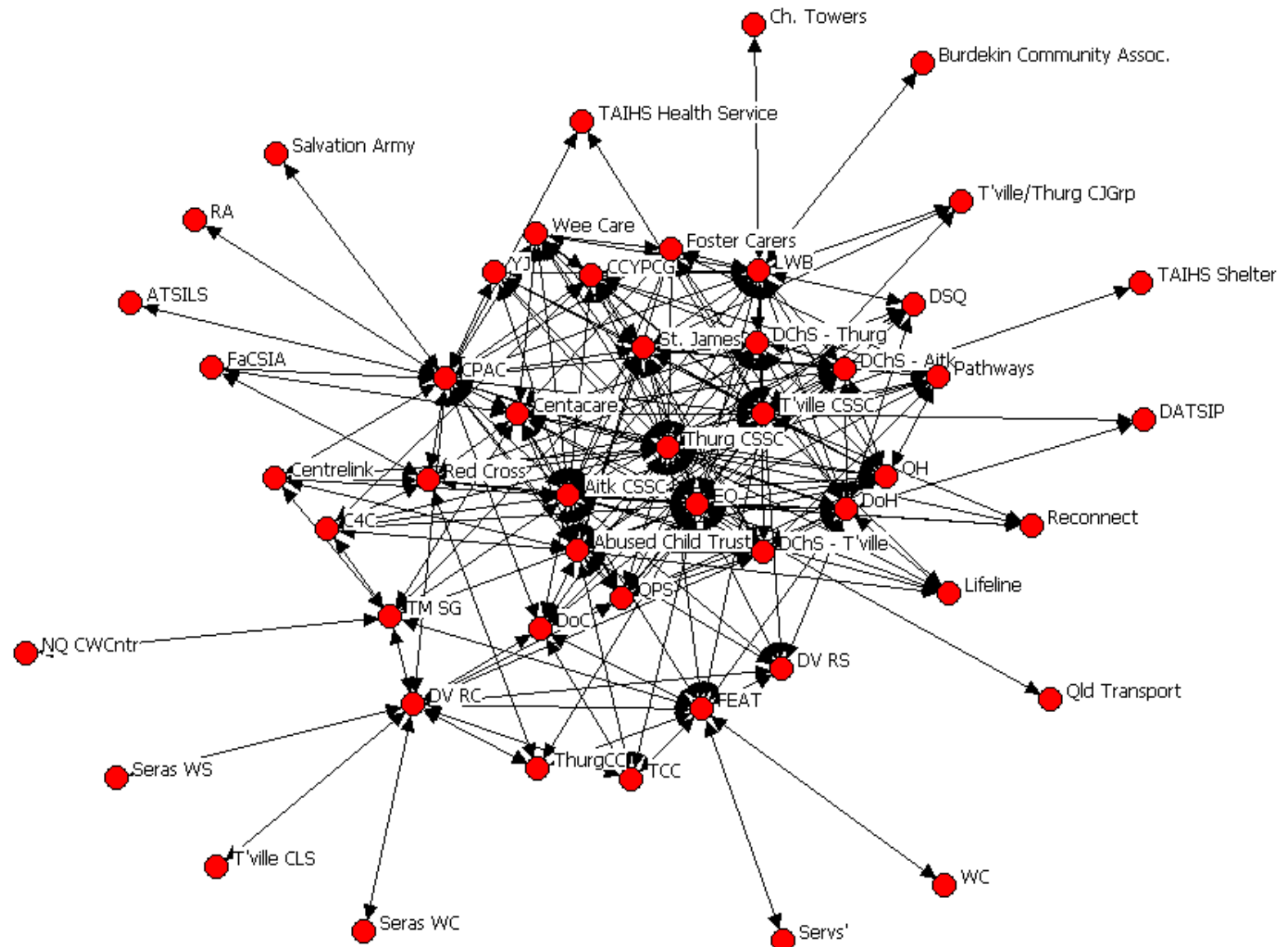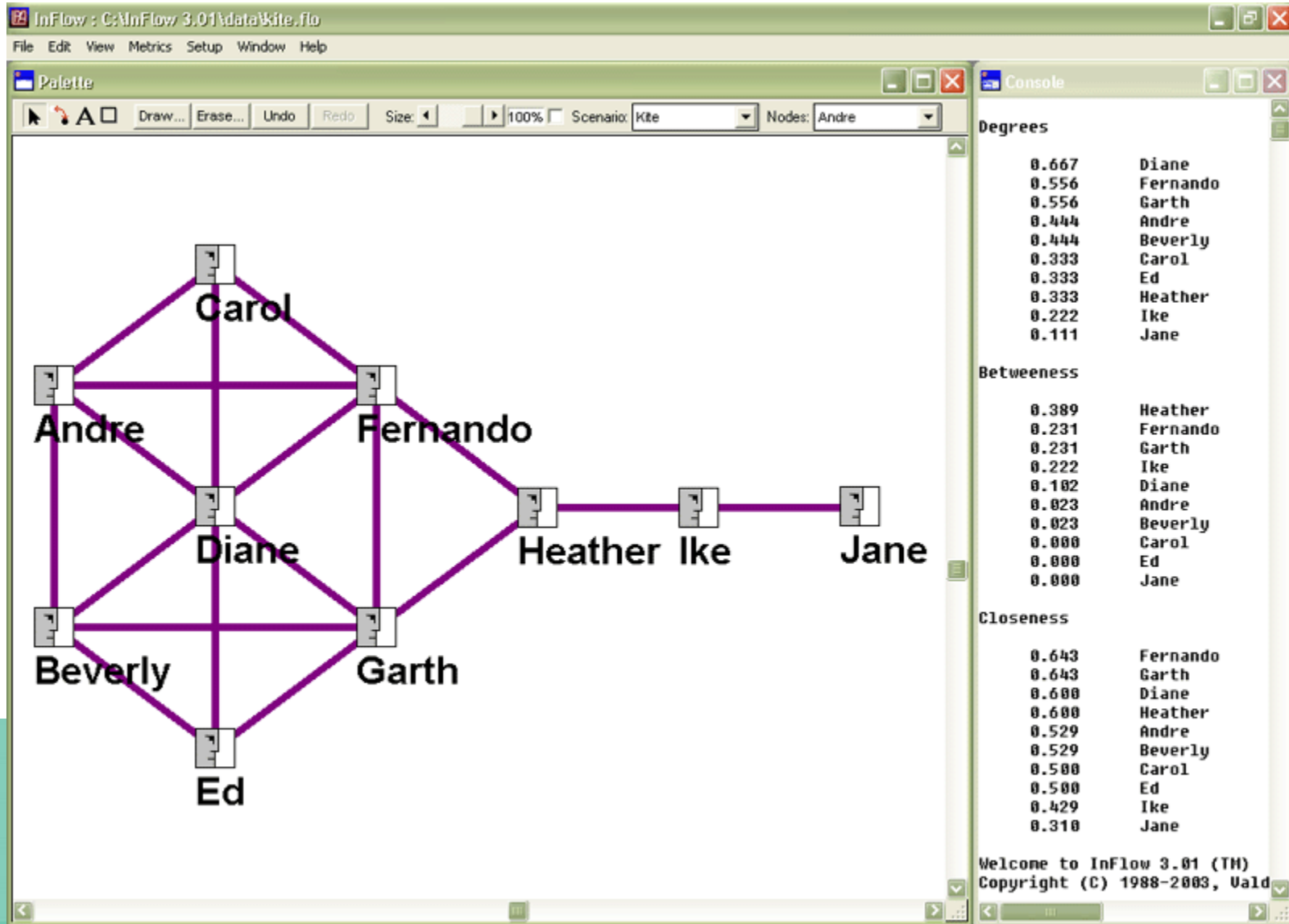
Information sharing

Keast, QUT 19 February 2008

Shared resources

Joint planning & programming

Unpacking roles

Metrics

	Shared Information	Shared Resources	Shared Planning
Network density	0.07	0.04	0.03
Av Centrality	54%	39%	33%
Av Path Distance	2.02	2.2	2.4

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Density measures

Totals		Shared Info	Shared Funding	Service Contracts	Contact Referrals	Shared Resources	Shared Planning and Programming
	Hi	16	0	0	10	5	10
	Lo	17	22	22	19	20	16
	Combined	33	22	22	29	25	26

As measure of Density

	Shared Info	Shared Funding	Service Contracts	Contact Referrals	Shared Resources	Shared Planning and Programming
Hi	0.286	0.000	0.000	0.179	0.089	0.179
Lo	0.304	0.393	0.393	0.339	0.357	0.286
Combined	0.589	0.393	0.393	0.518	0.446	0.464

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Questions to consider – in analysis

Which agencies are most central & are these essential for addressing community need?

Which core network members have links to important resources via external links?

Are some links strong, while others weak – what are implications?

Does the network include all relevant actors to service area?

Which subgroups have strong working relationships?

Are there core and peripheral actors & implications?

Based on comparative data – has there been reasonable progress been made in building community capacity through development of stronger/durable network ties?

Is the density level of the network sufficient for cohesive action & outcomes?

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Some important things to think about

Be sensitive to people & information

SNA maps clearly illustrate people/organisation's positions & functions

- In or out/close or peripheral
- Including names can be highly problematic
- Uncovering hidden or non relationships can be contentious
- Can lead to conflict, unintended consequences & reversion if not handled well
- Be clear about this upfront & in ethics proposals
- Respondents have to trust that ethical principles are in place & that the information is being used for 'up-front' purpose
    - Not to cut funding, change structures etc

Securing accurate information

Data often collected survey
- Explicitly disclose their relationships (ties) with others
- Some possibility of respondents giving 'expected' rather than 'accurate' information
  - Be clear in set up & process
- Some concerns at ability to accurately recollect
- Studies show able to accurately recollect – with list
  - Provide clear instruction re attributes & time (e.g. 6 months)

Accuracy & gaps

SNA uses a host of metrics & measures
- Commonly used are centrality measures – in-degree, betweeness & closeness
- Robust use of these measures assumes the underlying data sets are accurate
- Missing data is common
- 100% response rate is ideal – but often people don't respond to some questions or the whole survey
- Or spread to informal networks – extending the net makes establishing a boundary difficult – who is in and not
- Survey to a network of 45 – lead to network of over 300!

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A picture says a 1000 words

Each person can interpret differently – from own perspective

Use as discussion point/diagnostic tool – rather than definitive 'reality'

Jumping to conclusions – especially based on map & metrics is a danger

Qualitative work can add flesh to the network bones – expanding understanding, explanation & insights

Getting good response rates

Perseverance & patrol
- Follow-up , again and again and again .....
- Make relationship with office personnel
- Offer something back – data, insights, reports, workshops
  - Don't just use as data sources

Use your personal relations – but with integrity

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Sharing expertise

Trend for SNA researcher/consultants to be experts

Network members are the experts
- Important to bring them into the analysis

Also – almost anyone can do the computations – the analysis & interpretation requires expertise

Understanding of SNA, network theory & context
- Best achieved through partnerships
- "Sense making is unrelentingly social" (Weick)

High visibility calls for higher ethical & moral standards

SNA – maps can be very powerful tools

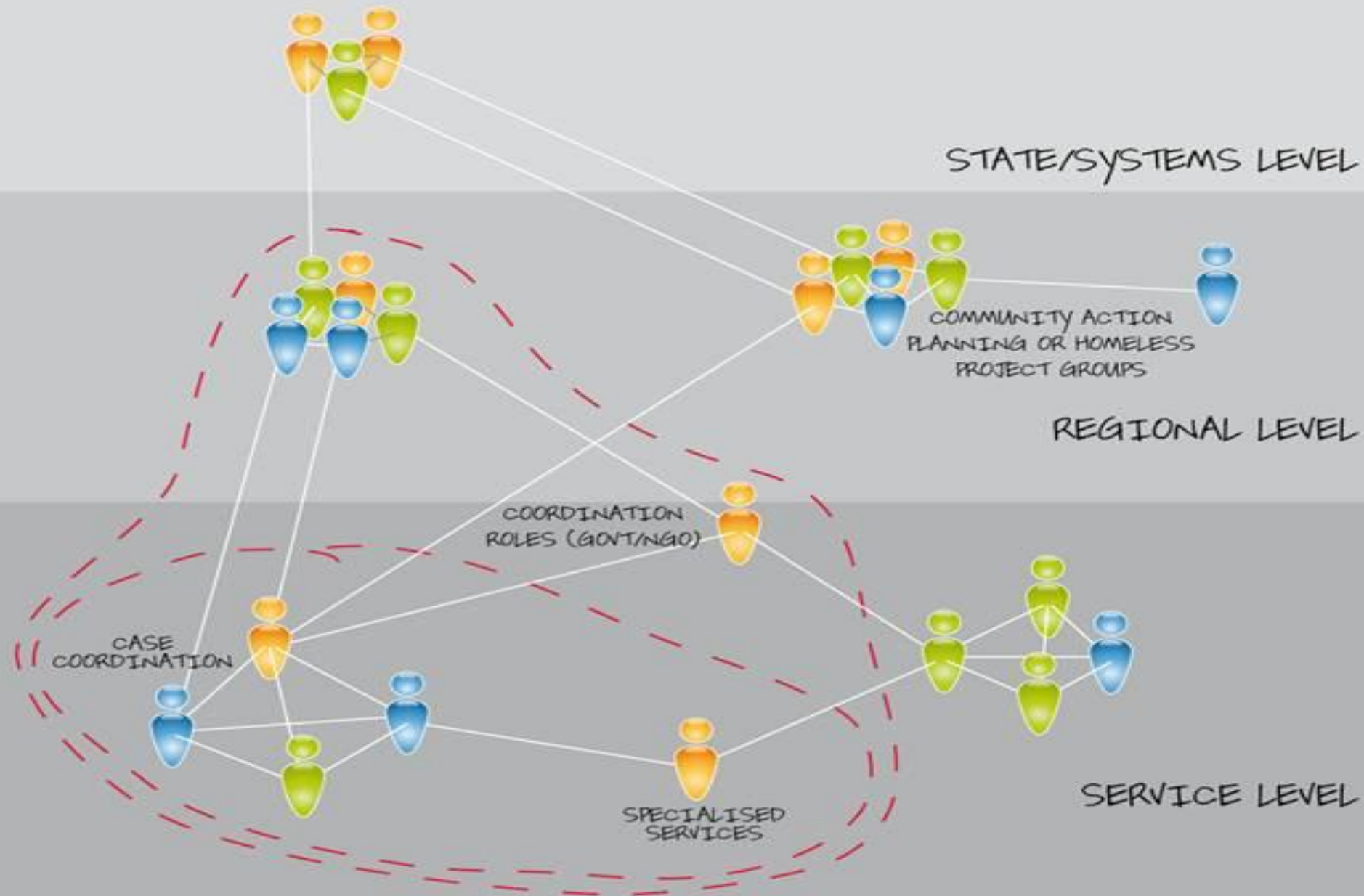E.g. Write into contracts not used for funding cuts etc.

SNA other considerations

Snapshots in Time:

As with any data set network data represents the 'status quo' at the point of data collection. Since service systems are constantly evolving the results therefore present as a 'snapshot' at that time and that any of the patterns of relationships, connections and structures may have changed. As such interpretations of the results should also take into account current contextual considerations.

Benchmarks: All networks and systems are unique and are contextually determined, reflecting the people, history and responsibilities of those operating within the system. This context can impact on how systems operate and the types and levels of connection. Consequently care should be taken comparing across system/network sites. There are no 'wrong' or 'correct' patterns or metrics. Coupling SNA with other methodologies, particularly case studies, is held to value add and 'turbo charge' network results by providing deeper insights and rationales for the patterns. Longitudinal approaches also strengthen the understandings gleaned from SNA studies.

The Maps and metrics made possible through network analysis offer a different and important approach to understanding and assessing systems, their patterns of connections and operations. It is important to appreciate that while they can help answer some questions about the structure and performance of a network, the real benefit of this approach is its ability to stimulate genuine and informed dialogue and planning.

STATE/SYSTEMS LEVEL

COMMUNITY ACTION PLANNING OR HOMELESS PROJECT GROUPS

REGIONAL LEVEL

COORDINATION ROLES (GOVT/NGO)

CASE COORDINATION

SPECIALISED SERVICES

SERVICE LEVEL

Some work!

Questions for consideration

These approaches all rely on building & leveraging relational/network capital

Can/should the collective capital of community networks be leveraged for government outcomes?

What role/responsibility does government have?

Task 1

- Identify a project that you are working on now
  - What is its purpose
    - Use the relationship (integration) continuum as a guide to determine:
      - Where are your relations now/with whom?
      - Where should they be to meet the purpose?
    - Structure – top down/bottom up
      - What are the optimal integration mechanisms

Task 2

- ◉ Building up relations
  - Who do you need to establish relations with?
    - How strong does the link need to be?
- ◉ Borrowing on relations
  - Where do you already have strong relations?
    - How can you use these better/use alternative sales formats
    - Use these as links to other sales opportunities
- ◉ Dissolving relations
  - Who do you have strong but not productive relations ?
    - How could these be ramped up ?
    - Should they be dissolved ?
    - Are they just habit ?

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Strategic relationship building

Identify those groups/organisations with which your Project/ organisation should have a relationship with to achieve project outcomes.	
Circle those with whom you already have a relationship	
Of those circled consider if the current strength or nature of the relationship is sufficient to secure outcome.	
For relationships that are considered not strong enough, identify possible strategies to strengthen. Similarly it might be necessary to weaken relationships to secure outcomes.	
For the firms *not circled* consider (a) what engagement strategies should/could be employed to mobilise commitment/involvement and (b) how strong the relationship needs to be.	

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Task 3

- What adjustments are required?
  - Systems and processes
  - Behaviours
  - Expectations
  - Management & leadership
  - How will you assess/monitor/evaluate relationships?
  - Individual vs collective impacts

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Some more work

☐ Consider you project:

☐ Have these issues been identified, discussed & implemented

☐ (1) think through some of these factors

☐ (2) form into groups to discuss application – barriers & enablers

☐ What do you need/plan to do?

☐ How will you do this – champions?

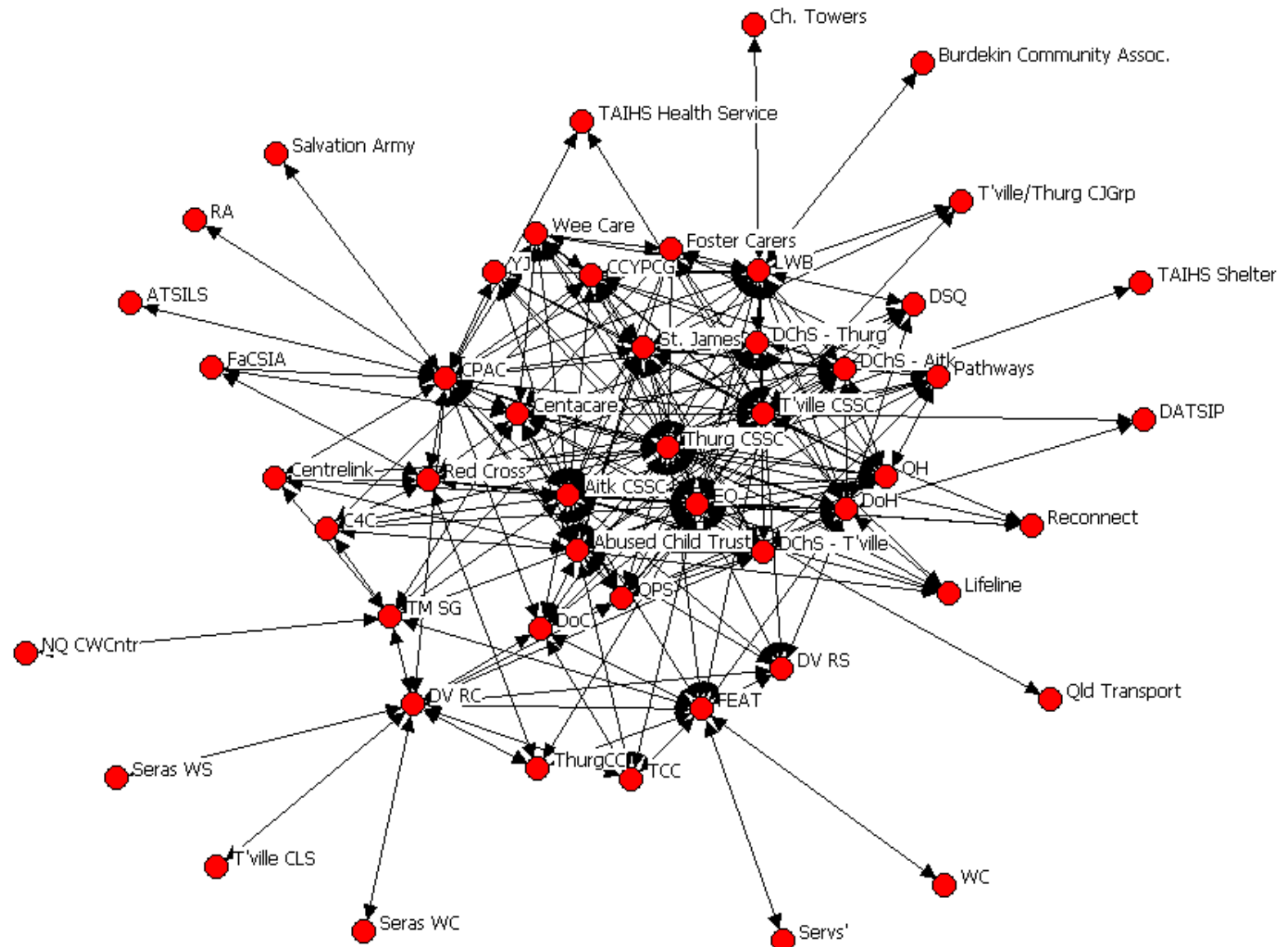COLLECTIVE **IMPACT** 2014

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Evaluation task

☐ Consider your project/program

☐ What evaluation focus have you taken?

☐ Will it capture the relationship elements

☐ How can you draw from some of these 'alternative' evaluation tools to design an evaluation that is balanced?

☐ Which tool would you use?

☐ How would you link/engage citizens in this process – do they have a role?

☐ What are the ethical considerations?

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Bright & dark networks – what can we learn about connections?

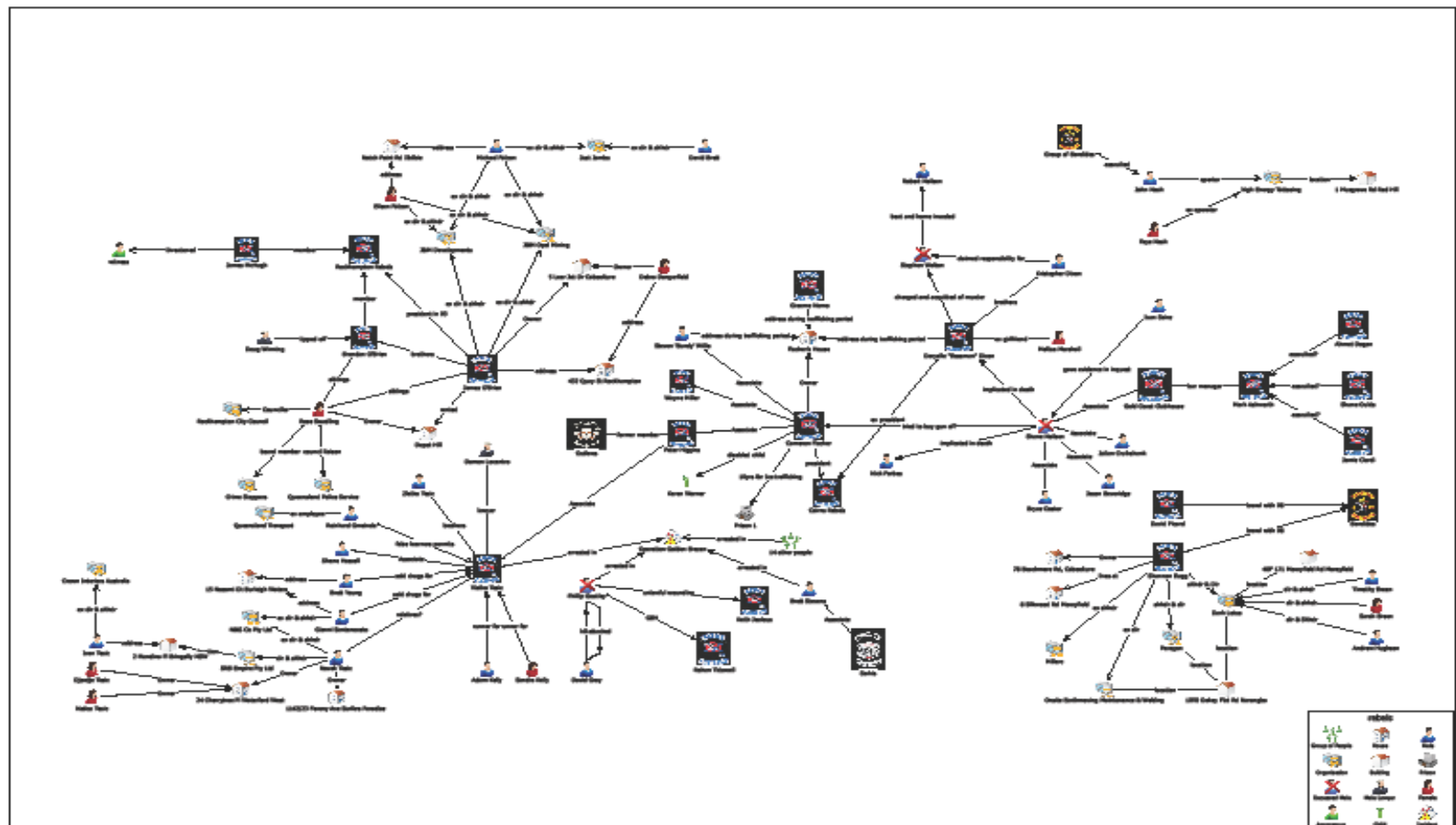# Social Services: Joint planning & programming

Corruption Network-

Outlaw Motorcycle Gangs -

Comparison

Bright

Aim for ^ dense interactions

High reliance on interpersonal relationships as 'glue that binds' & reciprocity

Take time to build & deliver results, high transaction costs (constant attention to relationship building)

Vulnerable to changes in context, shifting of actors, funding (+ & -); poor design

Easily disrupted, takes time to rebuild reputation etc.

Dark

Based on loose connections

One way flows -

Relationships less important – more the exchange & reputation

Very resilient (last many years), flexible & act fast, low transaction costs

'Ceramic' – very strong - vulnerable to chinks on the edge or major attacks to the core

Hard to disrupt – but easy to rebuild (exchange not trust based)

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