

Use inter-organizational network analysis
to understand city level collaboration
effectiveness in reducing Community
HIV Viral load

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The Institute for
Community Research

Study Aims

1. **Identify inter-organizational network factors** that affect the ability of people with HIV (PWH) to **move efficiently and effectively** across the T&T continuum.
2. Examine the personal, **inter-organizational**, and community level **factors** that interact to **generate system dynamics** in the movement of PWH through the T&T continuum.
3. **Develop a system dynamics model** that **integrates the inter-organizational network** and system dynamics structural **factors** and processes that collectively impede progress toward reducing overall CVL.

Research Questions

- Is the network providing **enough services** along the T&T continuum?
- Is the network adequately serving **all populations**?
- Are there **bottlenecks** in the flow of people through the T&T continuum?
- What are the **capacities and characteristics of each organization** in the T&T continuum of care?
- What are the **capacities and characteristics of collaboration ties** along the T&T continuum?
- What **inter-organizational factors** (e.g. centrality, density, system stability, resources, governance style, goal consensus, need for network level competency, trust, ways to handle tension) **affect the whole network effectiveness? And how?**

Inter-organizational Network Analysis

- Measure **whole network effectiveness**
 - Adequate services, collectively, that meet the demand
Collaboration enables moving at-risk individuals and PWHs through each stage in a **timely** way
 - Use multiple sources of data to understand how the network is functioning
- **Structural measures** associated with effectiveness:
 - Multiple collaboration ties
 - Density and Centrality of each type of ties
 - Key organizations' position in network
- **Qualitative contextual meaning** of network collaboration and **Sensitive to existing network governance styles**
- **Steering Committee consensus**

Network effectiveness theory (1)

Collaborative network effectiveness is associated with:

- **Network structure** (centralized integration; direct, non-fragmented external control)
- **Network context** (system stability; high resource availability)
- **Governance style** associated factors: trust, size, goal consensus and the need for network level competencies, ways to handle tensions (e.g. efficiency vs. inclusiveness; internal vs. external legitimacy; flexibility vs. stability; evolution of network governance)

Network effectiveness theory (2)

Provan and Kenis **Modes of Network Governance**

Table 1

Key Predictors of Effectiveness of Network Governance Forms

Governance Forms	Trust	Number of Participants	Goal Consensus	Need for Network-Level Competencies
Shared governance	High density	Few	High	Low
Lead organization	Low density, highly centralized	Moderate number	Moderately low	Moderate
Network administrative organization	Moderate density, NAO monitored by members	Moderate to many	Moderately high	High

Organizational Network Matrix Creation (1)

- Providers and consumers surveyed about ties to HIV and support-service organizations in Hartford area
- Providers asked about **collaboration** (referrals, sharing resources, joined program etc.) **to/from** other organizations for: HIV testing, linkage to care, ART management, other support services
- Consumers asked about **use of** organizations for: HIV testing, linkage to care, ART management, other support services
- Providers and consumers asked about **satisfaction** (e.g., length of call-back time, ease reaching a person, appointment wait-time, non-judgmental/friendly staff, etc.) with ties to each organization

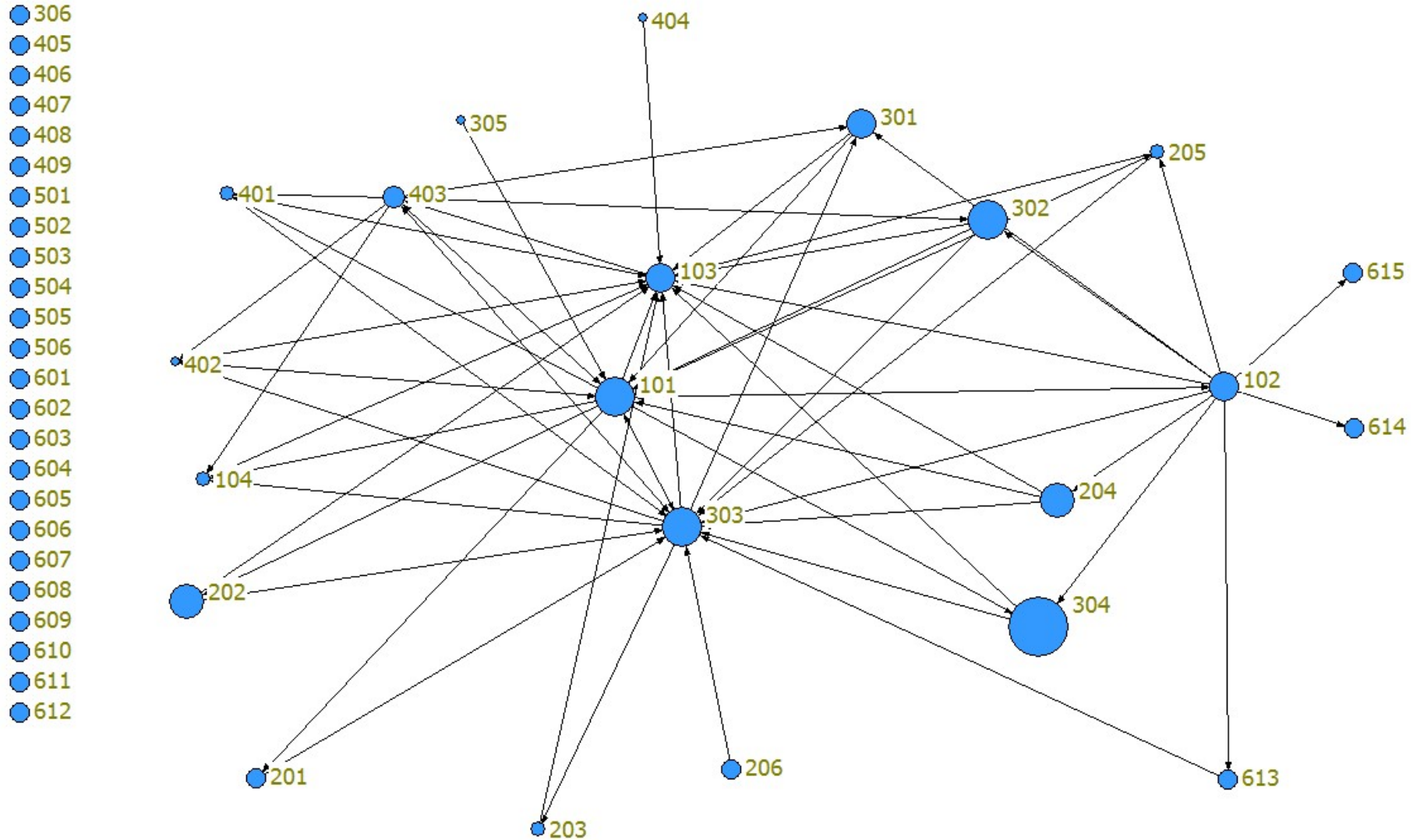
Organizational Network Matrix Creation (2)

- **Providers** (4-6 staff from each partner organization):
 - Each organization that took the survey or was mentioned appears as a **node**
 - Each reported collaboration referral to/from an organization = one **tie**
 - Each type of tie (testing, linking, ART maintenance) is created as a separate **network graph**
 - **Direction** of referral (to/from) reported by *either* organization is indicated with an arrow
 - **Satisfaction** with referral(s) can be an “**attribute**” both to that tie or to a node

Organizational Network Matrix Creation (3)

- Consumers (6-8 HIV+/HIV- from each organization)
 - Data are aggregated by organization used, separate measures service type and satisfaction measures
 - Aggregated **sum of organizations used**, by each type of services
 - Aggregated **mean of satisfaction** with each organization
 - These are integrated in provider network data as an node (organization) **“attributes”**

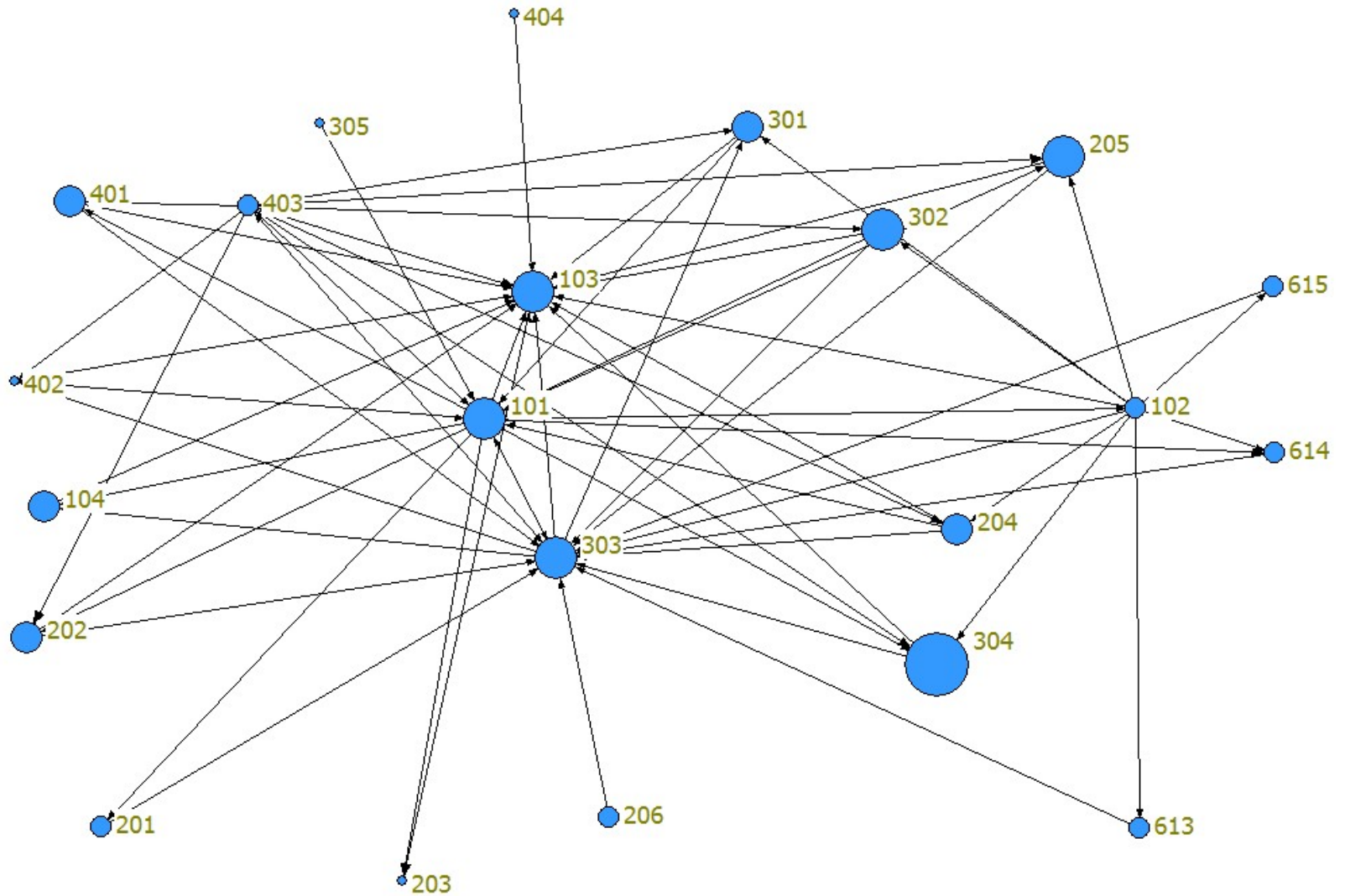
HIV Testing Referral Ties*



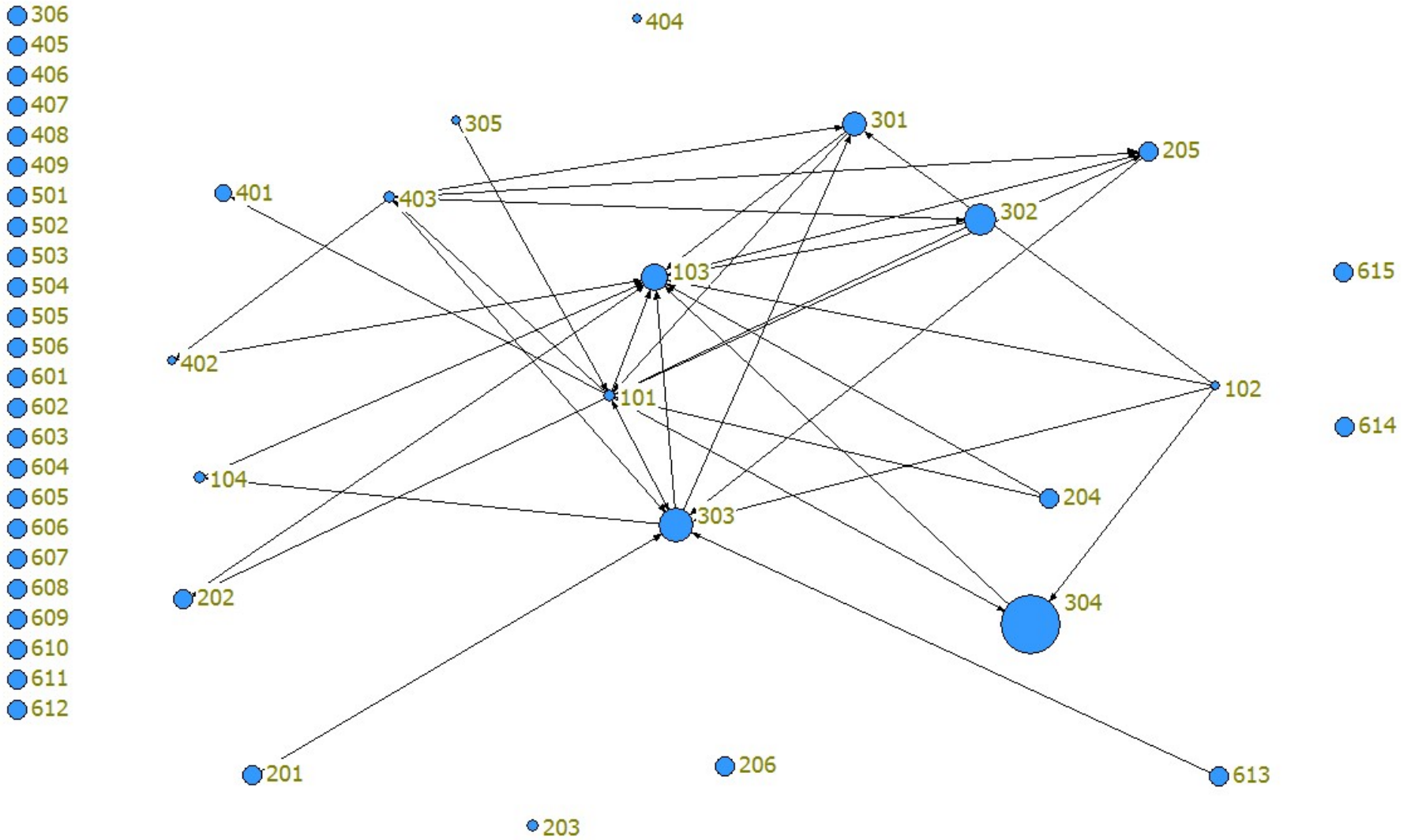
* Size of node refers to frequency of use of the organization reported by consumers

Link to Care

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- 405
- 406
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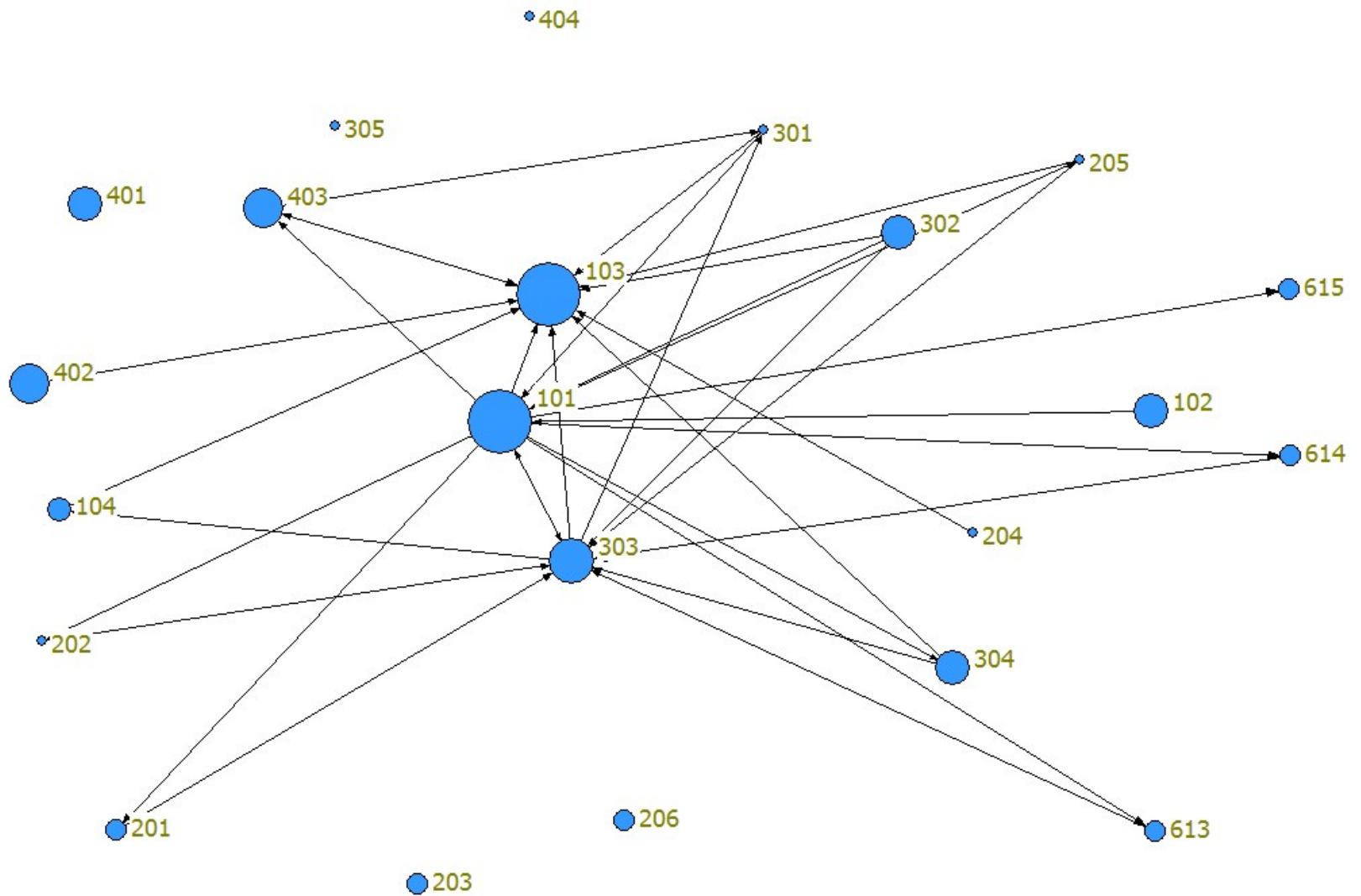


HIV Treatment Management

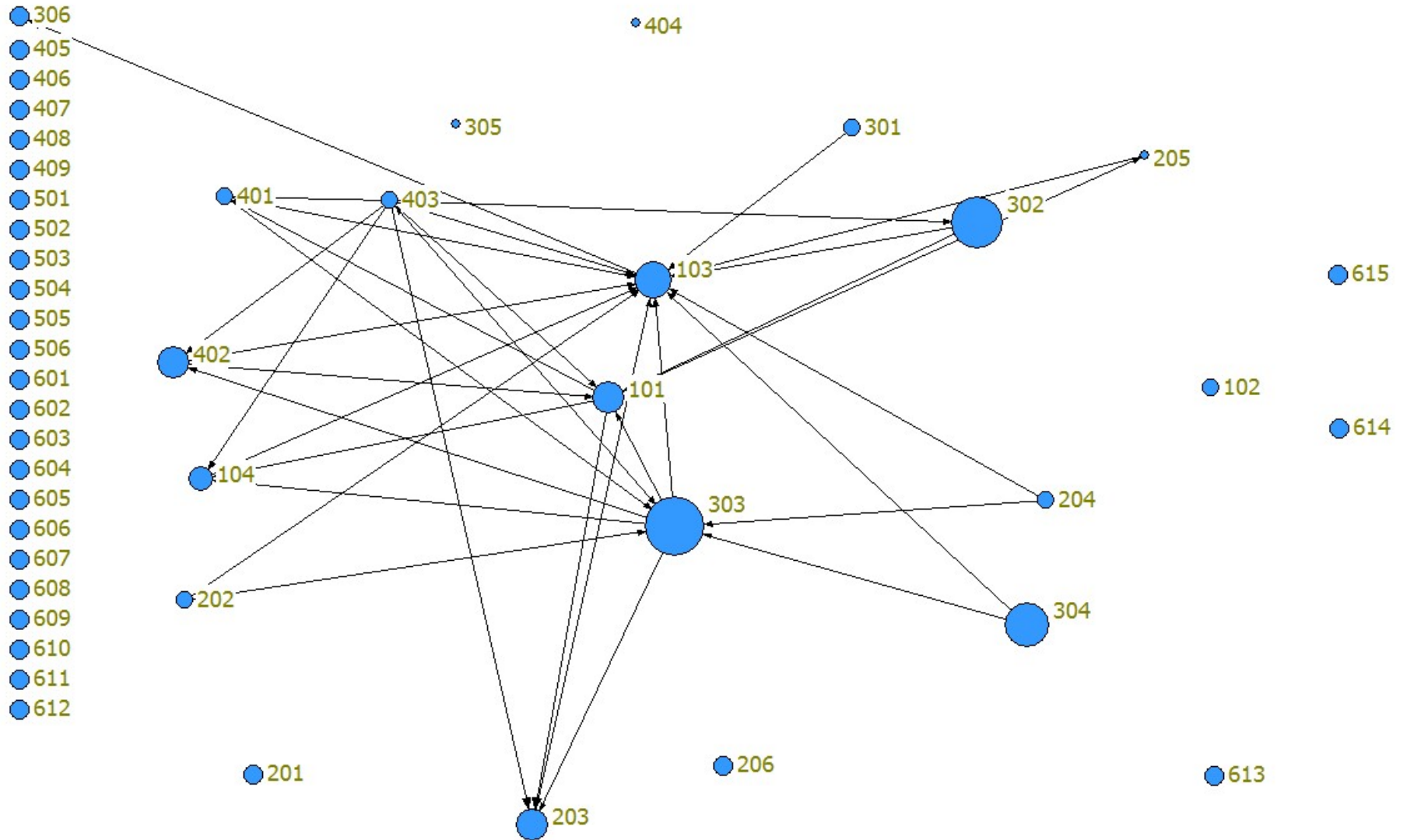


Case Management

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Mental health



Discussing Preliminary Network Graphs with Steering Committee

- **Validate collected data and identify further data collection needs**
 - **Additional providers and their clients to be interviewed**
 - **Additional secondary data sources**
- **Facilitate discussion and interpretation of collaboration contextual factors that associated with network effectiveness**
- **SC member research capacity building and expand membership**
- **Balancing the need for good analysis and sensitivity to the data to be shown**
- **Co-development of Organization Characteristics Form**

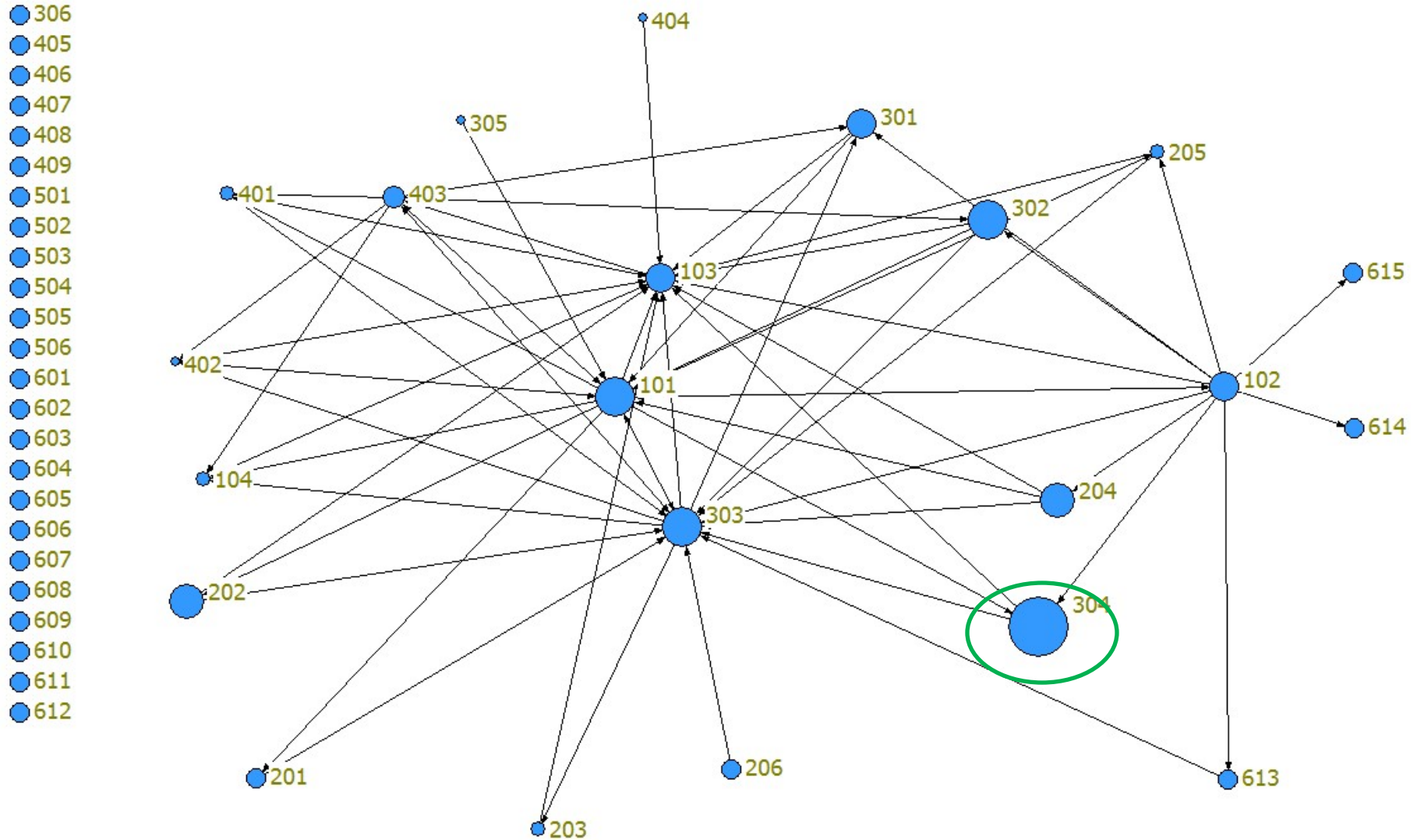
Develop Organizational Characteristics Form with Steering Committee

- **What we need:**
 - **Services provided: Primary services and HIV-related services**
 - **Populations served: ethnicity, sexual minority, etc.**
 - **Resources: financial, staffing, training needs, and?**
 - **Capacities in accepting referrals: staff to referral ratio, etc.**
- **How do we get these data?**
 - **The right contact person**
 - **Secondary data sources**
 - **Feasibility of data collection**

Results from the Steering Committee Meeting

- **Verified certain organization name change, location and potential reporting error from consumers**
- **Additional data sources for: node accuracy, collaboration ties and network characteristics form development**
- **Open the door to interview providers of additional key organizations and their clients**
- **New committee members**
- **Valuable input in developing Organization Characteristic Form**
- **Identified several forms of reports to reduce organization burden in filling out the Organization Characteristic Form**
- **Challenges of measuring and discussing: service capacity, effectiveness, governance style**

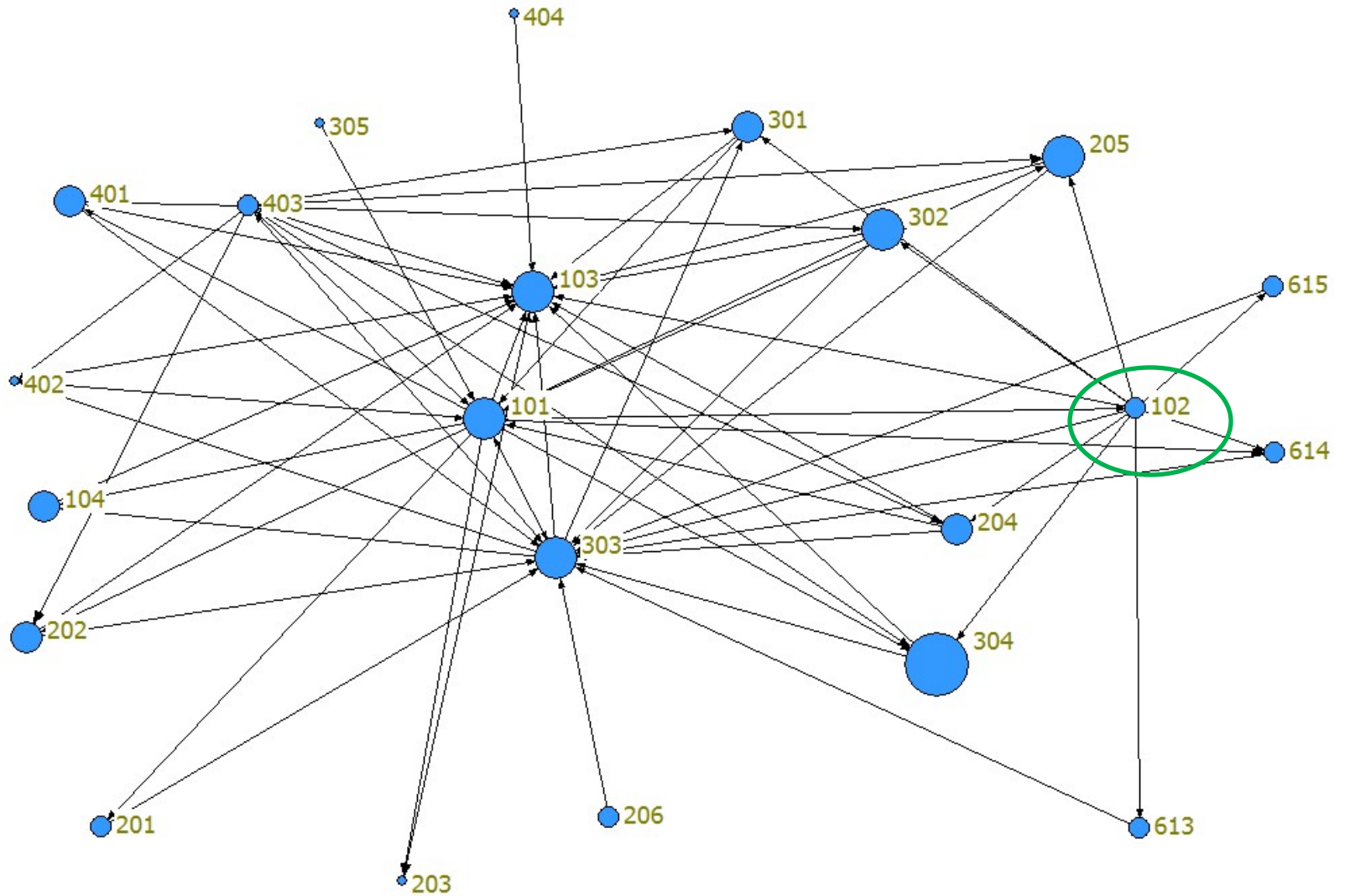
Example: HIV Testing Referral Ties*



* Size of node refers to frequency of use of the organization reported by consumers

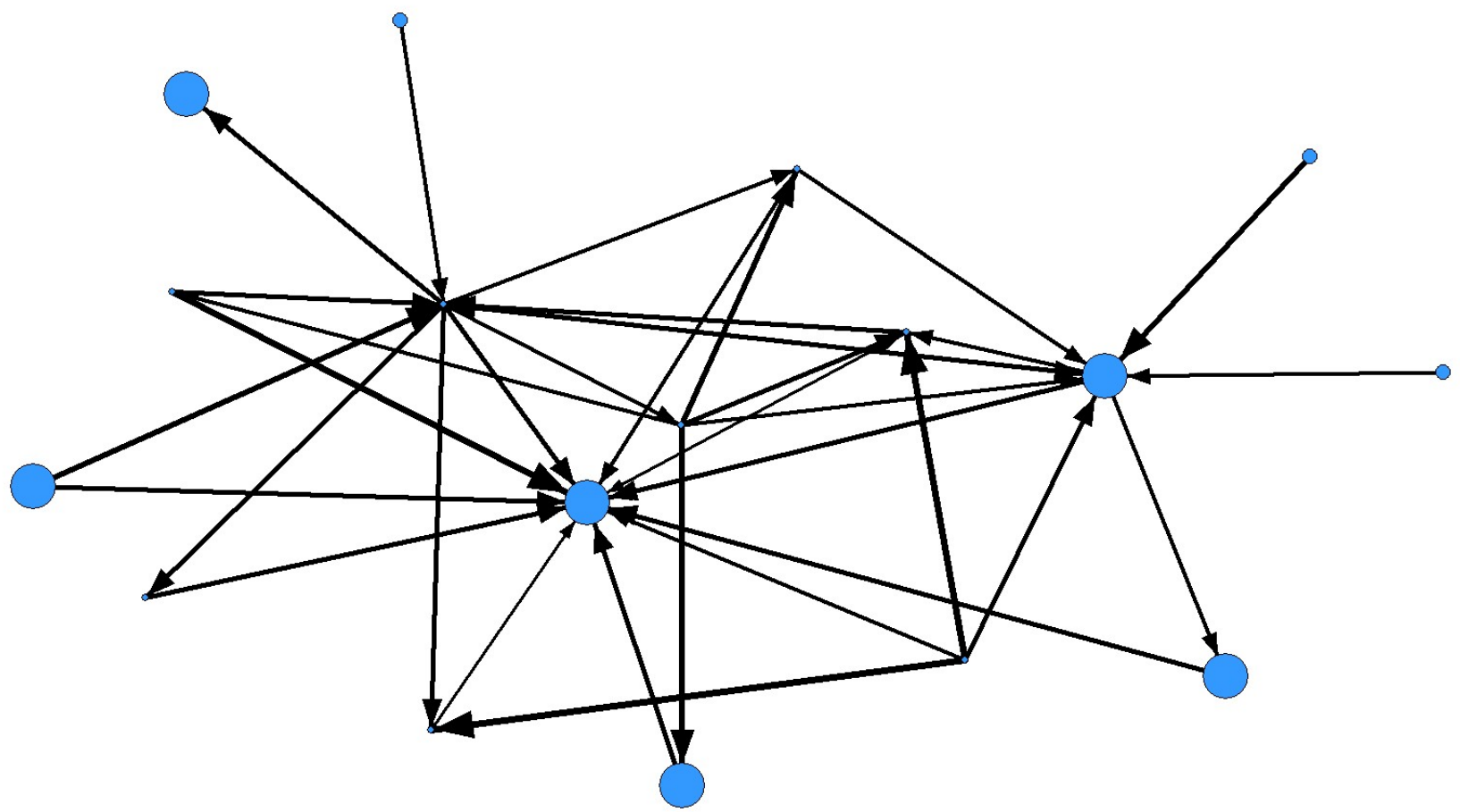
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Graph not shown to SC

Collaboration tie with provider satisfaction as tie strength and consumer satisfaction as node size



How do the Network Findings Relate to the System Dynamics Model

- **Identifying the most meaningful system measures that capture whole network capacity and its relationship with time delays at different stages on the T&T service continuum of care**
- **Review and design Organizational Attribute Description form to allow us to document these key organizational measures that affect the system's functioning over time.**

Integrate network analysis results into SD

