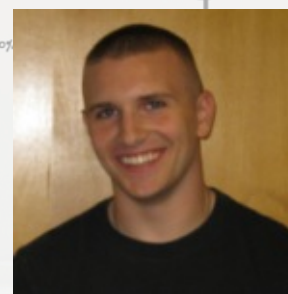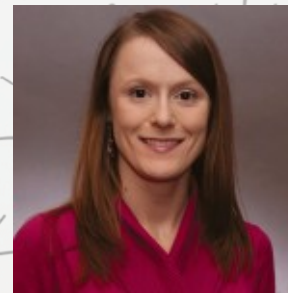# Applying Multi-Attribute Utility Theory (MAUT) & Social Network Analysis (SNA) to a Government-Funded Outreach Program
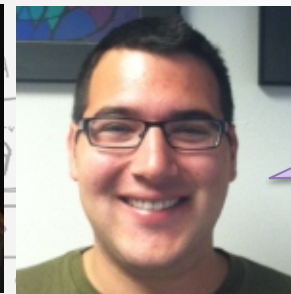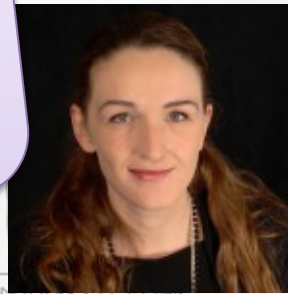
The Evaluation Team

77 Countries Attended US Outreach
Between 2010-2014
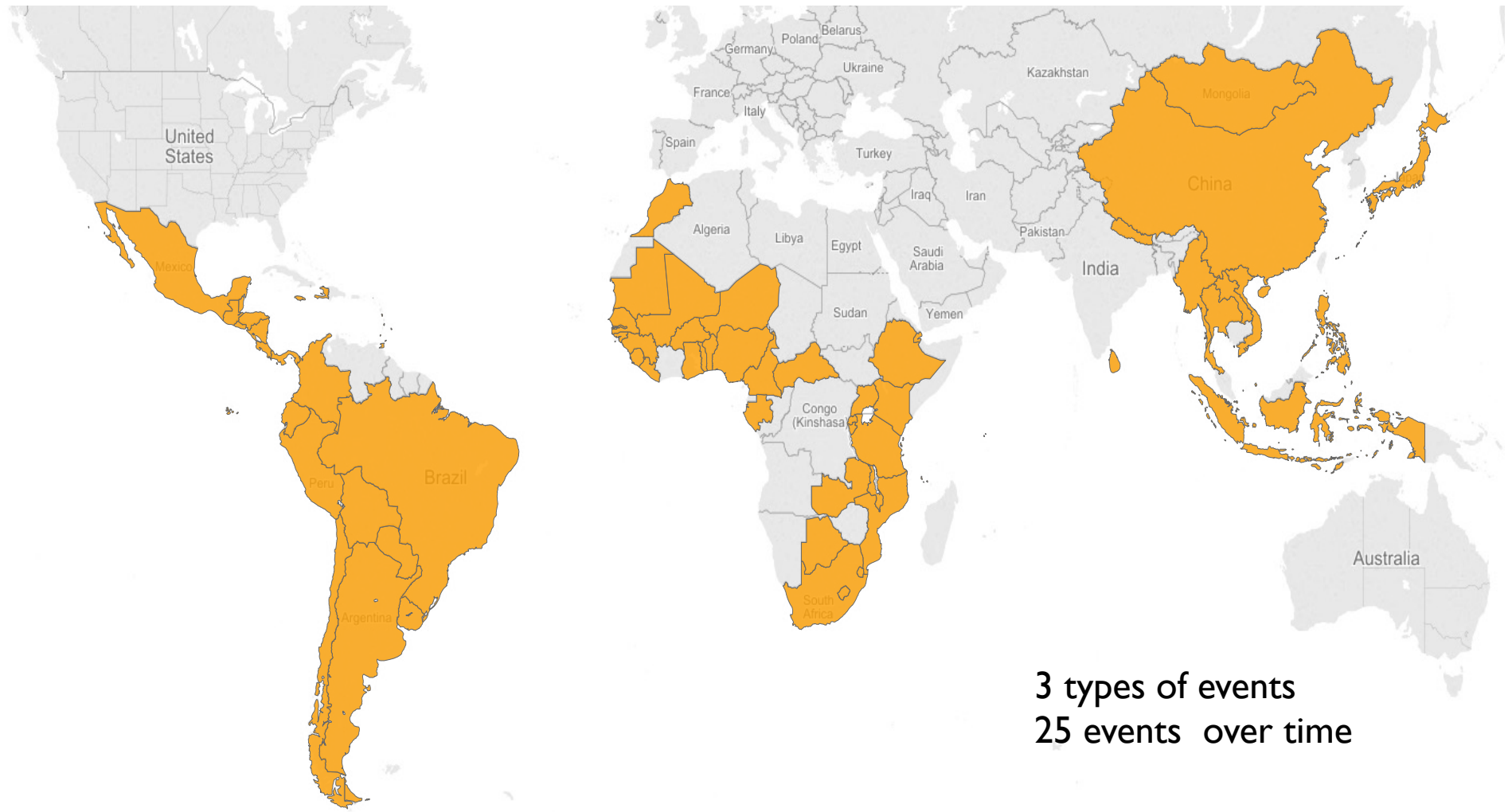
3 types of events
25 events over time

Evaluation Questions

- To what extent is the program meeting its goals and objectives?

- How well does the program reach targeted audiences?

- How well is the program implemented?

- Does the program impact national policy?

- Can benefits from the program be sustained?

Evaluation Questions

- To what extent is the program meeting its goals and objectives?
- How well does the program reach targeted audiences?
- How well is the program implemented?
- Does t... ...act na...
- Can ... ... program ...

10 criteria → 64 indicators

Logic of Evaluation

Identify Criteria → Set Standards → Collect Data → Analyze & Synthesize Findings → Make Judgments

The process of integrating evidence with values and standards into justifiable evaluative conclusions and recommendations

Adapted from Fournier (1995)

Logic of Evaluation

Identify Criteria → Set Standards → Collect Data → Analyze & Synthesize Findings → Make Judgments

Multi-attribute Utility Theory (MAUT)

Adapted from Fournier (1995)
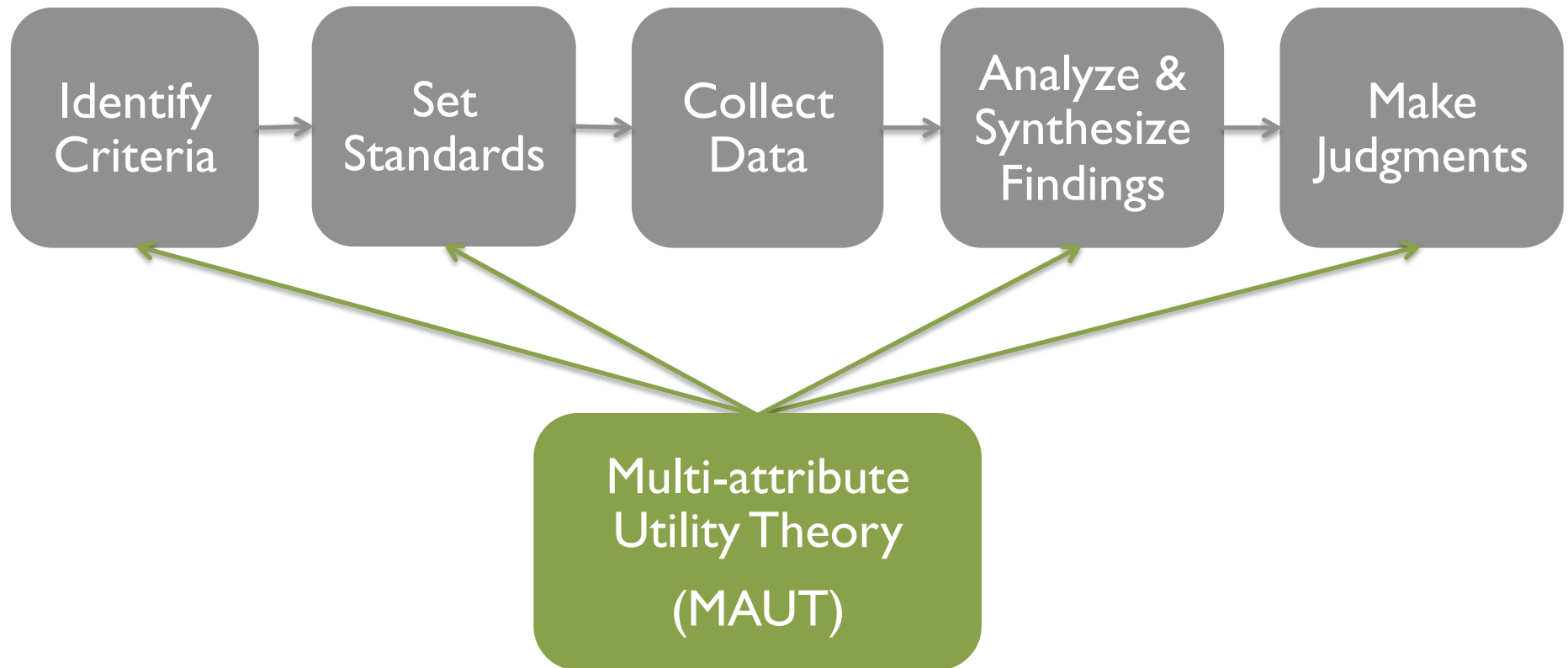
MAUT Example Activity
Potent Presentations Assessment Rubric

MESSAGE		DESIGN		DELIVERY	
	Structure		Text size		Sound
	Encapsulation		Amount of content		Poise
	Support		Color		Speed
	Relevancy		Graphics		Pace
	Ending		Arrangement		Mastery

Our Steps

① Determine **quality** of evidence (QE)

② Rank **importance** of criteria (IC)

③ Determine **magnitude** and **direction** of effect (MDE)

④ Integrate weights into **final scores**

⑤ Formulate evaluative **conclusions**

Adapted from McConney, Rudd, and Ayres (2002)

Our Steps

①

Determine the **quality** of the evidence

Evaluation Methods

Internal Documents

External Documents

Participant Questionnaire

Key Stakeholder Interviews

Participant Interviews

Quality of evidence

Quality of Evidence		Poor	Fair	Good	Very Good	Extraordinary
Internal Documents						
External Documents						
Participant Questionnaire						
Key Stakeholder Interviews						
Participant Interviews						

Accurate/Credible
Unbiased
Relevant
Representative
Well-Collected

②

Rank the **importance** of each criteria

Determine **importance** of criteria

Program Goals/ Objectives	Evaluators	Stakeholders	Mean	Overall Importance Rank
Criteria 1	10	6	8	2
Criteria 2	8	10	9	2
Criteria 3	7	7	7	1
Criteria 4	7	7	7	1
Criteria 5	6	7	6.5	1
Criteria 6	10	8	9	2
Criteria 7	7	8	7.5	1
Criteria 8	10	10	10	3
Criteria 9	7	9	8	2
Criteria 10	6	8	7	1

Our Steps

③

Determine **magnitude** and **direction** of effect

Determine **magnitude** and **direction** of effect

Criteria	Extremely negative	Very negative	Somewhat negative	Neutral	Somewhat positive	Very positive	Extremely positive
Criteria 1							
Criteria 2							
Criteria 3							
Criteria 4							
Criteria 5							
Criteria 6							
Criteria 7							
Criteria 8							
Criteria 9							
Criteria 10							
Criteria 11							
Criteria 12							
Criteria 13							

Determine **magnitude** and **direction** of effect

Program Goals/Objectives	Importance Weight
Criteria 1	2
Criteria 2	2
Criteria 3	1
Criteria 4	1
Criteria 5	1
Criteria 6	2
Criteria 7	1
Criteria 8	3
Criteria 9	2
Criteria 10	1

④

**Integrate** weights into final scores

Integrate

- Multiply the **quality** of evidence score with the **magnitude** and direction

- Multiply the **quality** of evidence score with the **importance** of criteria score with the **magnitude** and direction, then divide by 3.

Integrate weights into final score

	Quality of evidence		Magnitude and direction		Importance of criteria		QE *MDE		QE*MDE*I
Criteria 1	4	✖	1.9	✖	2	▬	7.60	▬	5.07
Criteria 2	4	✖	0.4	✖	2	▬	0.16	▬	0.11
Criteria 3	4.5	✖	1.1	✖	1	▬	4.95	▬	1.65
Criteria 4	4.5	✖	0.9	✖	1	▬	0.41	▬	1.28
Criteria 5	4	✖	1.6	✖	1	▬	6.40	▬	2.19
Criteria 6	4.5	✖	2.0	✖	2	▬	9.00	▬	6.00
Criteria 7	4.5	✖	1.5	✖	1	▬	6.75	▬	2.25
Criteria 8	3.5	✖	1.8	✖	3	▬	6.30	▬	6.13
Criteria 9	2.5	✖	1.5	✖	2	▬	3.75	▬	2.50
Criteria 10	3	✖	1.2	✖	1	▬	3.60	▬	1.17

⑤

Formulate conclusions

Negatively effective	Neutral/fuzzy	Positively effective

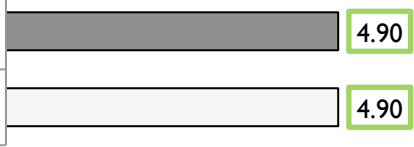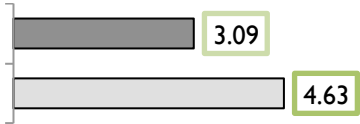| -15 | -5 | 0 | +5 | +5 |
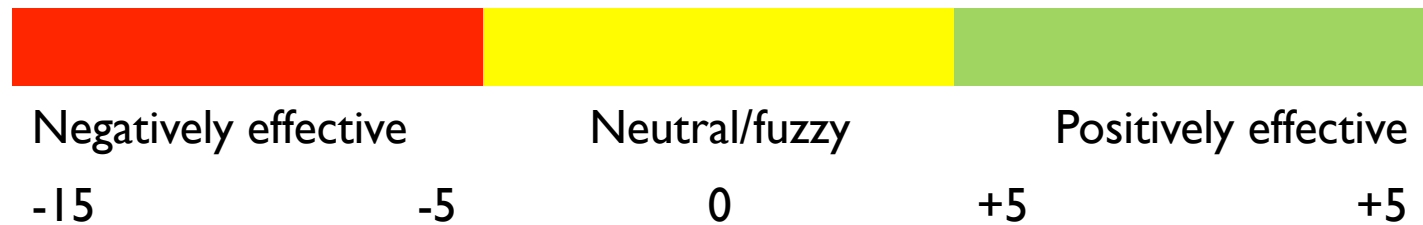
How effective is the outreach program at achieving its outcome?

Visual and textual presentation of a conclusion

	Impact on Objective Achievement				
Critical Objective	-15 = Negative	-5	0 = Not Discernable	5	15 = Positive
Criteria 6			4.90 / 4.90		

|	Impact on Objective Achievement				
Critical Objective	-15 = Negative	-5	0 = Not Discernable	5	15 = Positive
Criteria 2			3.09 / 4.63		

Advantages & Disadvantages

+

- Integration of information across scales
- Accounts for multiple stakeholders and multiple goals
- Stakeholder engagement (increase use/utility)
- Evaluative nature of conclusions – value judgments
- Data interpretation BEYOND data analysis (what so to so what)

-

- Increased measurement error
- Potential for bias
- Possible misuse of methodology
- Not necessarily generalizable or transferrable
- Series of averaging can lose details
- Accuracy/Validity

Joint Committee's Program Evaluation Standards

Utility

Feasibility

Propriety

Accuracy

Accountability
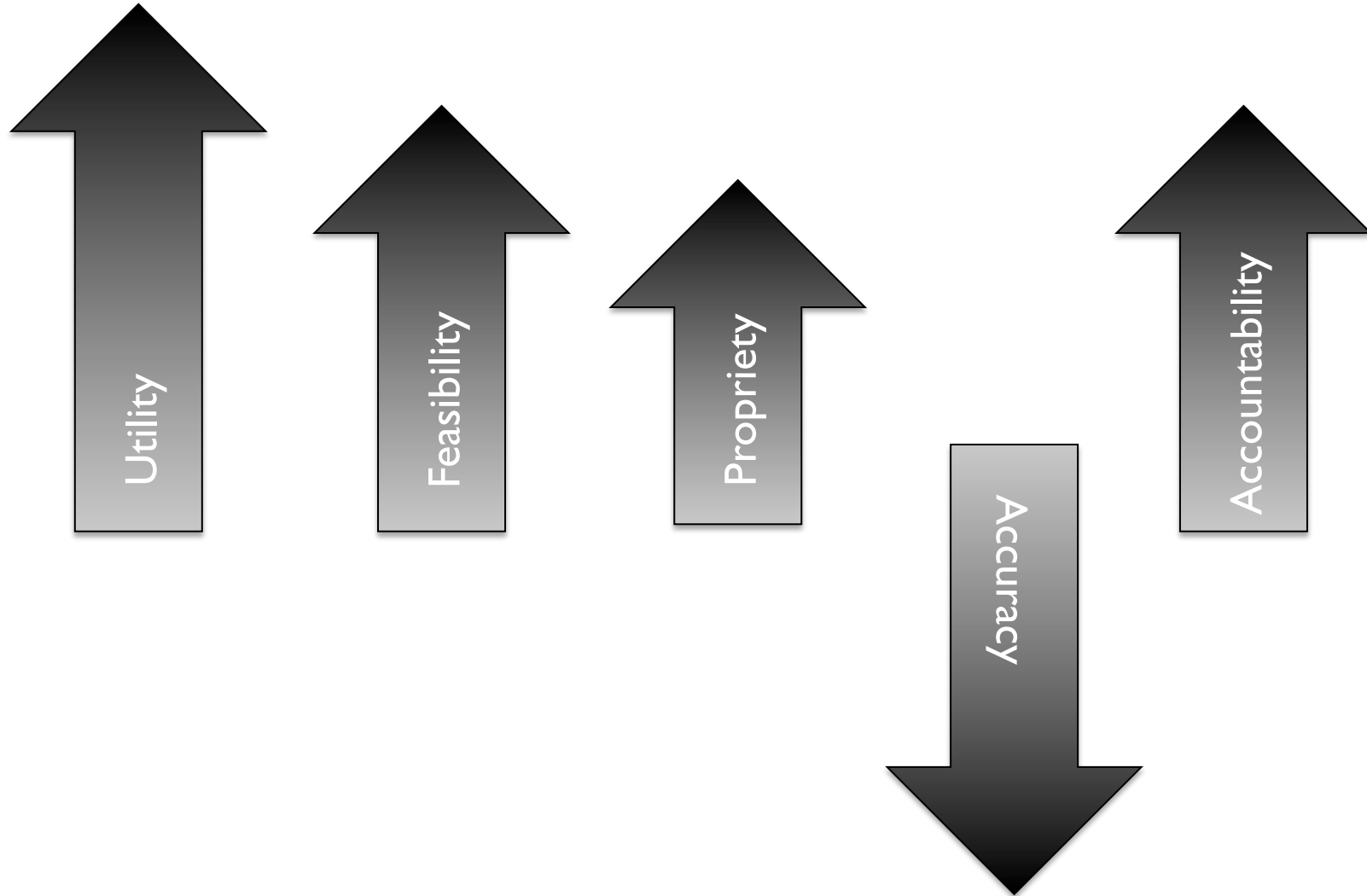
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Informing the Effectiveness of Regional Partnership Programs Through Social Network Analysis

Corey D. Smith

Social Network Analysis

"…an actor's position in a network determines in part the constraints and opportunities that he or she will encounter, and therefore identifying that position is important for predicting actor outcomes such as performance, behavior or beliefs."
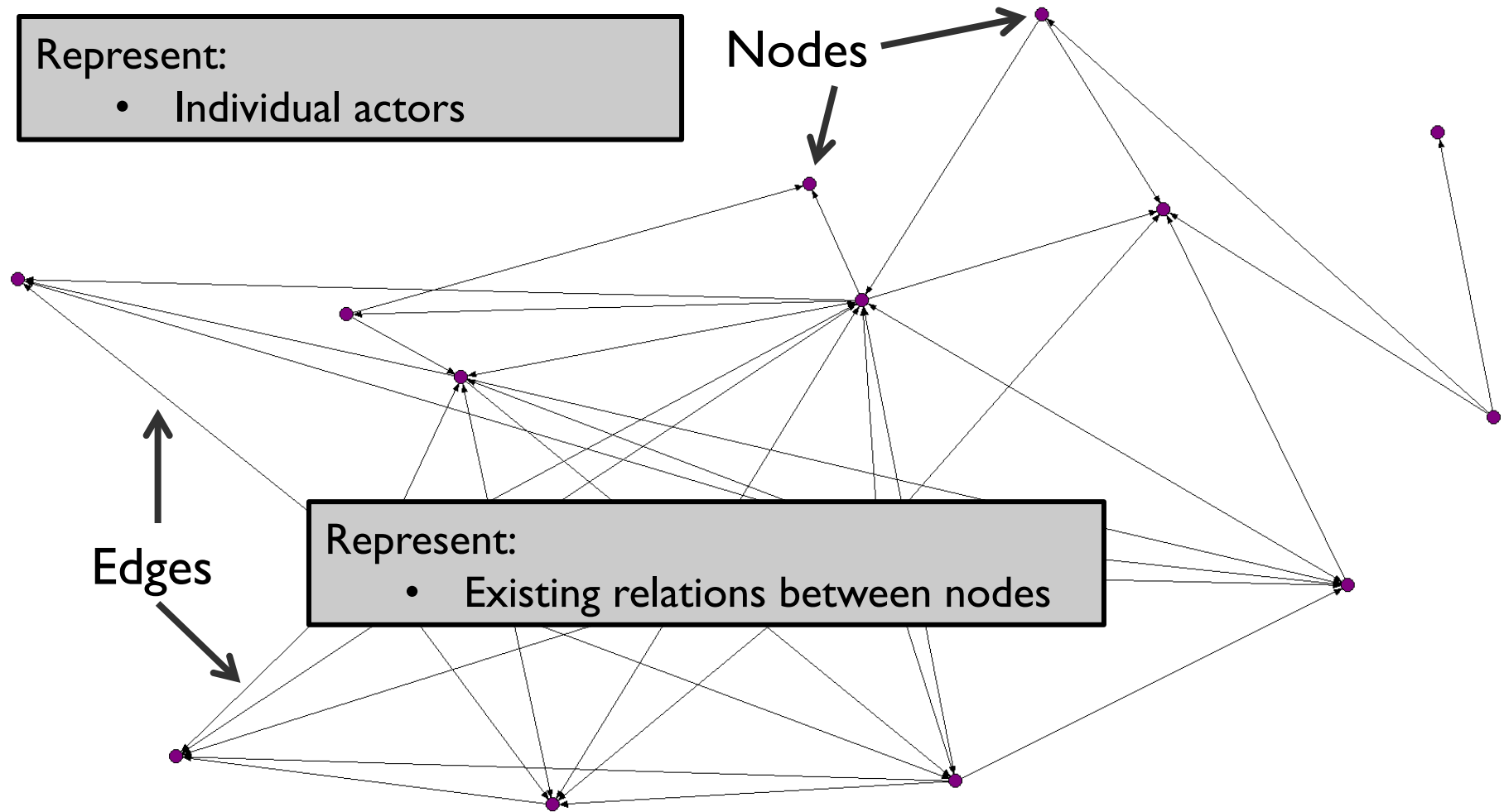
(Borgatti, Everett & Johnson, 2013, p. 1)

Social Network Analysis

"…an actor's position in a network determines in part the **constraints** and **opportunities** that he or she will encounter, and therefore identifying that position is important for predicting actor outcomes such as performance, behavior or beliefs."

(Borgatti, Everett & Johnson, 2013, p. 1)

Social Network Analysis

"…an actor's position in a network determines in part the **constraints** and **opportunities** that he or she will encounter, and therefore identifying that position is important for **predicting actor outcomes** such as performance, behavior or beliefs."

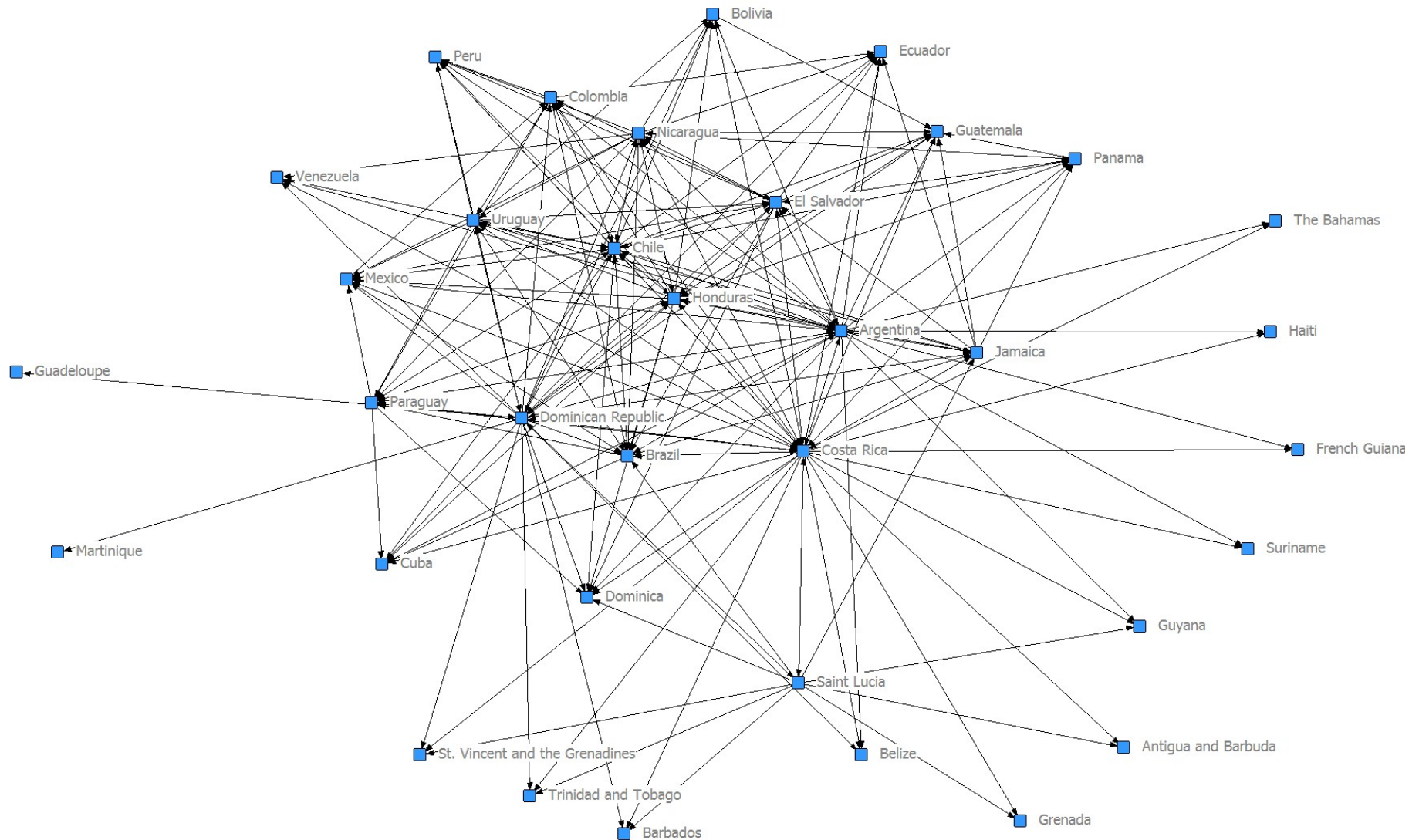(Borgatti, Everett & Johnson, 2013, p. 1)

Nodes and Edges

Represent:
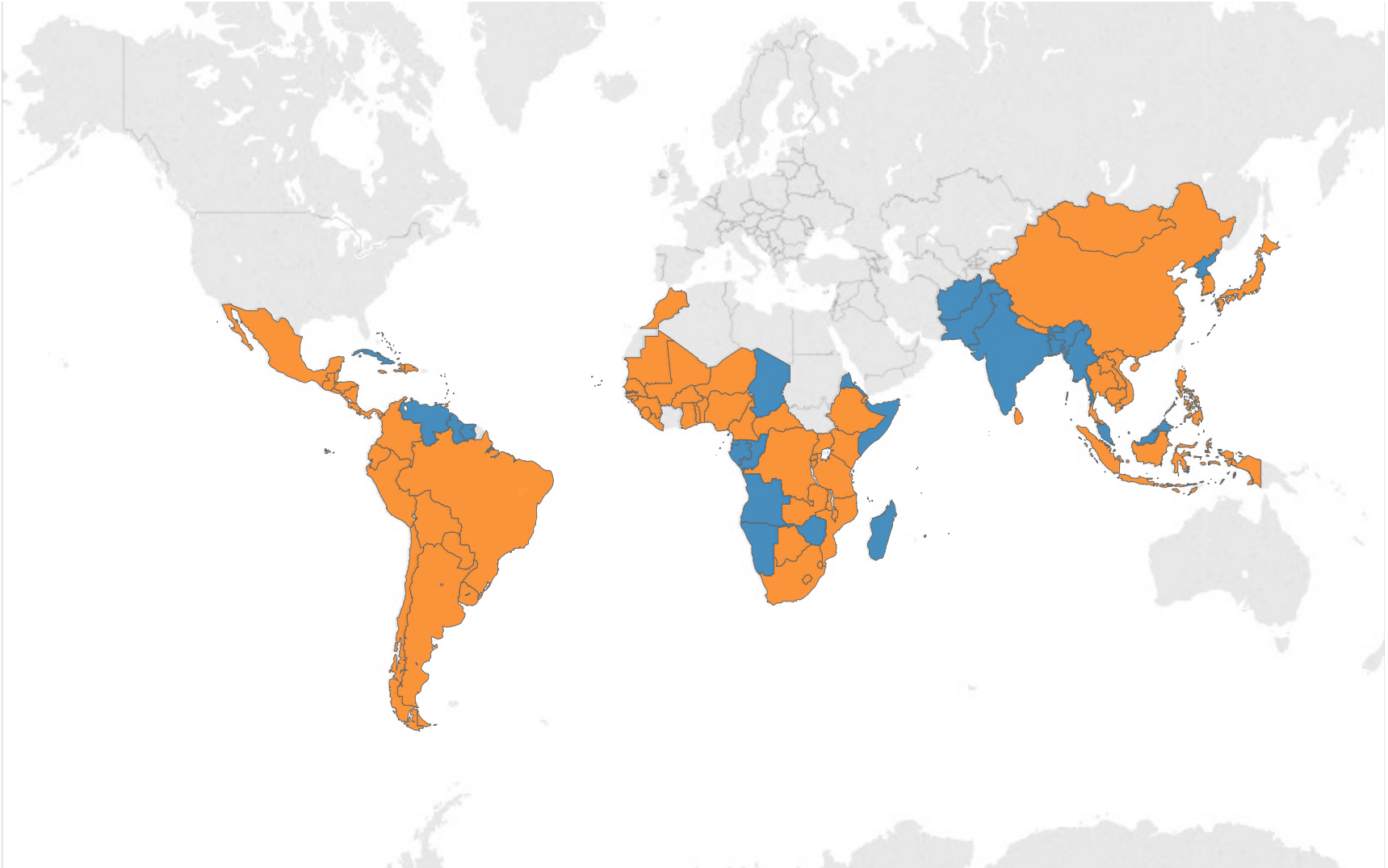- Individual actors

Nodes

Edges

Represent:
- Existing relations between nodes

SNA in Evaluation

1998 SNA first showed up in AEA conference program

2005 New Directions in Evaluation Special Issue

Why SNA in *this* Evaluation

International in Scope

Criteria: Increase cooperation among participants

Criteria: Increase support for US positions

Criteria: Increase cooperation among participants

Criteria: Increase support for US positions

Indicators: Level of communication and number of linkages developed

Criteria: Increase cooperation among participants

Criteria: Increase support for US positions

Indicators: Level of communication and number of linkages developed

Method: Application of Social Network Analysis

Method

Method

Distributed survey through Qualtrics

qualtrics

. Thank you for completing this survey. Your answers will b[...]
Colloquia, bilateral Workshops, and Partnership programs [...]

Gracias por tomarse el tiempo para completar esta encuesta. Nos [...]
actividades de alcance de la Oficina del Codex Americano, incluid[...]
gracias una vez más por su disponibilidad.

Merci beaucoup pour votre disponibilité à remplir ce questionnaire.
sensibilisation du Codex Américain, y compris les Colloques Régio[...]
reconnaissants pour votre contribution. Merci beaucoup.

Q1.3. **Which country do you represent?**

¿Qué país representa usted?

Quel pays représentez-vous?

Africa

○ Benin
○ Botswana
○ Burkina Faso
○ Burundi
○ Cameroon
○ Cape Verde
○ Central African Republic
○ Cote D'Ivoire
○ Democratic Republic of the Congo
○ Djibouti
○ Ethiopia
○ The Gambia

Method

Share information

Method

Share information

Feel comfortable communicating

Method

Share information

Feel comfortable communicating

Seek advice

Method

Share information

Feel comfortable communicating

Seek advice

Work collaboratively on issues

Method

Share information

Feel comfortable communicating

Seek advice

Work collaboratively on issues

Build my country's capacity

Method

Share information

Feel comfortable communicating

Seek advice

Work collaboratively on issues

Build my country's capacity

Strong relationship

Method

Analyzed data using UCINET

Method

Analyzed data using UCINET

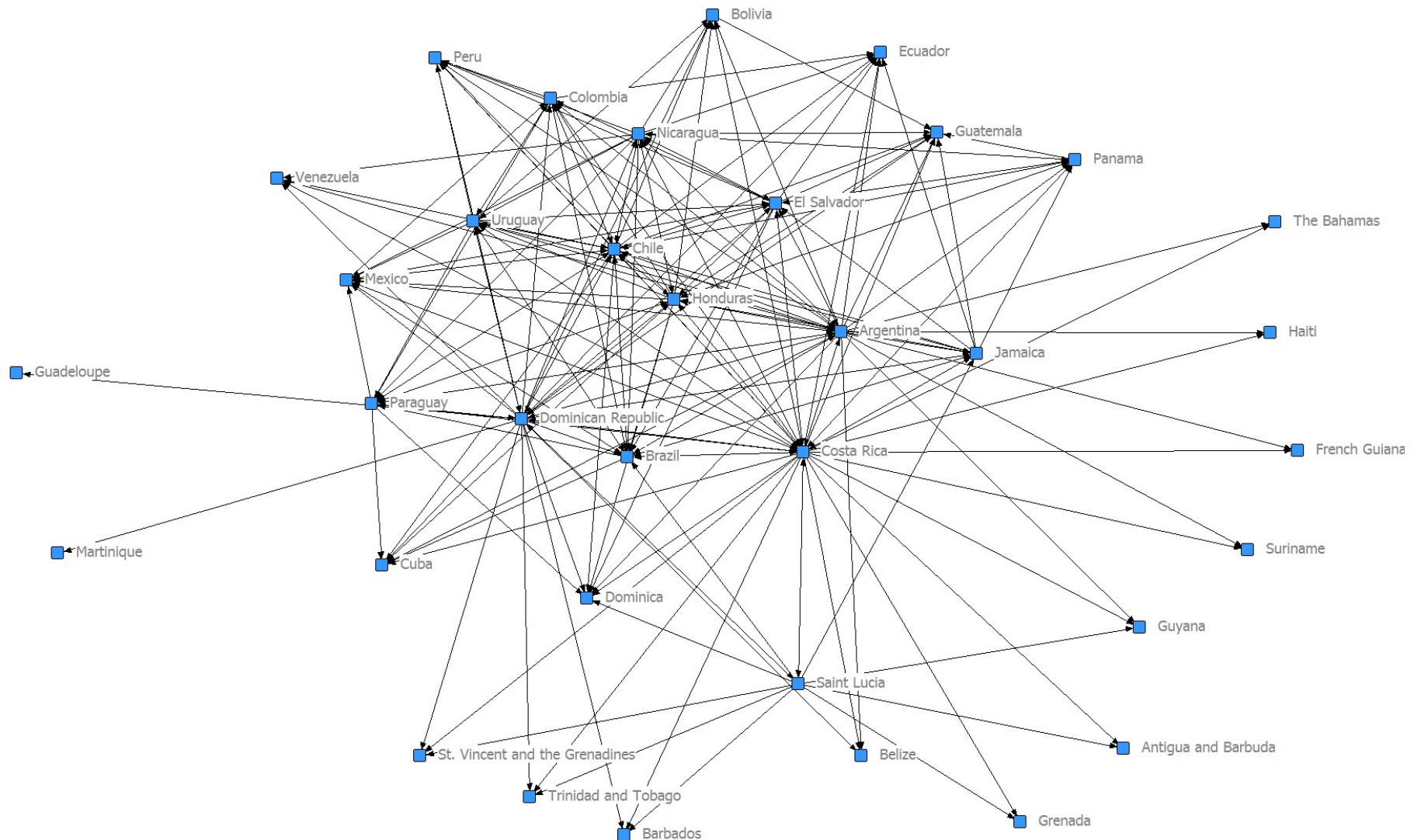Alternative software exists, some of them free:

Challenges

Challenges

355 Incomplete population

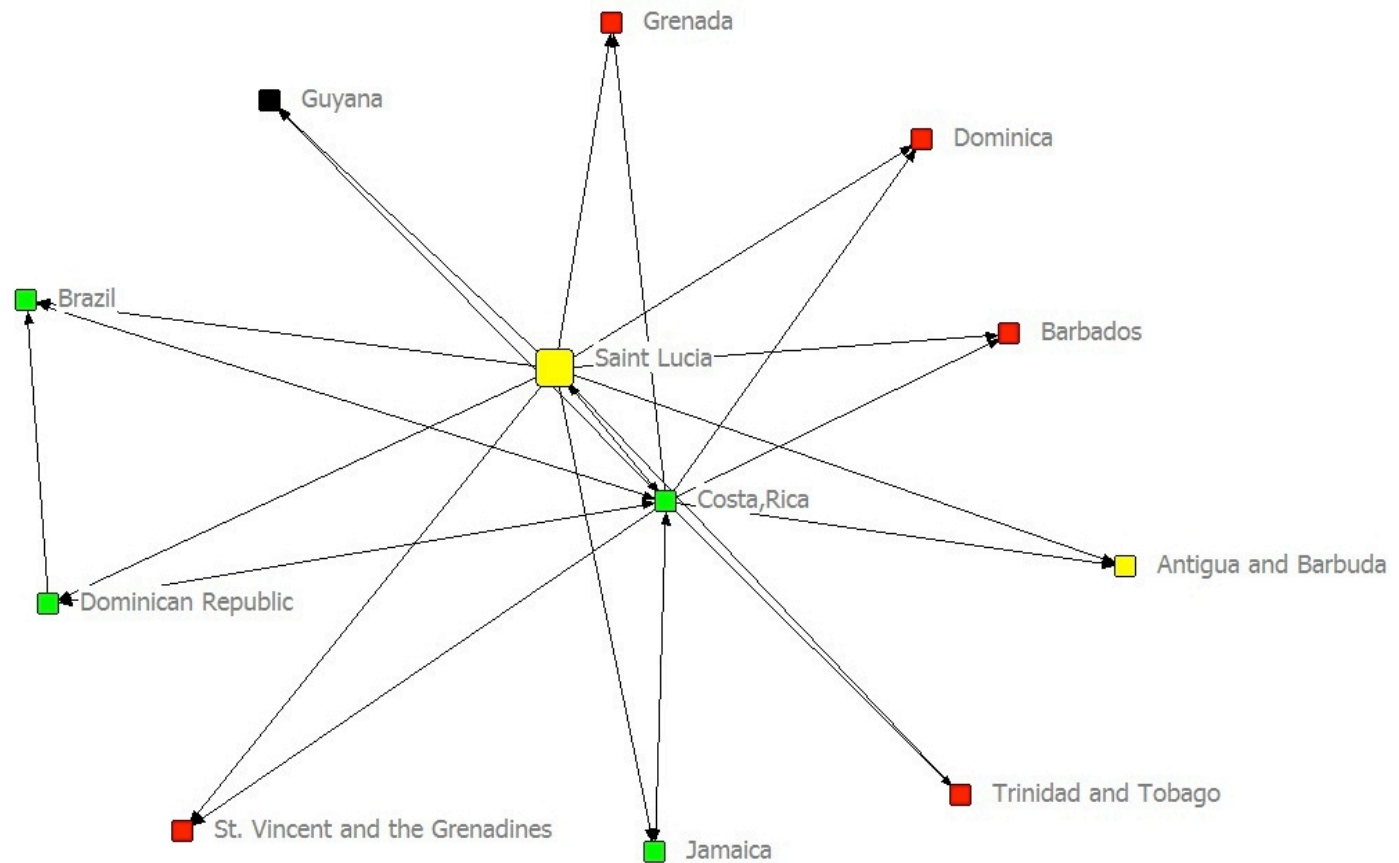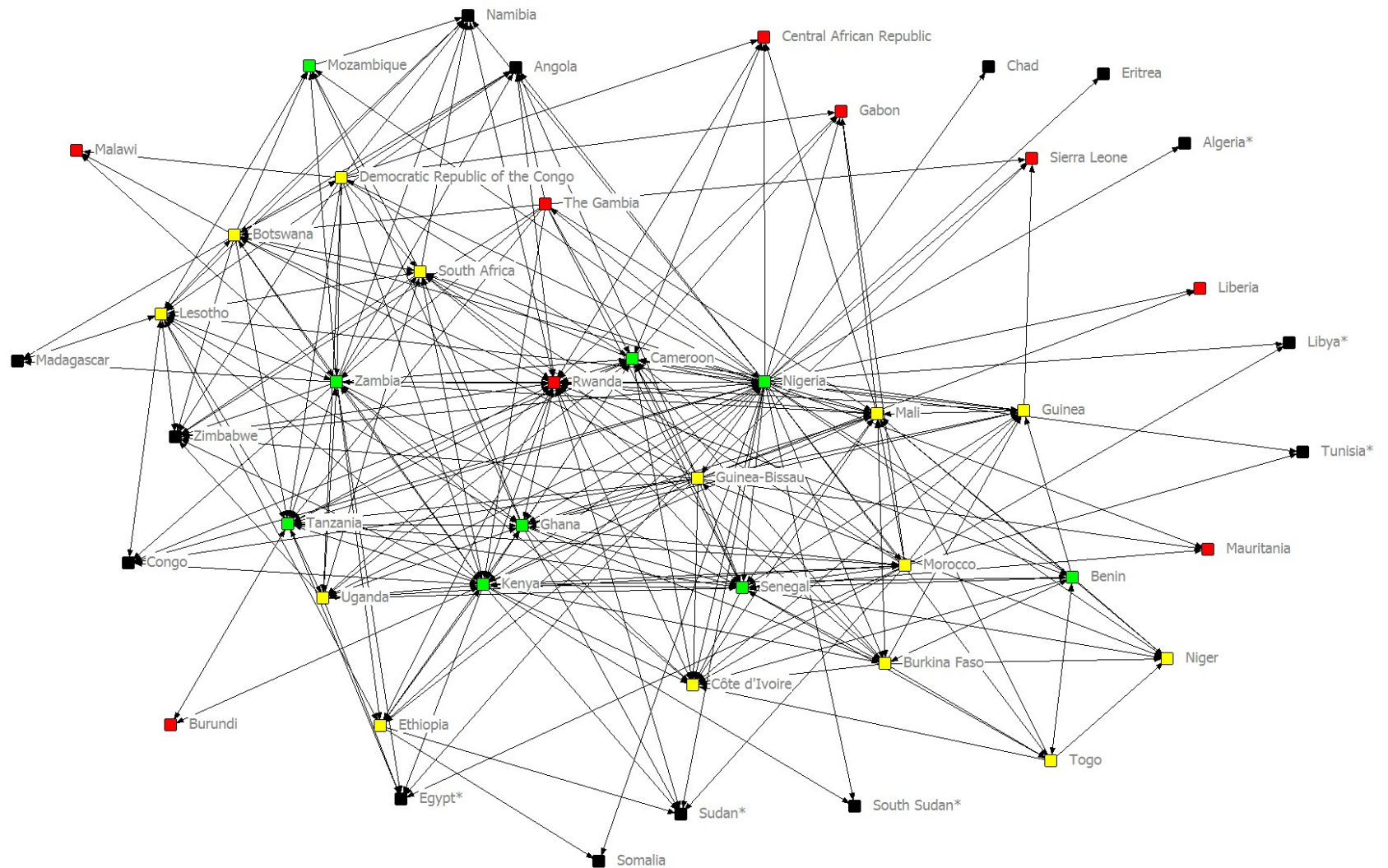**35%** Response Rate
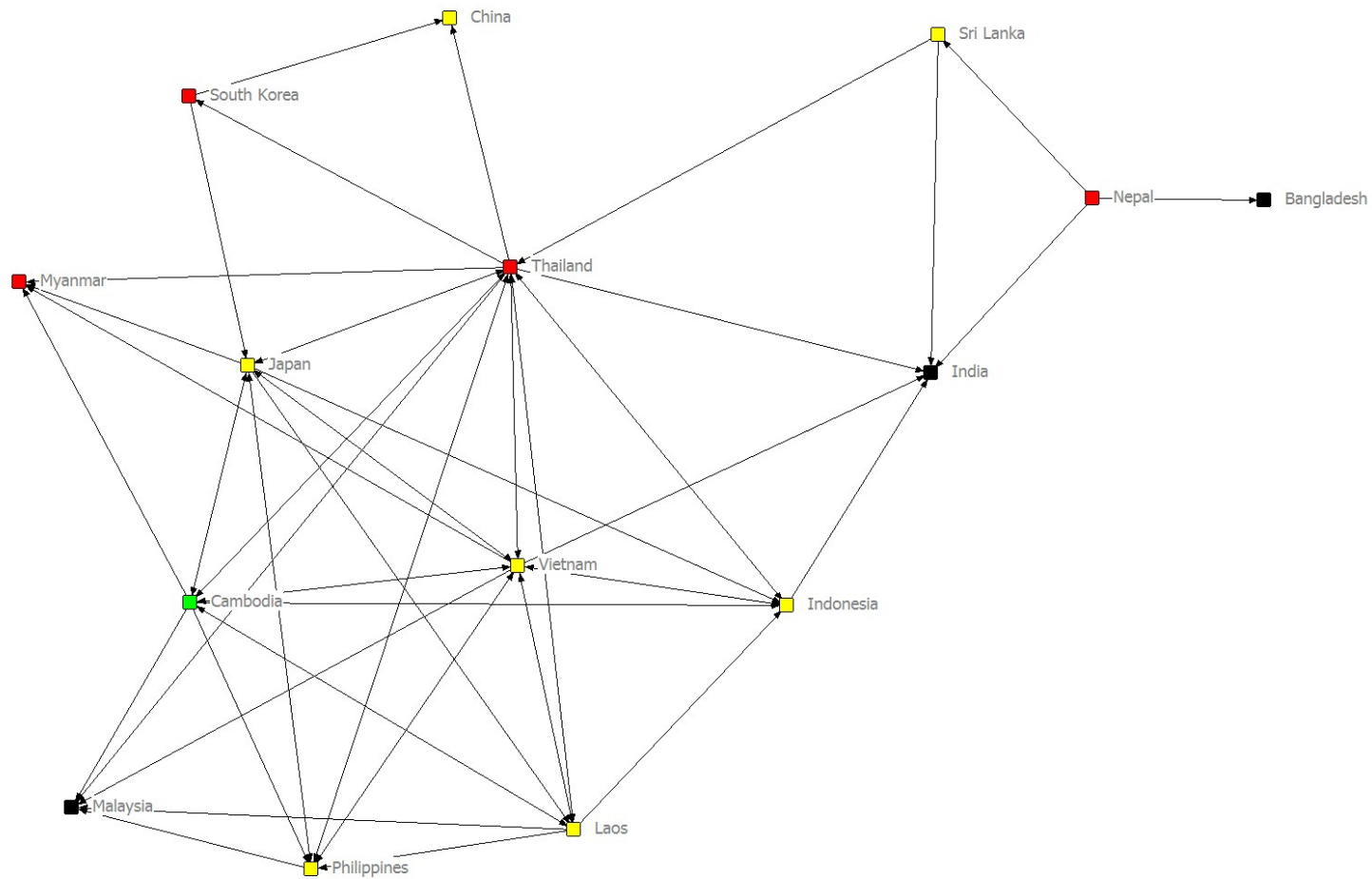
Results

LAC Overall Network

St. Lucia Network

Africa Network

Asia Overall Network

How SNA Helped Us

How SNA Helped Us

- Presented findings during data interpretation workshop

How SNA Helped Us

- Presented findings during data interpretation workshop

- Stakeholders responded immediately to network diagrams

The network diagrams led stakeholders to identify:

Hubs

How SNA Helped Us

The network diagrams led stakeholders to identify:

Hubs

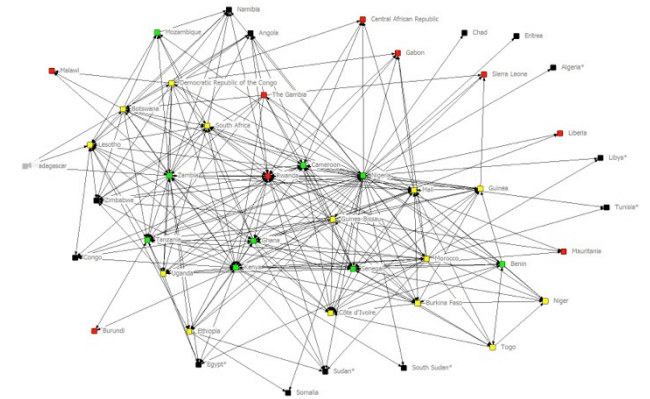

Key players

How SNA Helped Us

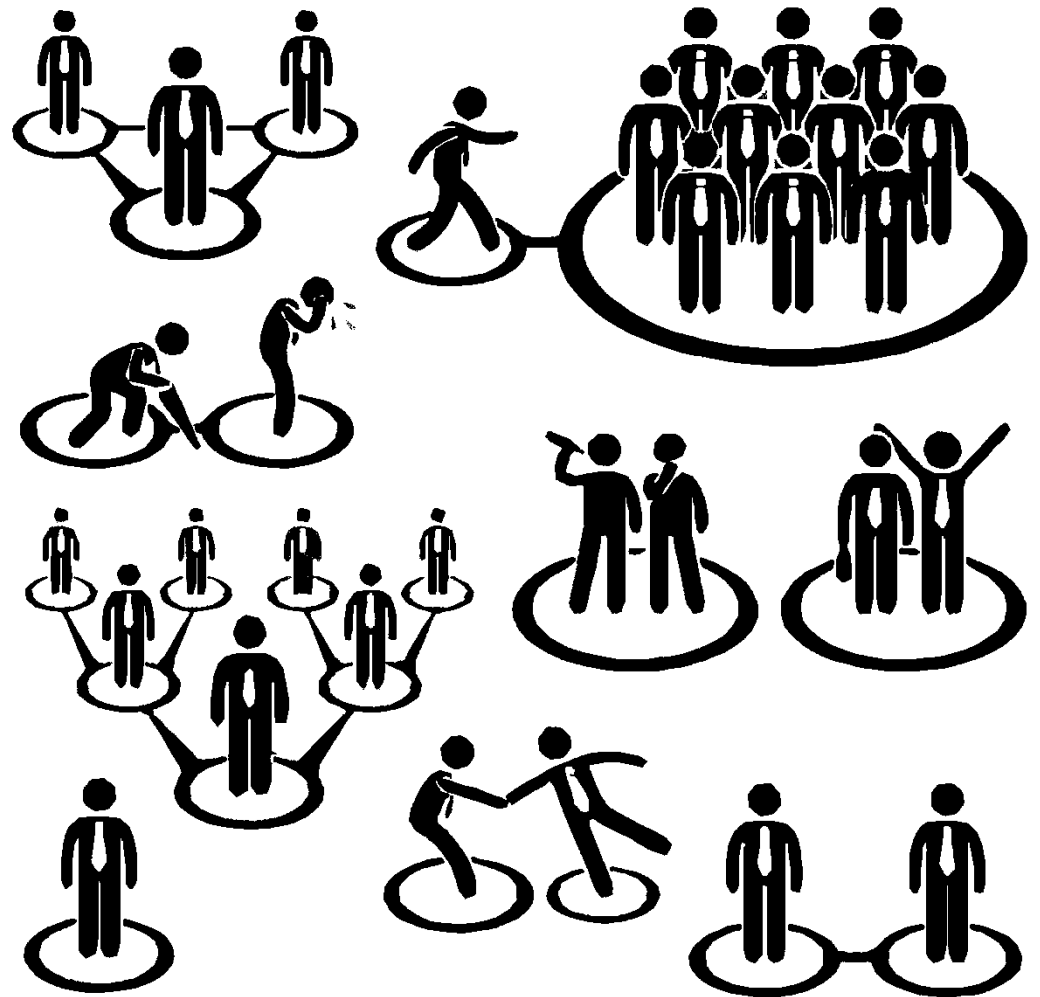The network diagrams led stakeholders to identify:

Hubs

Key players

New networks

Most SNA studies look at person to person networks

Our use of SNA intended to examine relationships between countries

THANK YOU!

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