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Managing Creativity: Oxymoron or Necessity?

Celik, Sine and Van Engelen, Jo and Brezet, Han and Joore, Peter and Wa, Linda

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Managing Creativity: Oxymoron or Necessity?
**An analysis of social networks for
enhancing regional creative output**

15.10.2016
RSD5 Conference
TORONTO

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Delft University of Technology

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NHL University of Applied Sciences

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HAN BREZET

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LINDA WAUBEN

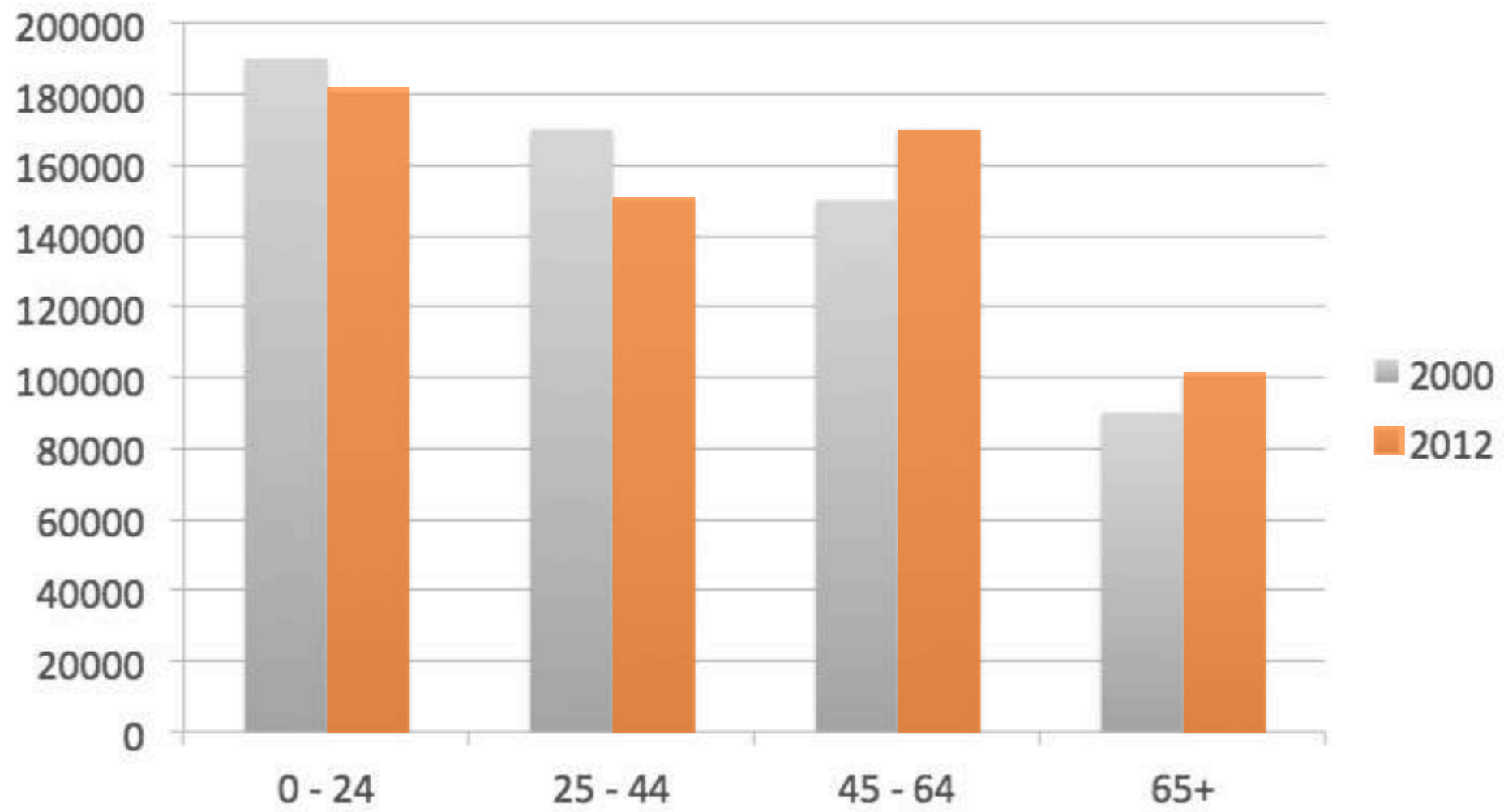




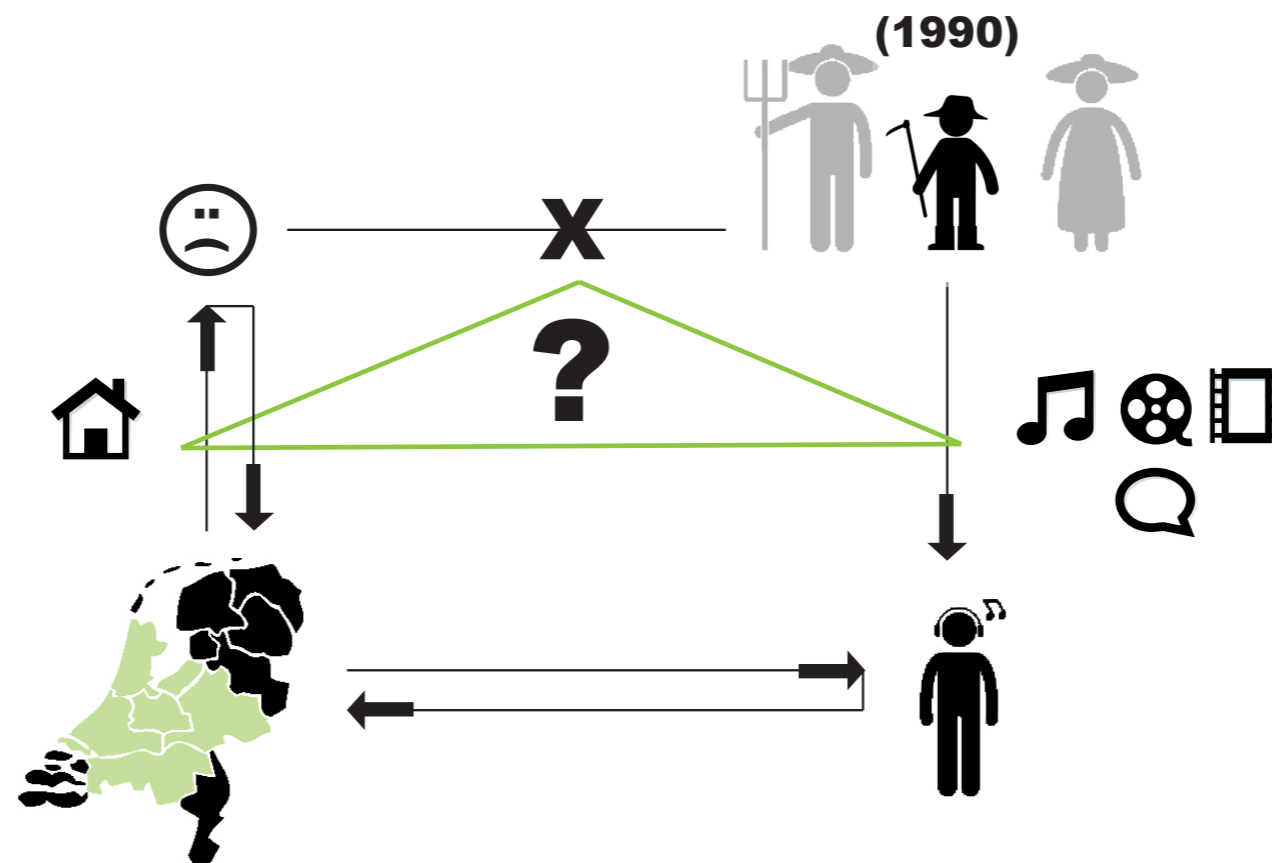
FRYSLAN / FRIESLAND

- originates from Frisian Kingdom
- for centuries long surrounded by enemies: neighbors & nature
- learned to solve their own problems, but kept them to themselves
- became a part of NL in 1813
- population ca. 646.000
- Frisian is the official language (not a dialect of Dutch)
- strong cultural identity
- main sources of income: agriculture & tourism

FRYSLAN / FRIESLAND



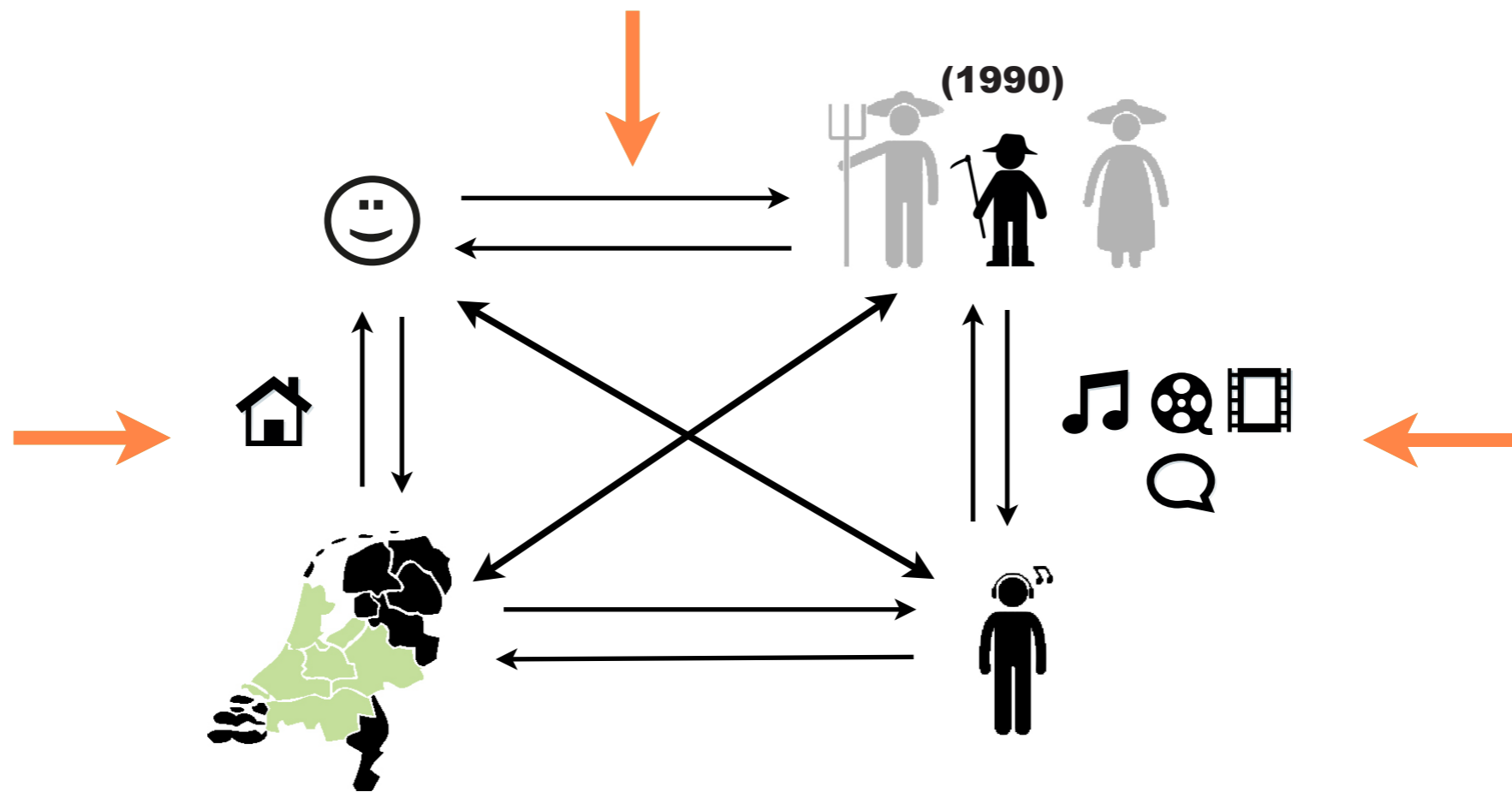
GENERATION Y/Z



A TYPICAL FRISIAN STORY

Complex problem

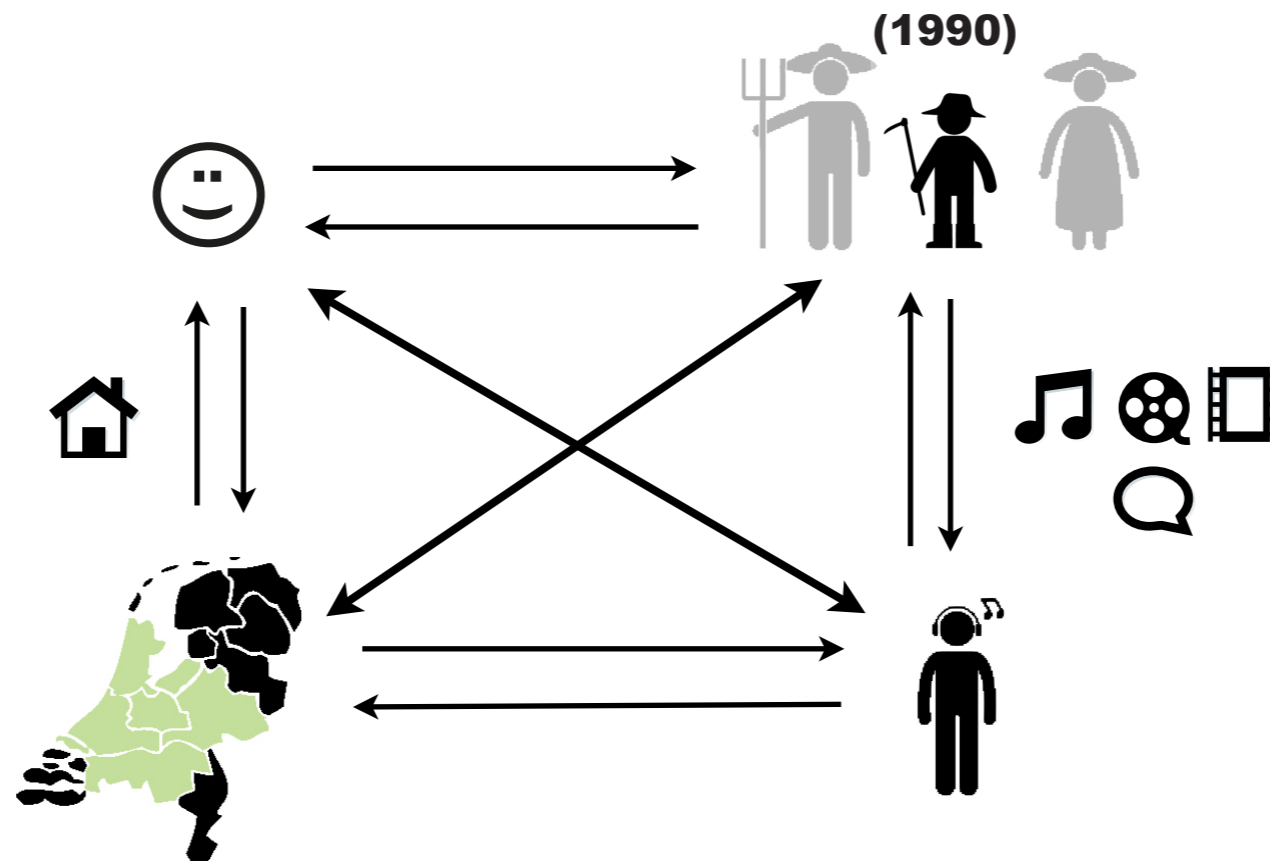
- Many solutions, none can be satisfactory for all actors.
- We approach it from the millennial's perspective.
- This potential has to be facilitated by society.

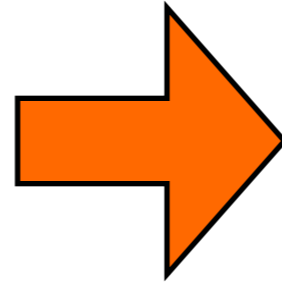


- ‘Something’ must be going on to attract/keep the future generations.



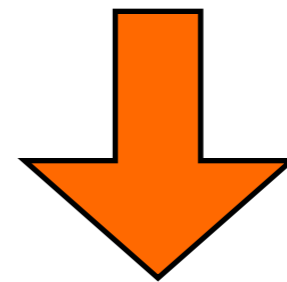
conversation, demoscopio, emergence, poliscopy:
first step towards innovating, self-sustainable communities, resilience.





**CREATIVE
EMERGENCE**

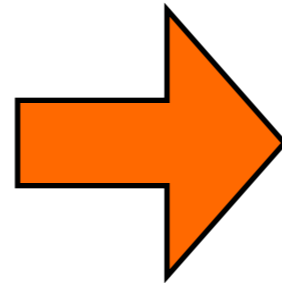
**CREATIVE
EMERGENCE**



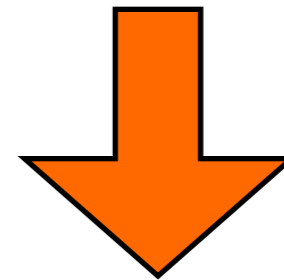
INNOVATION

IT IS THE SOURCE OF INNOVATION

ENCOUNTERS



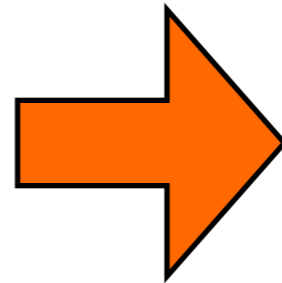
**CREATIVE
EMERGENCE**



INNOVATION

ENCOUNTERS TRIGGER CREATIVE EMERGENCE

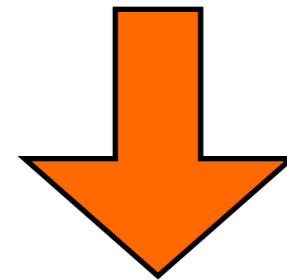
ENCOUNTERS



**CREATIVE
EMERGENCE**



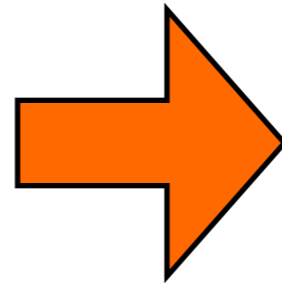
COMMUNITY



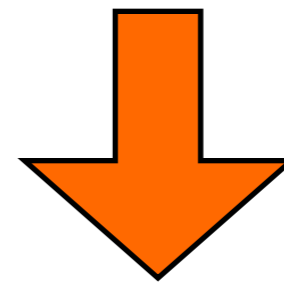
INNOVATION

COMMUNITY ENABLES ENCOUNTERS

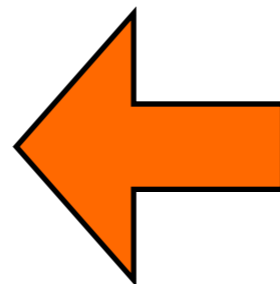
ENCOUNTERS



**CREATIVE
EMERGENCE**



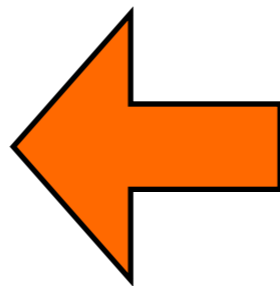
COMMUNITY



INNOVATION

A DEFINITION OF SUSTAINABILITY?

COMMUNITY



ARE FRISIANS SIMPLY LESS CREATIVE

OR

**COULD THIS BE AN ISSUE OF FACILITATING
ENCOUNTERS?**

UNDERSTANDING THE CURRENT SITUATION



ANALYZING ENCOUNTERS



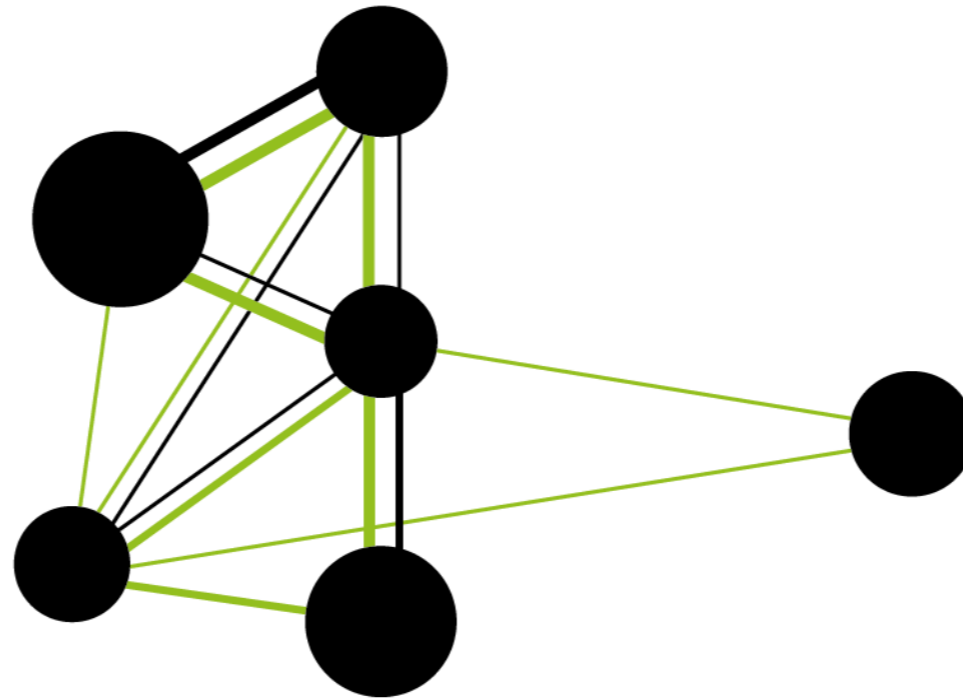
DEFINING WHICH PARTS NEED INVESTMENT



MANIPULATING EXISTING SYSTEM

**WHY A SOCIAL NETWORK ANALYSIS?:
ACKNOWLEDGE THE COMPLEXITY**

SOCIAL NETWORK ANALYSIS FRYSLAN



PRE-STEP: DEFINE RELEVANT RELATIONSHIPS (NETWORKS)

STEP 1: DEFINE NETWORK REPRESENTATIVES (WHO TO INTERVIEW)

STEP 2: CREATE A LIST OF ACTORS (DEFINE ALL NODES)

STEP 3: RUN INTERVIEWS (DEFINE NODE SIZES & LINK INTENSITY)

STEP 4: ANALYSIS OF DATA (NETWORK MEASURES)

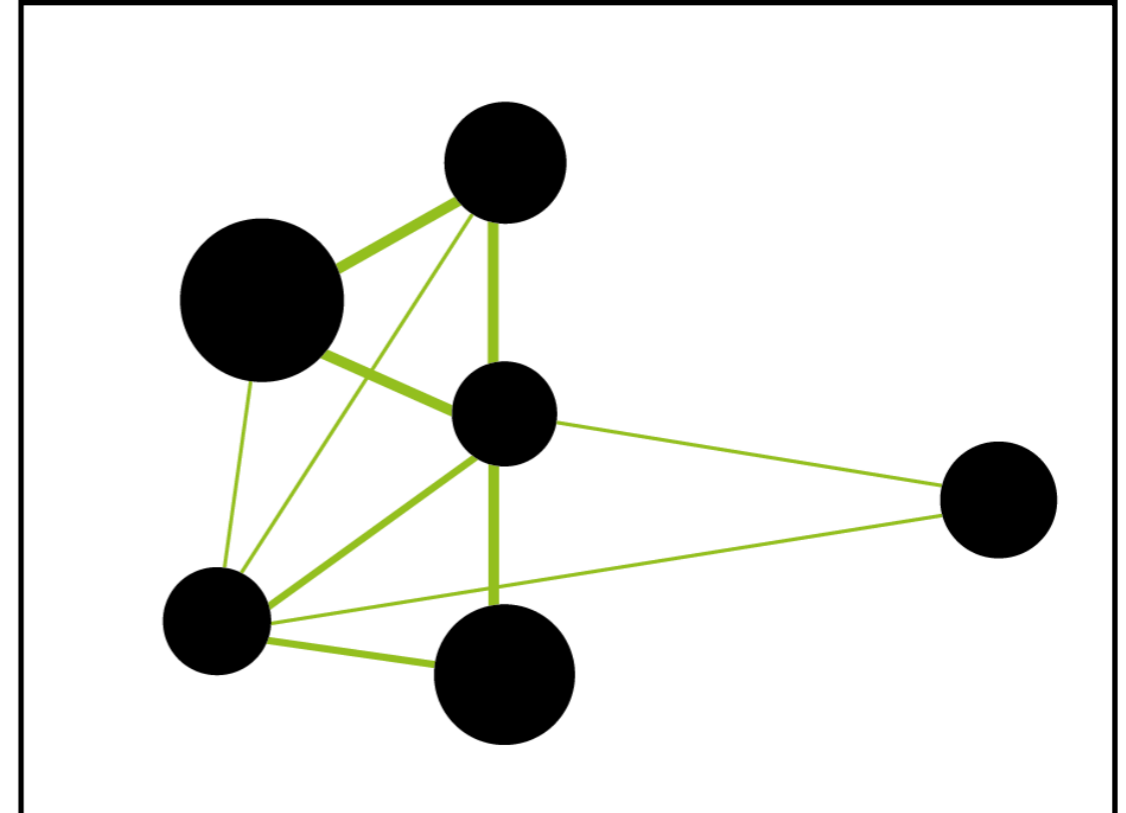
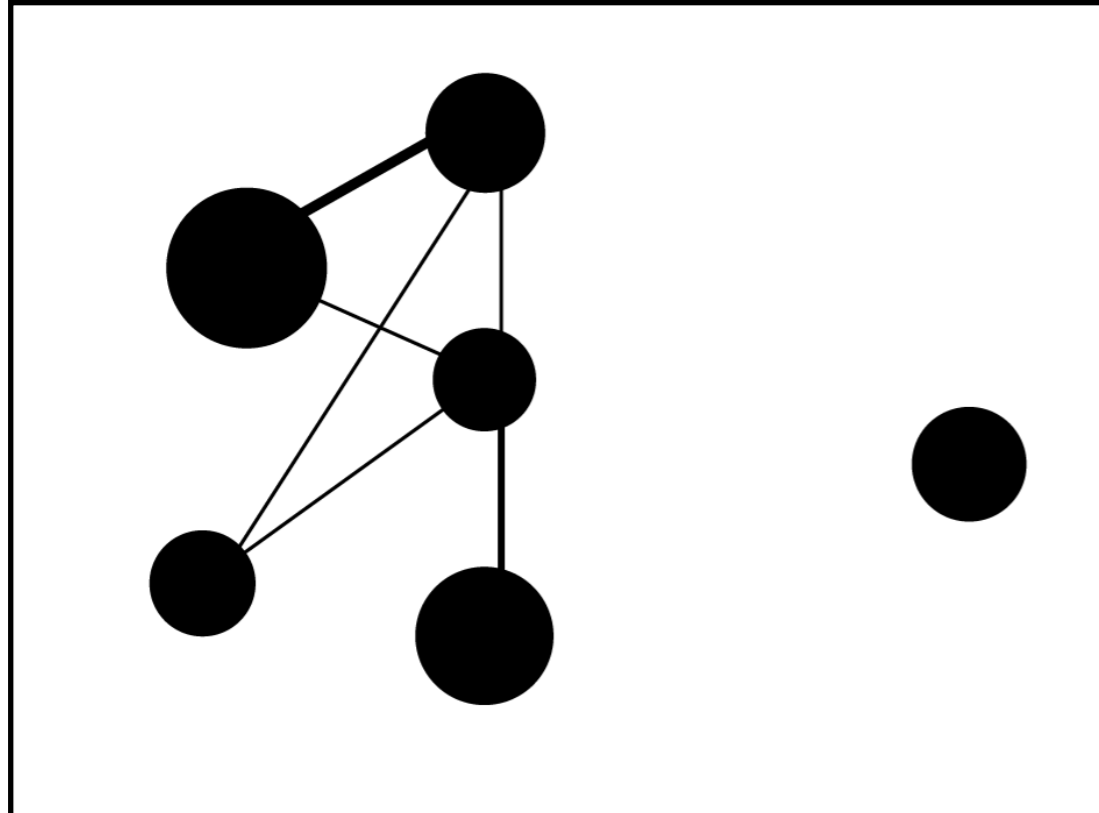
STEP 5: SYNTHESIS OF DATA (TESTING HYPOTHESIS)

PRE-STEP: RELEVANT RELATIONSHIPS

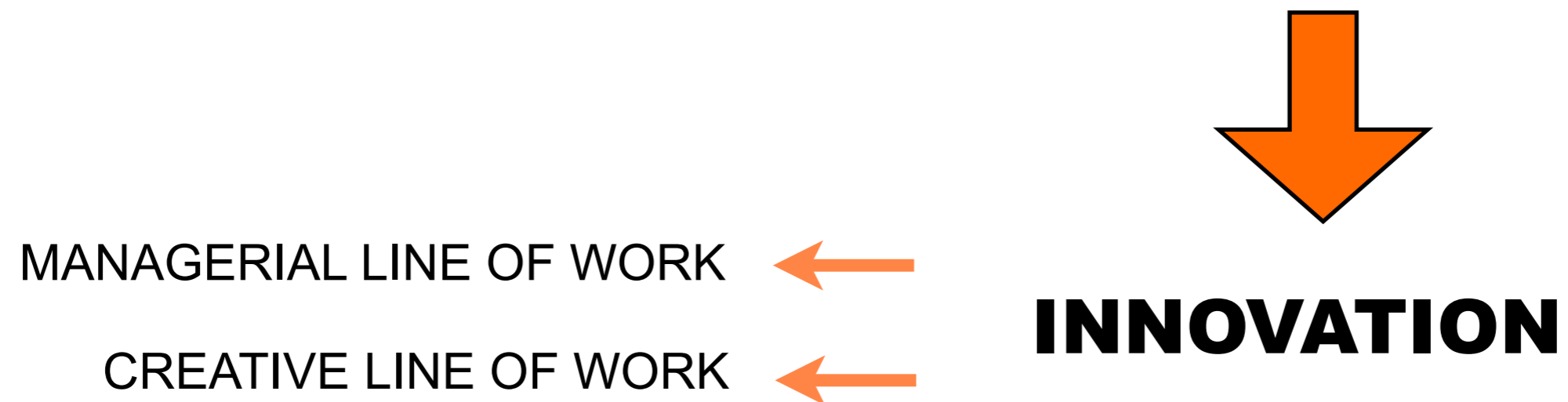
Networks are relationships, not groups of actors.

PRE-STEP: RELEVANT RELATIONSHIPS

Networks are relationships.
Same group of actors can form various networks.

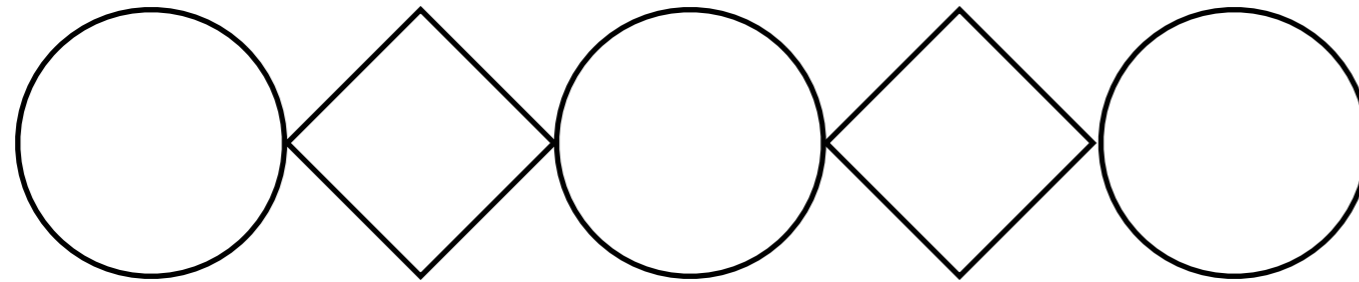


PRE-STEP: RELEVANT RELATIONSHIPS



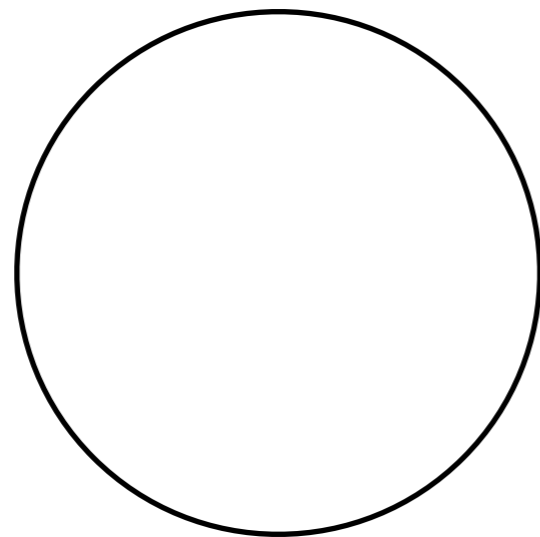
OPERATIONALIZATION OF A NOVEL IDEA

MANAGERIAL LINE OF WORK



LINEAR
OUTPUT ORIENTED
SIMPLIFIED

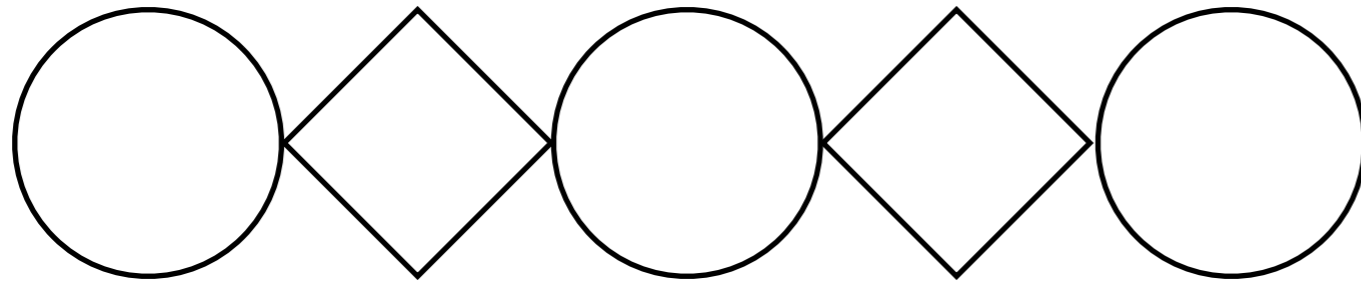
CREATIVE LINE OF WORK



CYCLIC / ITERATIVE
PROCESS ORIENTED
COMPLEX
DISCURSIVE

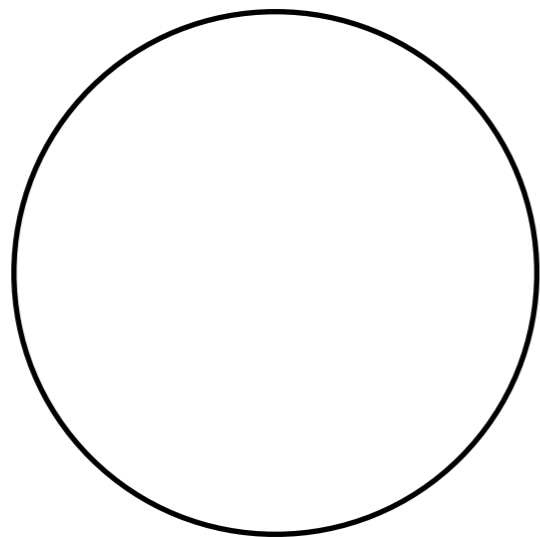
OPERATIONALIZATION OF A NOVEL IDEA

MANAGERIAL LINE OF WORK



LINEAR
OUTPUT ORIENTED
SIMPLIFIED

CREATIVE LINE OF WORK



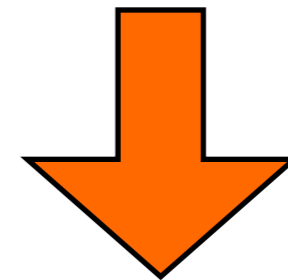
PARADOXICAL
RELATIONSHIP

CYCLIC / ITERATIVE
PROCESS ORIENTED
COMPLEX
DISCURSIVE

OPERATIONALIZATION OF A NOVEL IDEA

PRE-STEP: RELEVANT RELATIONSHIPS

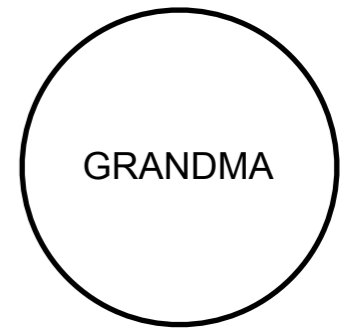
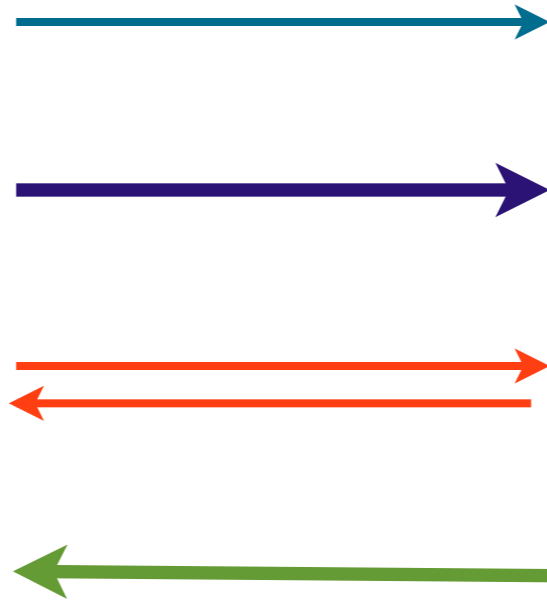
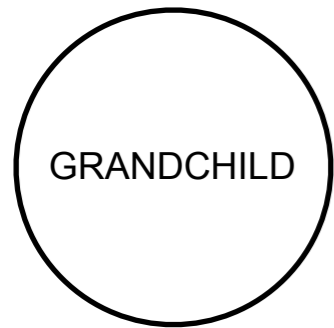
- MANAGERIAL RELATIONSHIPS ←
- CREATIVE RELATIONSHIPS ←
- POLITICAL RELATIONSHIPS ←
- FRIENDLY RELATIONSHIPS ←



INNOVATION

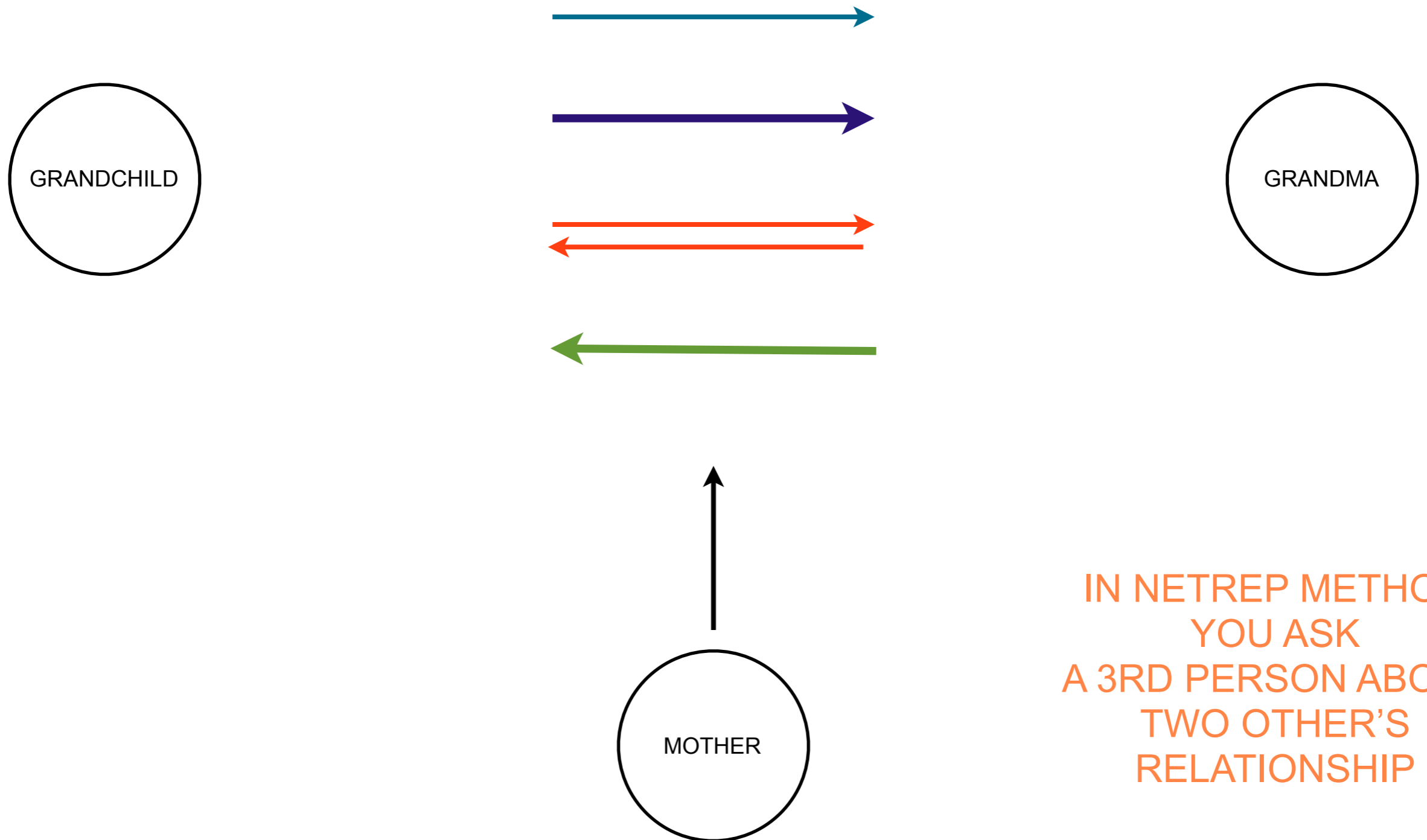
4 DIFFERENT NETWORKS TO BE ANALYZED

STEP 1: DEFINE NETWORK REPRESENTATIVES



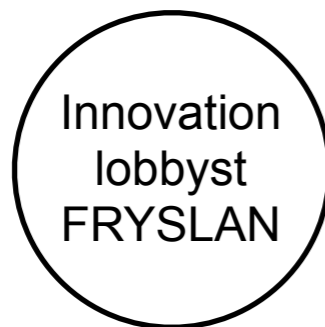
IN A REGULAR SNA
YOU ASK
PEOPLE ABOUT THEIR
OWN RELATIONSHIPS

STEP 1: DEFINE NETWORK REPRESENTATIVES

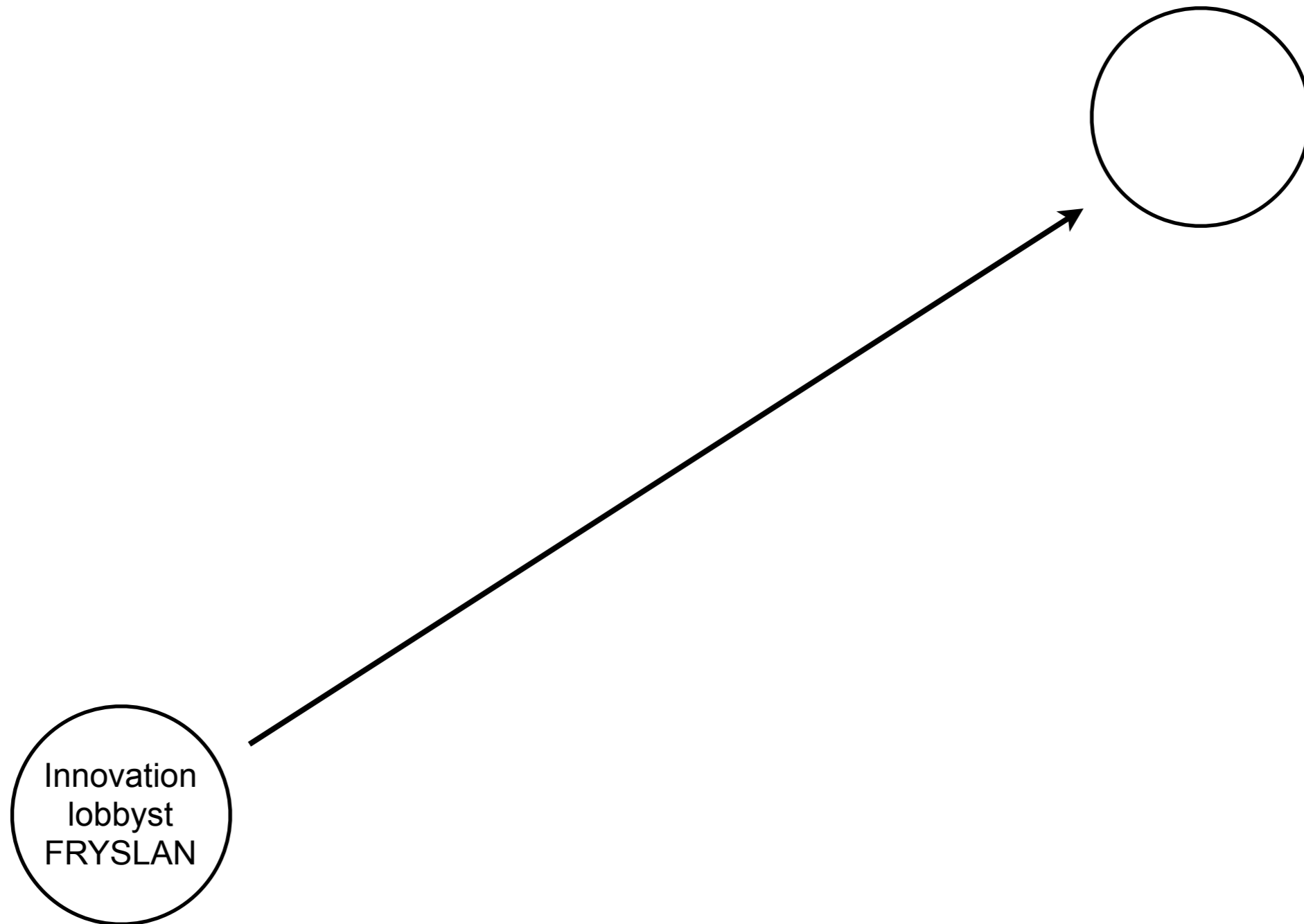


IN NETREP METHOD
YOU ASK
A 3RD PERSON ABOUT
TWO OTHER'S
RELATIONSHIP

STEP 1: DEFINE NETWORK REPRESENTATIVES



STEP 1: DEFINE NETWORK REPRESENTATIVES



STEP 2: CREATE A LIST OF ACTORS

	A	B	C	D	E	F	G	H	I	J
1	Academia	Organisation	Government	Organisation2	NGO's	Organisation3	Creative SME's / Individuals	Organisation4	Corporates	Organisation5
2	Albert Kooij	Stenden	Albert de Hoop	Burgemeester Ameland	Alex Bomena	Elkien	Bernard Maarsingh	Maarsingh & van Steijn	Akke Groenewoud	VNO NCW
3	Albert van der Kooij	Academie voor popcultuur	Albert Ruiter	Province Fryslan	Anna van Nune	Innofest	Bernou Osinga	WTTV	Alfred Weelink	VNO NCW Noord
4	Anneke Holwerda	Friesland College	Anna Rijstma	Gov / funding	Anne Strobos	YesDelft	Bianca Pander	BKB	Anja Katers	Donkergroen
5	Asli Boru	NHL	Anoesjka Duinstra	Province Fryslan	Arjen Berkhuisen	Waddenvereniging	Chris van de Voorn	TRES	Anke Huizenga	Zuidoostzorg
6	Bert Vroon	CHN	Bouwe de Boer	Gemeente Lwd	Arthur Oostvogel	Harmonie	Claudy Jongstra	Studio Claudy Jongstra	Anne Jan Zwart	Ecostyle
7	Cees Buisman	Wetsus	Brigitte Veenstra	Province Fryslan	Bart Volkers	Wateralliance	Daan de Beer	DBZ	Biense Dijkstra	Dijkstra / Draisma
8	Chris Ryan	VEIL Ecolab	Edith Nobel	Province Fryslan	Berry Roelots	BUCK Consultants	Daan Levy	Artist	Bodewes	Bodewes Scheepsverwen
9	Desiree Vermeulen	VHL	Eise van der Sluis	SNN	Bert Looper	Tresoar	Eileen Blackmore	House of Design	Bram Nanta	Nanta Plus
10	Diane Keizer	VHL	Eric Vos	Province Fryslan	Bertel Linens	KH2018	Ferry Rooseboom	ITGWO	Cor Visser	Phillips Drachten
11	Egon van der Veer	NHL	Ferd Crone	Burgemeester Fryslan	Board - funding	Interreg	Foppe van der Veen	MasOutreach	Dina Boonstra	NOC media
12	Eric Voigt	NHL	Floor de Jong	Gem. Groningen	Daan Bultje	HANN	Frank Booij	TRES	Douwe Faber	Ekwadraat
13	Ernst Jan Voerman	NHL	Gerard Kremers	?	Femke De Jong	TUMBA	Frans Hamstra	Boston groep	Eddie Meijer	FB oranjewand
14	Evelien van Rij	NHL	Harmen De Haas	Director gem. Leeuw.	Frank Visser	Immovator	Frans Nauta	adviseur	Edwin van den Berg	van Wijnen
15	Frank Gort	NHL	Hayo Apotheker	Gem. SudwestFryslan	Frans Nouta	Climate KIC	Hessel Bouma	Limis	Folkert Linnenas	Dijkstra / Draisma
16	Frans Kuipers	(NHL)	Hein de Haan	gem. Lwd	Gerard Kremers	SME - Noord	Janco Heida	Streekboer	Folkert van der Menlen	NPAL
17	Frans Swarts	UCF	Henk Brink	Drenthe	Hans van der Werf	Milieufederatie	Jetze Botma	Tispa Med	Hans Jorritsma	Jorritsma Bouw
18	Gerard Adema	CEW	Henk Deinum	Wethouder Lwd	Hein Molenburg	Wateralliance	Joop Mulder	Oerol	Harm Beerda	Oosterhof Holman
19	Gertjan de Werk	TU Delft	Isabelle Diks	Wethouder Lwd	Ingrid van de Vegte	Partoer	Klaas Sietse Spoelstra	Kening van de Gr.	Harry Wester	Westcord
20	Goffe Jensma	RUG	Jannewietske de Vries	PvdA	Ingrid Zeegers	Circulair Fryslan	Lenard Wolters	Royal Jongbloed	Hylke v.d. Veen	AD vakwerk
21	Govert Buijs	RUG lobbyist	Jocco Eijssen	Gem. Leeuw.	Jaap Koen	St. Dorpswurk	Marijke Roskam	BNR	Jack Thiades	Antonius
22	Han Brezet	TU Delft	John Jorritsma	CdK Frylan	Jan Pier Brands	Neushoorn	Mark Hospers	explore the North	Jan de Vries	FB oranjewand
23	Hanno Brand	Fryske Akademy	Joost van Keulen	Groningen	Jeroen de Boer	Frysklab / Library	Mark Vletter	Voyz	Jan Hoffer	Consultant
24	Hans Drijfhout	NHL	Maaïke Zwart	prov. Fryslan	Jitze Rijn Bok	UWV	Marnix Hoekstra	Vripack	Jan Ploeg	Mconsult
25	Hans-Paul van der Snee	NHL	Margreeth de Boer	ex-burgemeester	Kees van Anken	MEE Fryslan	Martijn Aslander	Resourcer	Jan Post	Phillips
26	Hylke van Dijk	NHL	Monique Arnolds	nterie of infrastructure & e	Kris Callans	Fries Museum	Matthijn Numan	Design Thinkers	Jarig Langhout	Friesland Campina
27	Jakob Fokkema	TU Delft / Fryske Akademy	Nienk Hoepman	provincje Fryslan	Marian Minnesma	Urgenda	Maurice Tax	Brightspark	Johan Wagenaar	Board of Hospitals
28	Jan van Iersel	NHL	Oeds Bijlsma	Prov. Fryslan	Oeds Westerhof	KH2018	Nynke Rixt-Jukema	NRJ Architects	John Vernooij	Omrin
29	Janke van Dijk	Waddenacademie	Patrick Brouns	Groningen	Sjart Smit	Ianfantaal	Pepik Henneman	Men.de Leeuw	Joost Krebbex	nnovatie Cluster Drachten
30	Janneke Steplstra	NHL	Paul Smit	SER- NN	Valentijn Fit	Tryater	Peter Everts	TOPCINN	Jorrit Volkers	Deloitte
31	Jasper Postma	NHL	Peter Luimstra	Gemeente Lwd	Wiebe Wieling	11 steden / KH2018	Robert van de Leur	Founders carbon Network	Jos Paques	Paques BV
32	Jelle Dijkstra	NHL	Piet Buijman	Politician	Yoram Krozer	Cartesius Institute	Rutger van Zuidam	Senanga	Kees Donkervoort	MCL
33	Jeroen van den Berg	Entrance / Hanze	Pieter Faber	NG4	Youri Albrecht	De Balie	Sjoerd Bootsma	Festivals	Koen Oldenburger	Rabobank

“IF WE ARE TALKING ABOUT ALL ASPECTS OF INNOVATION (DESIGN, MANAGEMENT, RESEARCH, FUNDING) WHO IN THE PROVINCE COULD BE INFLUENTIAL?”

~ 250 NODES

FROM 5 DIFFERENT GROUPS:

ACADEMIA

GOVERNMENT

NGO

SME

CORPORATES

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13	Ernst Jan Voerman	NHL	Gerard Kremers	?	Femke De Jong	TUMBA	Frans Hamstra	Boston groep	Eddie Meijer	FB oranjewand
14	Evelien van Rij	NHL	Harmen De Haas	Director gem. Leeuw.	Frank Visser	Immovator	Frans Nauta	adviseur	Edwin van den Berg	van Wijnen
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~ 250 NODES

FROM 5 DIFFERENT GROUPS:

- ACADEMIA
- GOVERNMENT
- NGO
- SME
- CORPORATES

BOSS OF PHILLIPS

THE MAYOR

THE STUDENT I SHARE MY DESK WITH

STEP 3: RUN INTERVIEWS

- 2 QUESTIONS PER NETWORK, 8 QUESTIONS IN TOTAL

PART 1 OF THE QUESTION:

- THEY NEED TO CREATE TOP 10 LISTS FOR EACH QUESTION
- 8X10 NAMES PER INTERVIEW

PART 2 OF THE QUESTION:

- THEY HAVE TO ASSESS THE RELATIONSHIP BETWEEN THE NAMES THEY GIVE

STEP 3: RUN INTERVIEWS

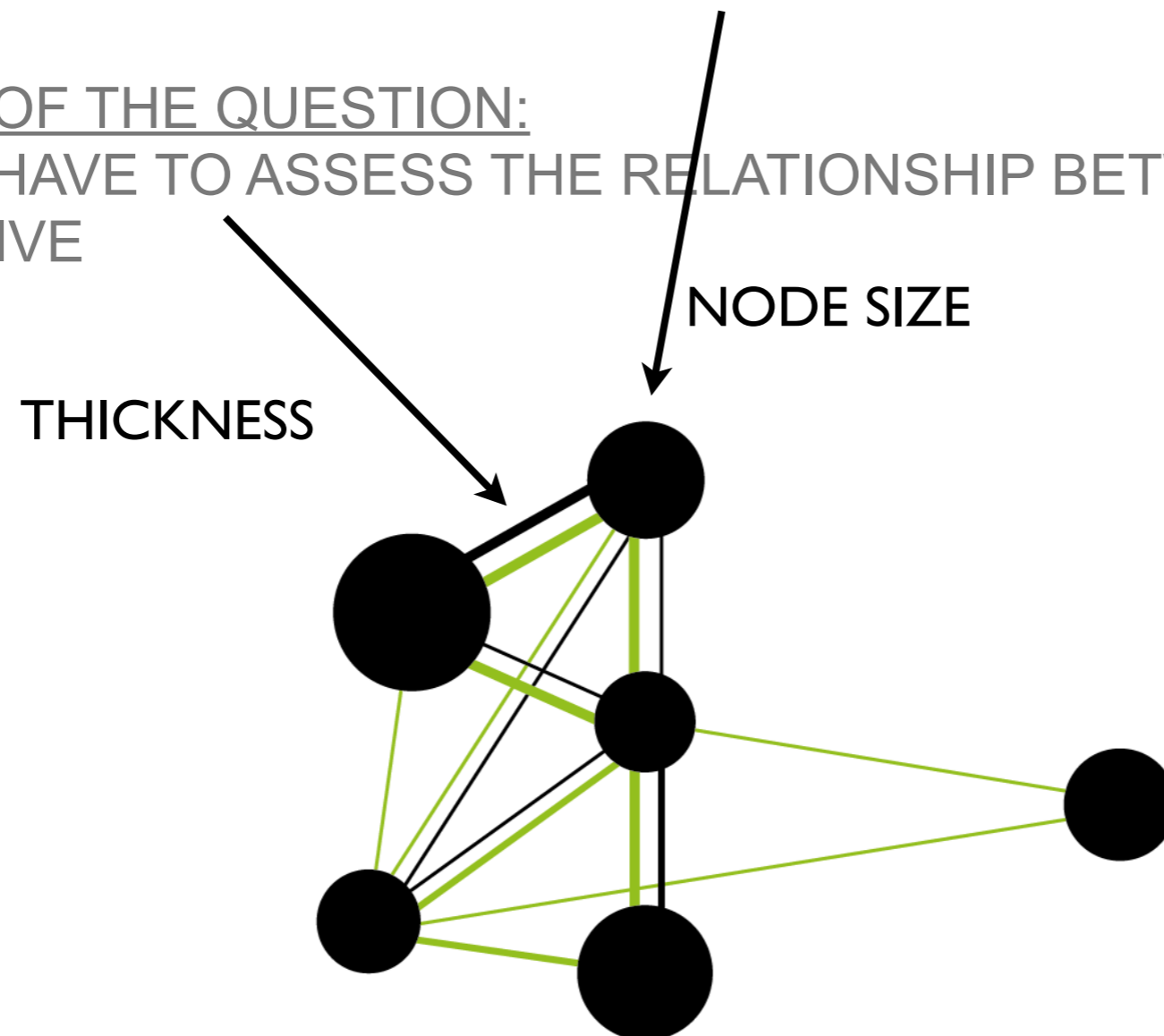
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PART 2 OF THE QUESTION:

- THEY HAVE TO ASSESS THE RELATIONSHIP BETWEEN THE NAMES THEY GIVE



STEP 3: RUN INTERVIEWS

Question 2

P1: Please make a top 10 list from the names on the Excel sheet, of people who are known to be the **best solvers of managerial problems**.

P2: Please rank the **managerial communication** between the people you have listed by using the matrix below.

solving managerial problems										
	'EIXE	'HENK	'JUAN	'BLANCA	'FLOOR	'PIETER	'GOWEN	'JOERD	'Joost'	HP
1 Eise		1	3		2	6	2		3	
2 Henk	1				4	2		3	1	
3 Simon	4					5		2		2
4 Bianca			2					1		
5 Floor	3	3				1	1		2	
6 Pieter	2		4		2				4	
7 Gowen	5					4				
8 Joerd			1	1						1
9 Joost	6	2		2	1	3	3			
10 HP			5					4		

STEP 3: RUN INTERVIEWS

MANAGERIAL: funding, deadlines, outputs, reporting

- TO BE INVOLVED IN A START-UP
- SOLVING MANAGEMENT PROBLEMS

CREATIVE: new ideas, design, science, research

- TO BE INVITED TO A BRAINSTORMING SESSION
- SOLVING CREATIVE BLOCKAGES

POLITICAL: lobbying, policy-making, governance, liasion

- BEST LOBBYERS
- SOLVING POLICY-RELATED ISSUES

FRIENDSHIP: family, colleagues, love, acquaintance

- MOST TRUSTED
- MOST POPULAR

STEP 3: RUN INTERVIEWS

MANAGERIAL: funding, deadlines, outputs, reporting

- TO BE INVOLVED IN A START-UP
- SOLVING MANAGEMENT PROBLEMS

CREATIVE: new ideas, design, science, research

- TO BE INVITED TO A BRAINSTORMING SESSION
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- BEST LOBBYERS
- SOLVING POLICY-RELATED ISSUES

FRIENDSHIP: family, colleagues, love, acquaintance

- MOST TRUSTED
- MOST POPULAR

ITERATION: NEGATIVE ISSUES

- **NOT LIKED**
- **MOST ALIENATING**



POLARITY?

STEP 3: RUN INTERVIEWS

Question 2

P1: Please make a top 10 list from the names on the Excel sheet, of people who are known to be the best solvers of managerial problems.

P2: Please rank the managerial communication between the people you have listed by using the matrix below.

solving managerial problems										
	'EIXE	'HENK	'JUAN	'BLANCA	'FLOOR	'PIETER	'GOWEN	'JOERD	'Joost'	HP
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4 Bianca			2					1		
5 Floor	3	3				1	1		2	
6 Pieter	2		4		2				4	
7 Gouwen	5					4				
8 Joerd			1	1						1
9 Joost	6	2		2	1	3	3			
10 HP			5					4		

100 RELATIONSHIPS TO BE
ASSESSED PER QUESTION

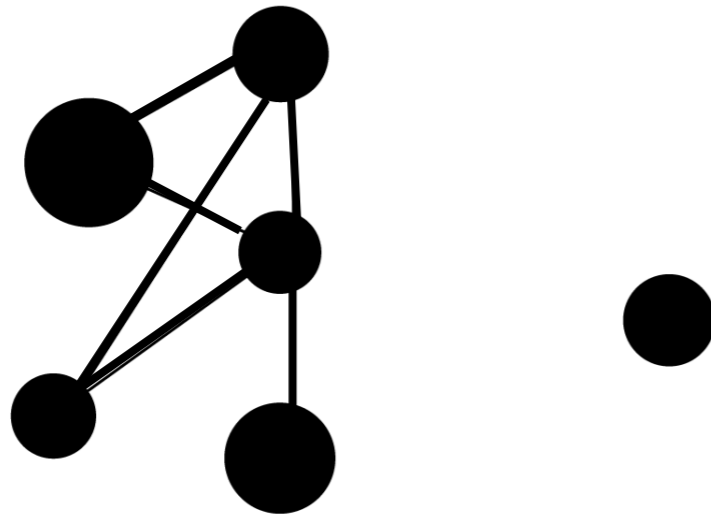
X

8 QUESTIONS

STEP 4: ANALYSIS OF DATA

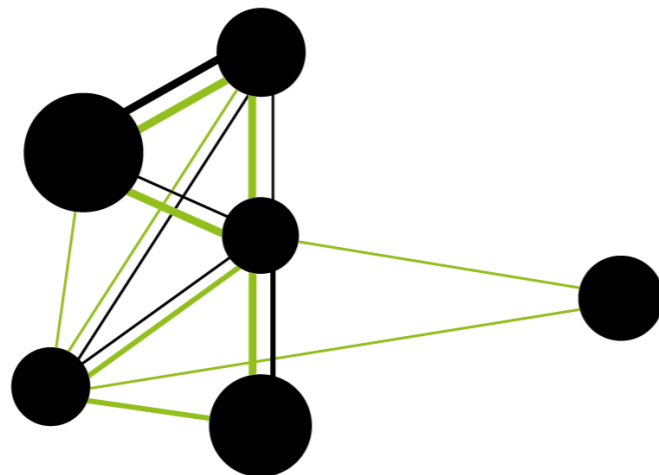
- 800 RELATIONSHIPS PER INTERVIEWEE
- SO FAR 18 NETWORK REPRESENTATIVES INTERVIEWED

- ANALYSIS TYPE 1: BINARY



STRUCTURAL HOLES
GATE-KEEPERS
(ON ALL 4 NETWORKS)

- ANALYSIS TYPE 2: NONPARAMETRIC STATISTICAL ANALYSIS
(WILCOXON SIGNED RANK TEST IN R)



FREQUENCY / DENSITY
CENTRALITY
SEGMENTATION
(ON ALL 4 NETWORKS)

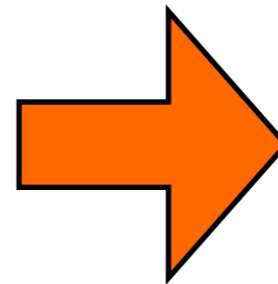
STEP 5: SYNTHESIS OF DATA

MANAGERIAL
NETWORK

CREATIVE
NETWORK

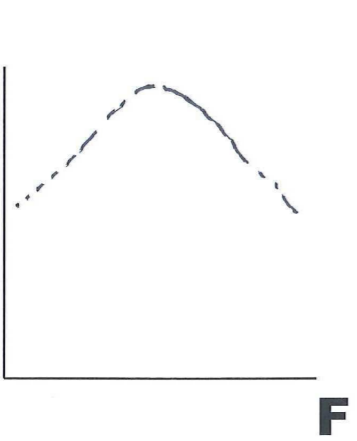
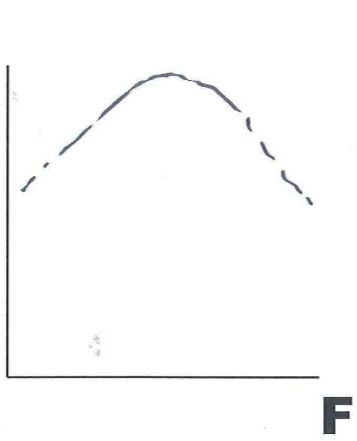
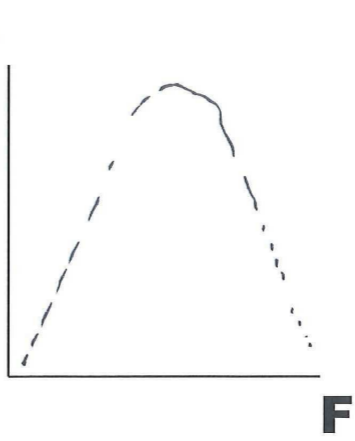
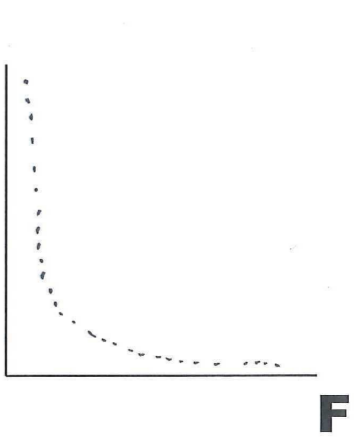
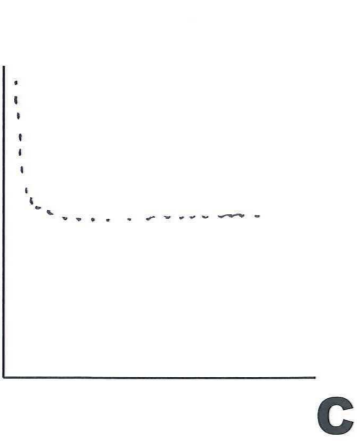
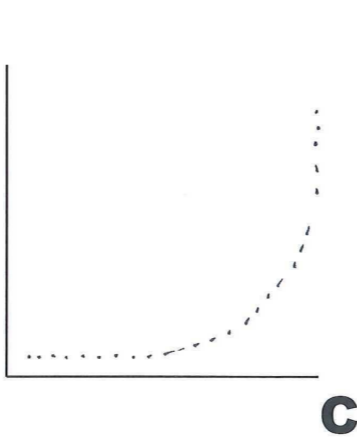
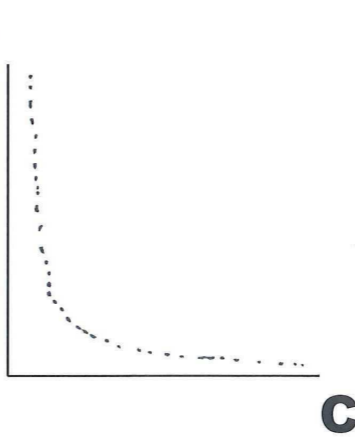
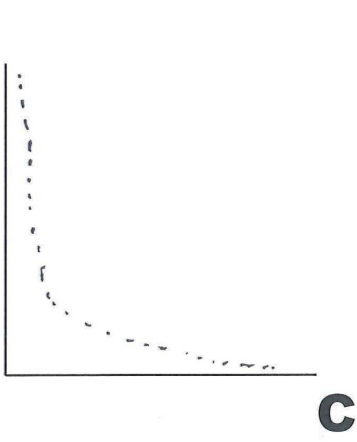
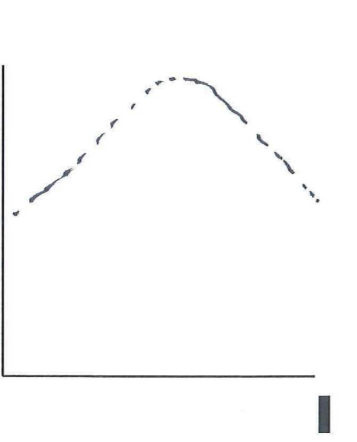
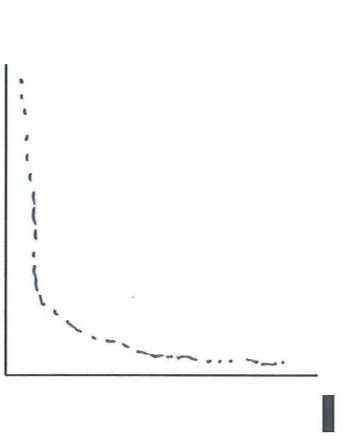

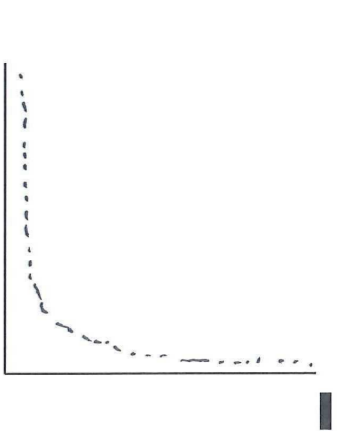
POLITICAL
NETWORK

FRIENDSHIP
NETWORK

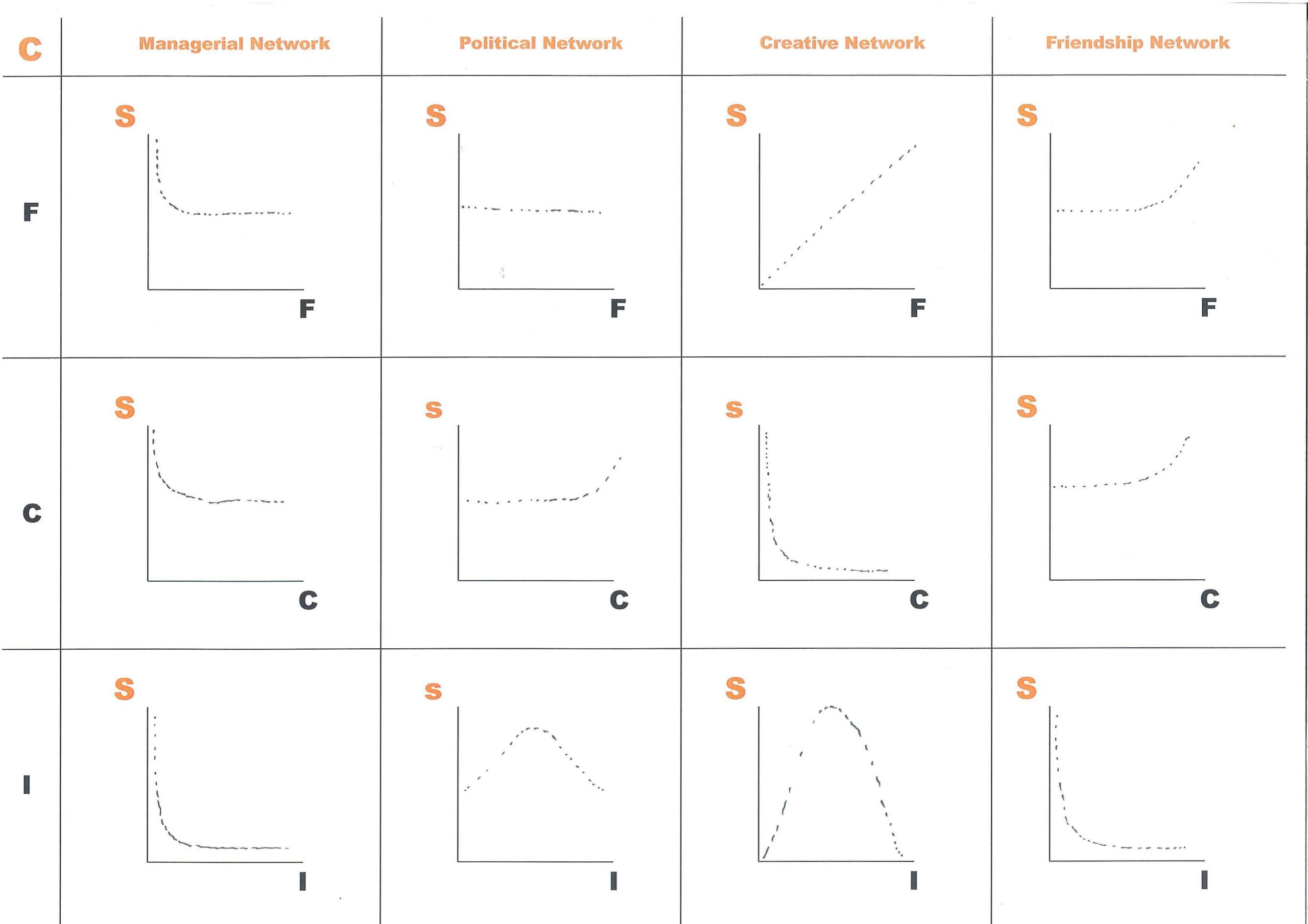


SYSTEMIC
INSIGHTS

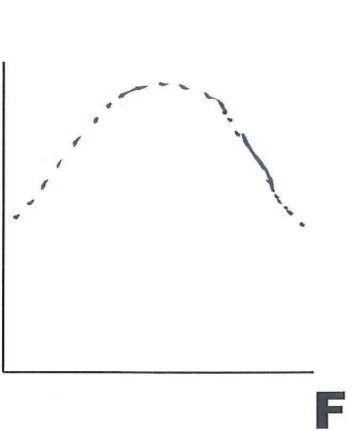
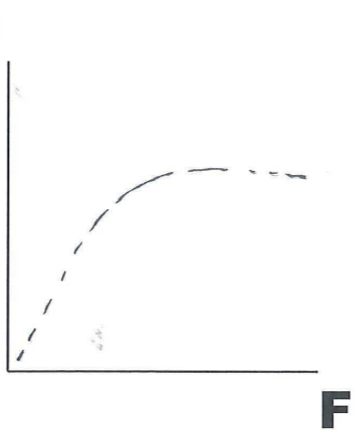
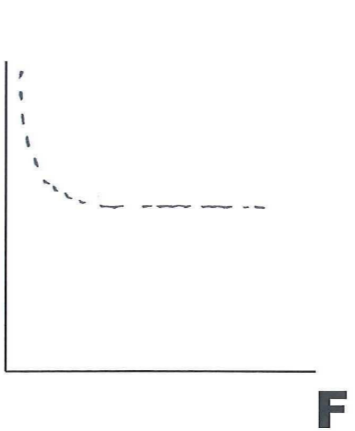
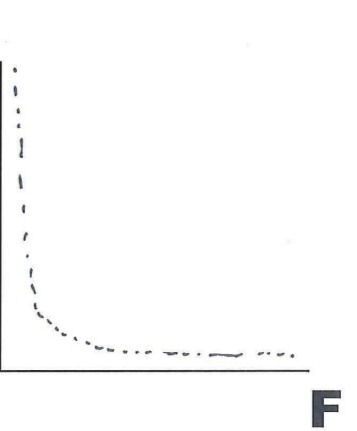
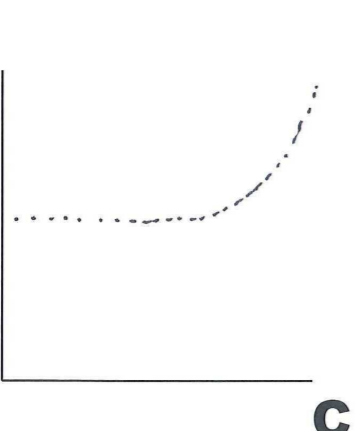
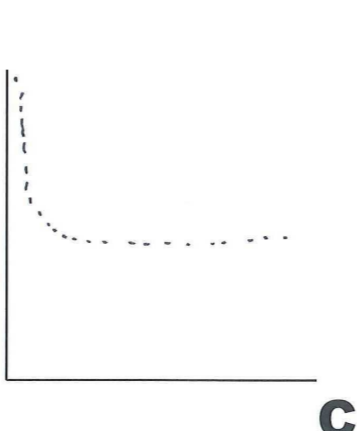
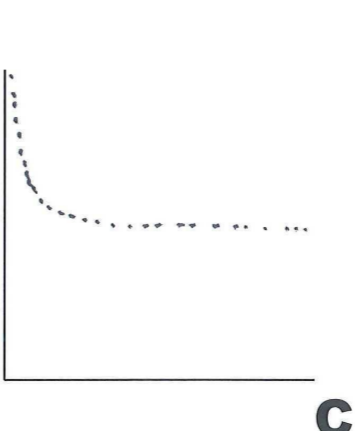
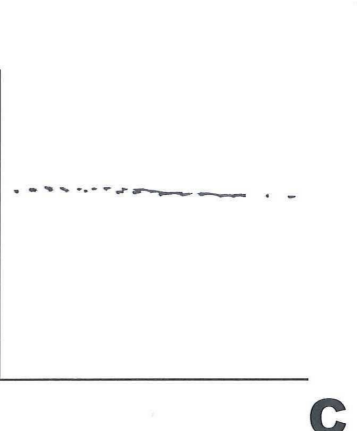
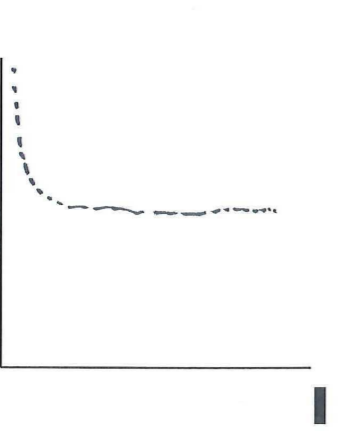
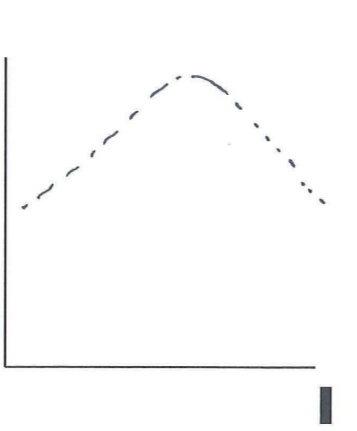
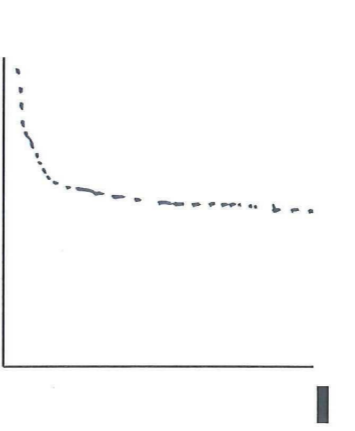
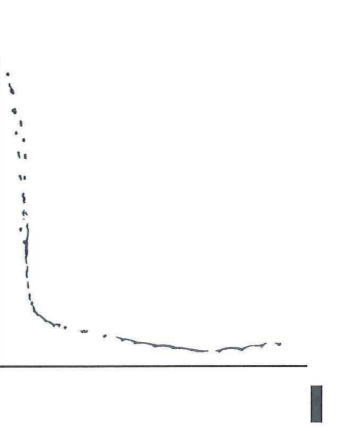
STEP 5: SYNTHESIS OF DATA

M	Managerial Network	Political Network	Creative Network	Friendship Network
F				
C				
I				

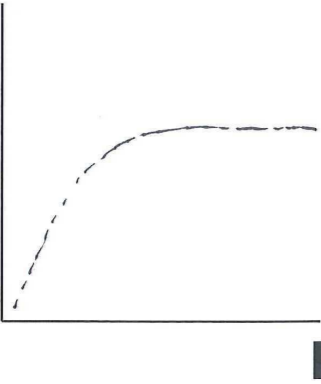
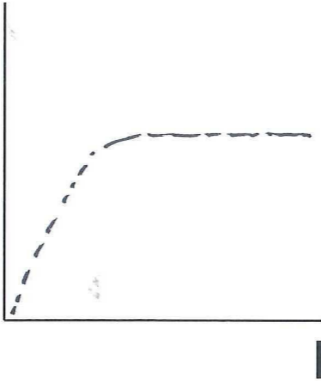
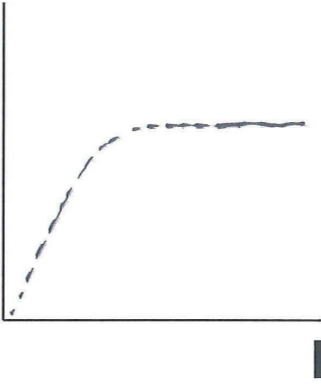
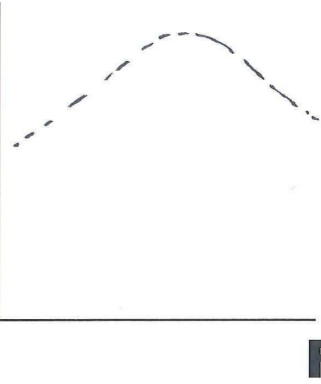
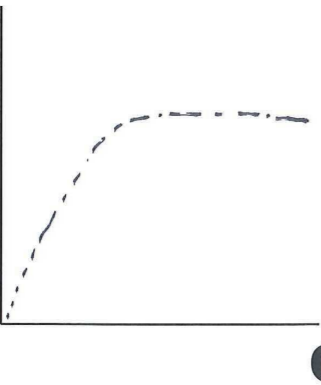
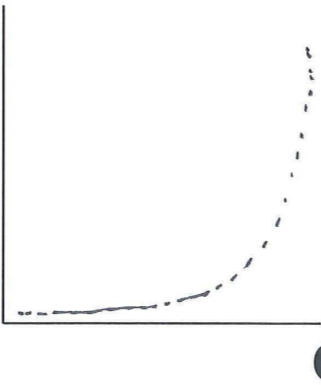
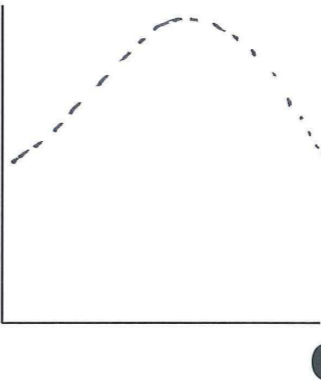
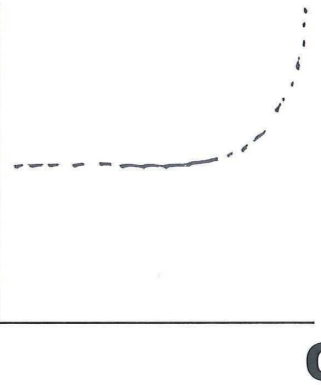

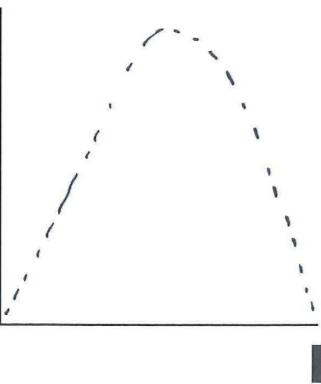
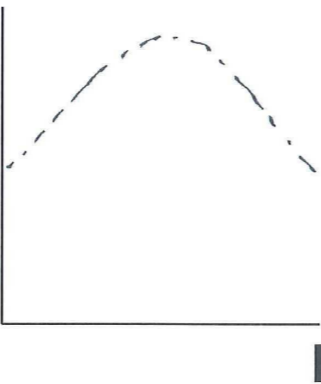
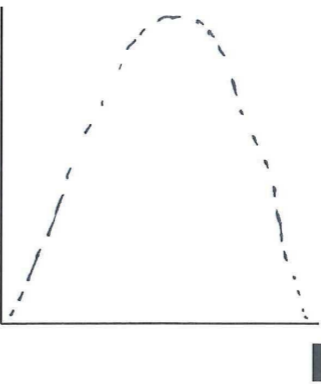
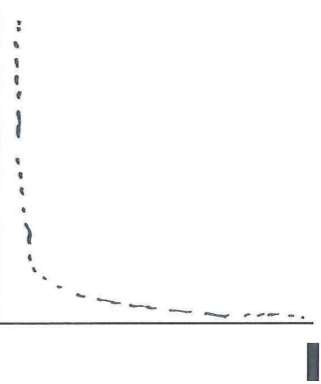
STEP 5: SYNTHESIS OF DATA



STEP 5: SYNTHESIS OF DATA

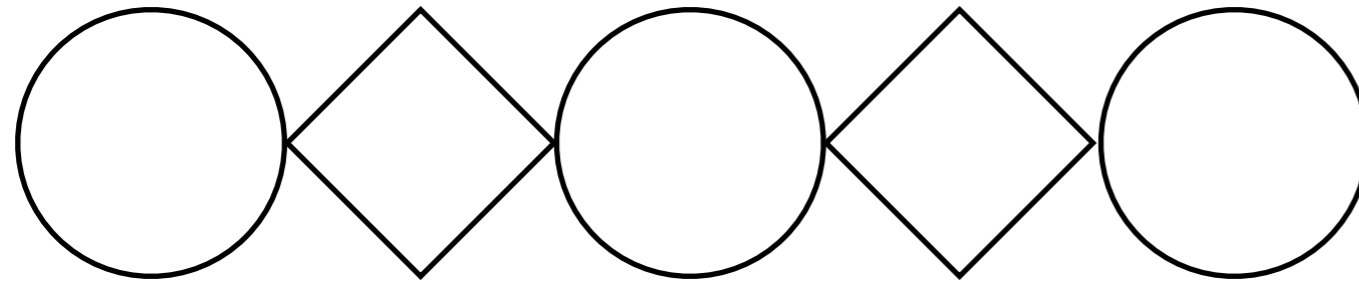
P	Managerial Network	Political Network	Creative Network	Friendship Network
F				
C				
I				

STEP 5: SYNTHESIS OF DATA

F	Managerial Network	Political Network	Creative Network	Friendship Network
F				
C				
I 				

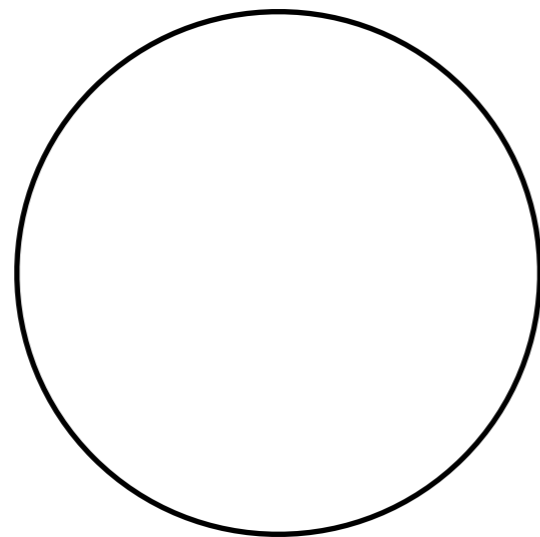
STEP 5: SYNTHESIS OF DATA

MANAGERIAL LINE OF WORK



LINEAR
OUTPUT ORIENTED
SIMPLIFIED

CREATIVE LINE OF WORK



PARADOXICAL
RELATIONSHIP

CYCLIC / ITERATIVE
PROCESS ORIENTED
COMPLEX
DISCURSIVE

QUANTIFY IDEAL MANAGERIAL INTERRUPTION

SCIENCE IS A CREATIVE PROCESS TOO

ITERATIVE

DISCURSIVE

PRE-STEP: DEFINE RELEVANT RELATIONSHIPS (NETWORKS)

STEP 1: DEFINE NETWORK REPRESENTATIVES (WHO TO TALK TO)

STEP 2: CREATE A LIST OF ACTORS (DEFINE ALL NODES)

STEP 3: RUN INTERVIEWS (DEFINE NODE SIZES & LINK THICKNESS)

STEP 4: ANALYSIS OF DATA (NETWORK MEASURES)

STEP 5: SYNTHESIS OF DATA (TESTING HYPOTHESIS)

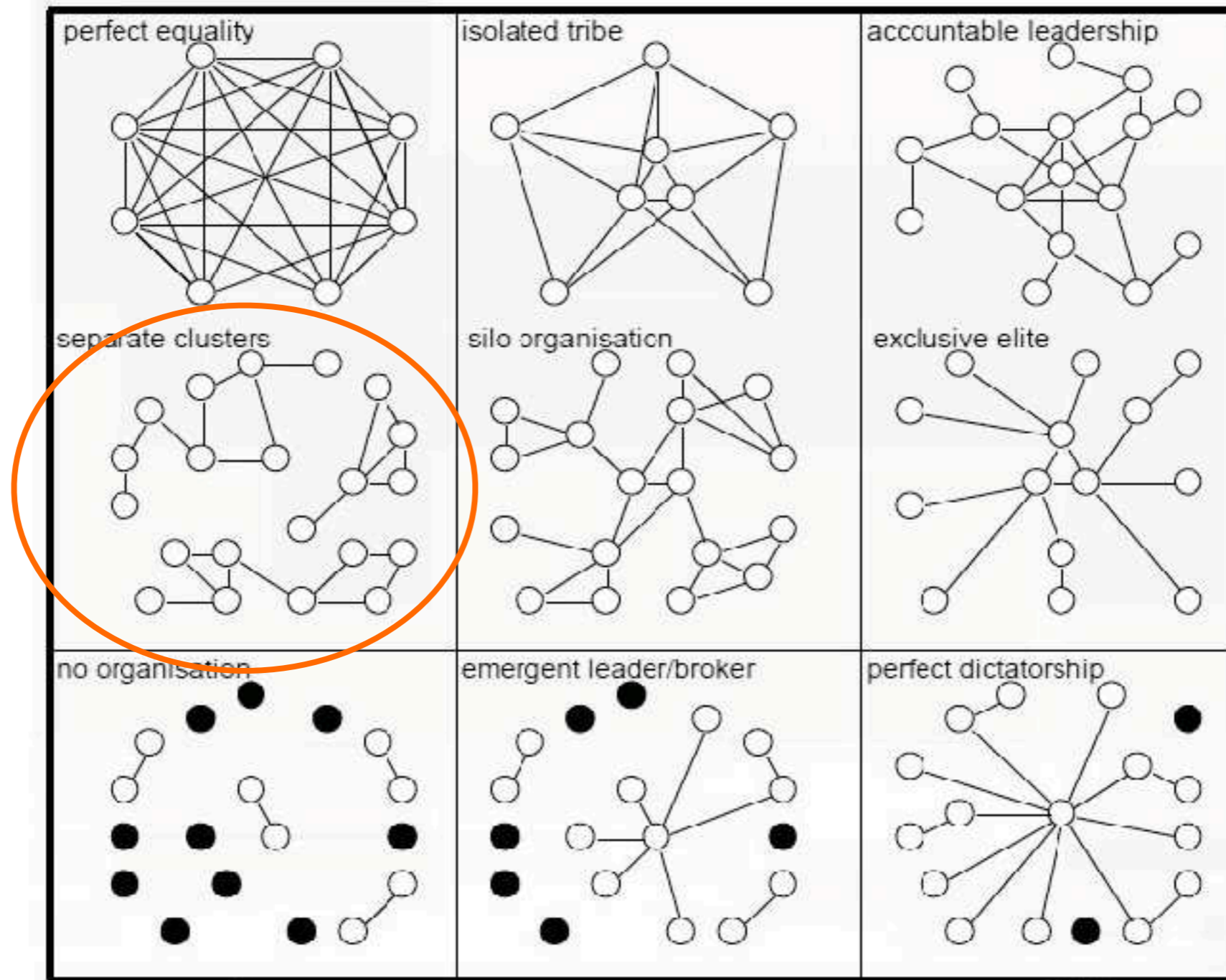
TO BE CONTINUED..

FIRST INSIGHTS

- Similar centrality patterns are traceable in all 4 networks.
- Same group of people are dominating all 4 networks.
- A very small portion of the nodes are considered influential. (40%)

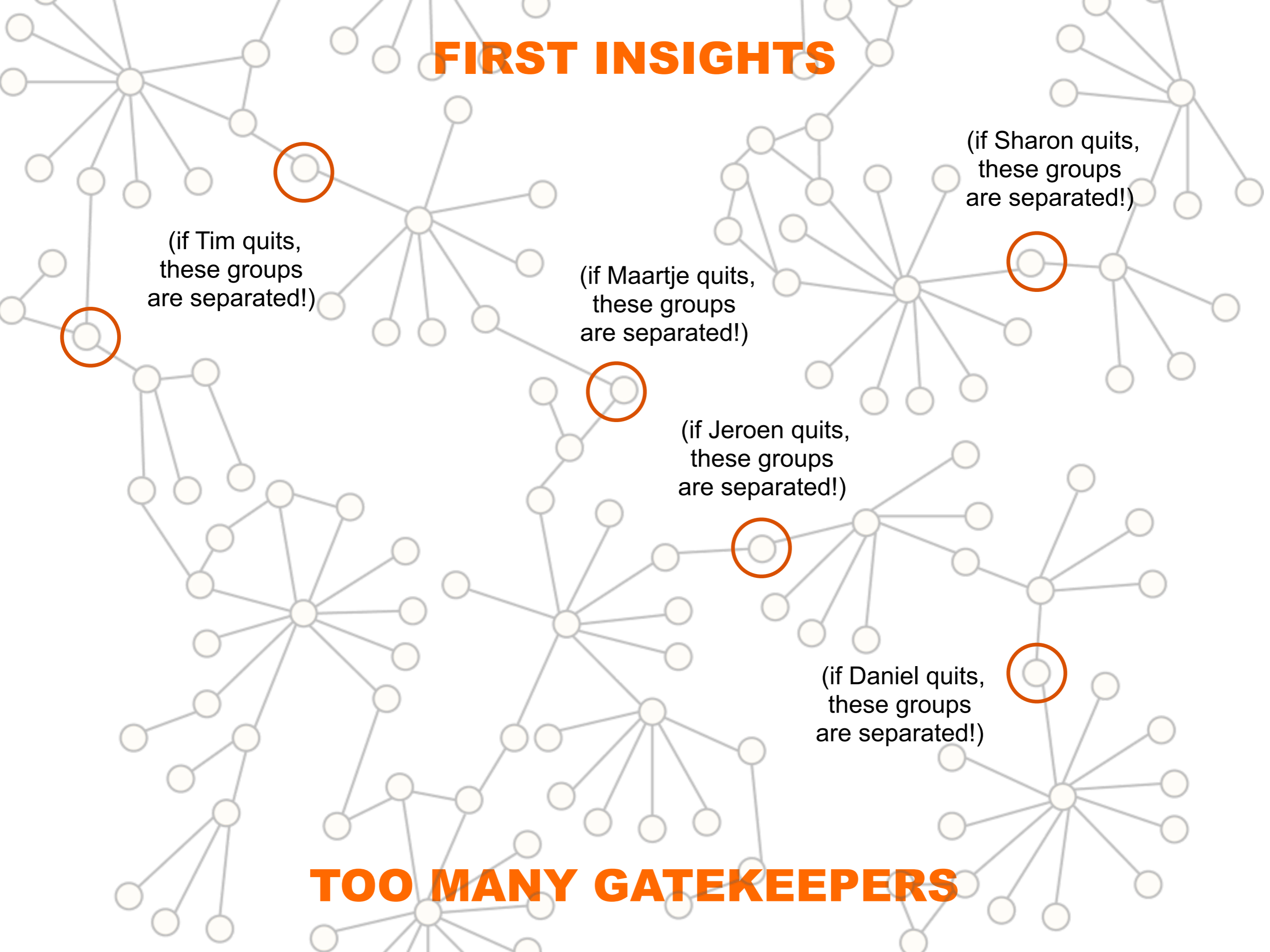
UNEVEN DENSITY, HIGH CENTRALITY

FIRST INSIGHTS



HIGH SEGMENTATION!

FIRST INSIGHTS



TOO MANY GATEKEEPERS

DISCUSSION POINTS

METHODOLOGY:

1- CAN A NETWORK ANALYSIS EVER BE OBJECTIVE / SCIENTIFIC?

CONTENT:

2- IS DEFINING THE EXACT TIPPING POINT BETWEEN CREATIVE RELATIONSHIPS AND MANAGERIAL RELATIONSHIPS ENOUGH FOR RESOLVING THE PARADOX?

CONTEXT:

3- COLLECTIVE MEMORY EXCEEDS INDIVIDUAL MEMORY.

THANK YOU!

Sine Celik

g.s.celik@tudelft.nl

@sine_celik

