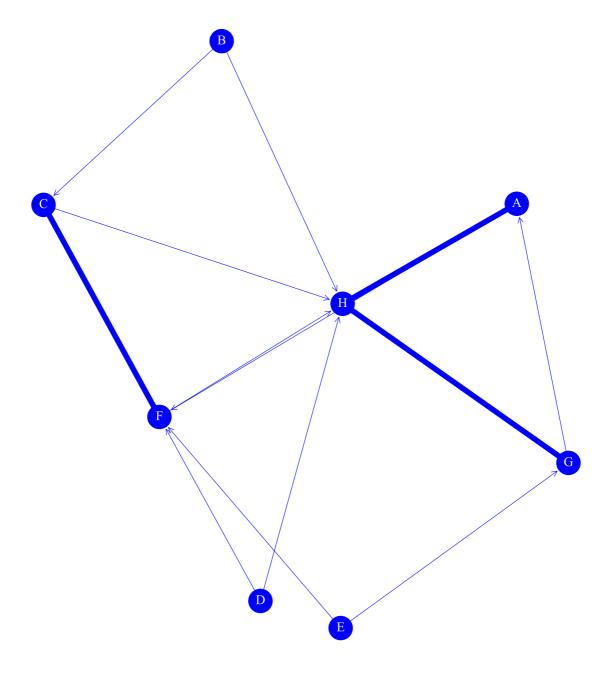


DEMO | GROUP 3 SNA | NETWORK GRAPH

A. Who would you like in your ideal work group?

NN 8, NE 16, NR 3, ND 29%, NC 52%, NT 50%, NR 38%



NN Nodes NE Edges NR Reciprocal edges ND Density NC Centralization NT Transitivity NR Reciprocity

**Authors**: Dr. Pierpaolo CALANNA, PhD, Dr. Gaetano BUONAIUTO (2021-2025), **License of use**: the layout of this report, the customization of charts, as well as the selection of quantitative indices, are subject to copyright.



DEMO | GROUP 3 SNA | RAW SCORES

### A. Who would you like in your ideal work group?

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
A	F, H	0.29	0.22	0.10	0.58	0.17	
В	C, H	0.00	0.02	0.00	0.00	0.13	←
C	F, H	0.29	0.10	0.02	0.50	0.17	
D	F, H	0.00	0.02	0.00	0.00	0.17	←
E	F, G	0.00	0.02	0.00	0.00	0.08	←
F	C, H	0.57	0.17	0.13	0.70	0.13	
G	A, H	0.29	0.16	0.04	0.58	0.12	
Н	A, G	0.86	0.31	0.21	0.88	0.03	

IC In-Degree PR PageRank BT Betweenness CL Closeness HU Hub ND No In-Degree  $(\leftarrow)$  No Out-Degree  $(\rightarrow)$  No In or Out-Degree  $(\rightleftharpoons)$ 



DEMO | GROUP 3 SNA | RANK SCORES

#### A. Who would you like in your ideal work group?

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
A	F, H	3	2	3	3	1	
В	С, Н	4	6	6	5	2	←
C	F, H	3	5	5	4	1	
D	F, H	4	6	6	5	1	←
E	F, G	4	6	6	5	4	<b>←</b>
F	C, H	2	3	2	2	2	
G	A, H	3	4	4	3	3	
Н	A, G	1	1	1	1	5	

IC In-Degree PR PageRank BT Betweenness CL Closeness HU Hub ND No In-Degree  $(\leftarrow)$  No Out-Degree  $(\rightarrow)$  No In or Out-Degree  $(\rightleftarrows)$ 



# **DEMO | GROUP 3**

# **SNA | NODES ORDERED BY METRIC**

### A. Who would you like in your ideal work group?

RANK	IC	RANK	PR	RANK	ВТ	RANK	CL	RANK	HU
1	<u>Н</u>	1	H	1	<u> Н</u>	1	H	1	A
2	F	2	A	2	F	2	F	1	C
3	A	3	F	3	A	3	A	1	D
3	C	4	G	4	G	3	G	2	В
3	G	5	C	5	С	4	С	2	F
4	В	6	В	6	В	5	В	3	G
4	D	6	D	6	D	5	D	4	E
4	Е	6	Е	6	E	5	E	5	Н

IC In-Degree PR PageRank BT Betweenness CL Closeness HU Hub



**DEMO | GROUP 3** 

**SNA | LINKS GROUPED BY TYPE** 

A. Who would you like in your ideal work group?

Non reciprocal edges

 $X \to Y$  in network  $A \cdot not Y \to X$  in network A

Reciprocal edges

 $X \rightarrow Y$  in network  $A \cdot Y \rightarrow X$  in network A

 $(A \cdot H) (C \cdot F) (G \cdot H)$ 

Half symmetrical edges

 $X \to Y$  in network  $A \cdot X \to Y$  in network B

No edge of this type

Reversed half symmetrical edges

 $X \to Y$  in network  $A \cdot Y \to X$  in network B

**Full symmetrical edges** 

 $X \to Y, \, Y \to X$  in network  $A \cdot X \to Y, \, Y \to X$  in network B

No edge of this type



DEMO | GROUP 3 SNA | SUBGRAPHS

#### A. Who would you like in your ideal work group?

Cliques

Each node can reach every other node: a) without intermediaries; b) ignoring the direction of connections



 $\left(\begin{array}{c} \mathbf{D} \cdot \mathbf{F} \cdot \mathbf{H} \end{array}\right)$ 

 $\left( A \cdot F \cdot H \right)$ 

 $C \cdot F \cdot H$ 

 $A \cdot G \cdot H$ 

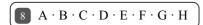
### **Strongly Connected Groups**

Each node can reach every other node: a) with or without intermediaries; b) following the direction of connections



#### **Weakly Connected Groups**

Each node can reach every other node: a) with or without intermediaries; b) ignoring the direction of connections

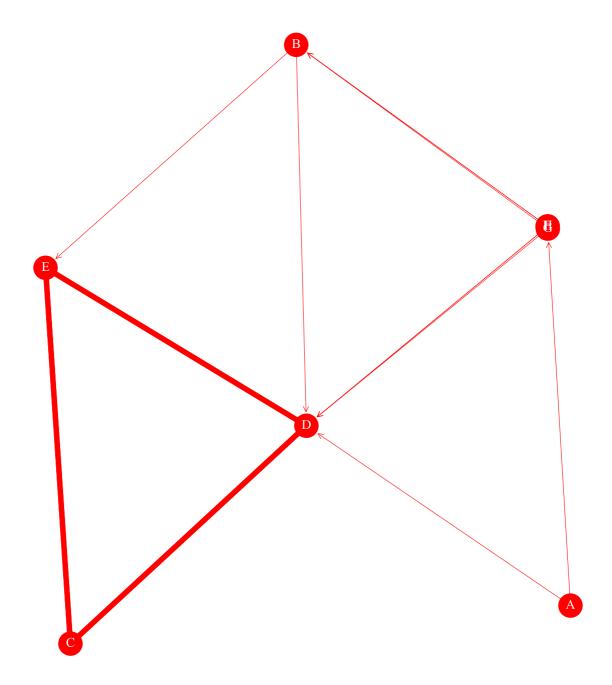




DEMO | GROUP 3 SNA | NETWORK GRAPH

### B. Who would you not want in your ideal work group?

NN 8, NE 16, NR 3, ND 29%, NC 71%, NT 75%, NR 38%



NN Nodes NE Edges NR Reciprocal edges ND Density NC Centralization NT Transitivity NR Reciprocity

**Authors**: Dr. Pierpaolo CALANNA, PhD, Dr. Gaetano BUONAIUTO (2021-2025), **License of use**: the layout of this report, the customization of charts, as well as the selection of quantitative indices, are subject to copyright.



DEMO | GROUP 3 SNA | RAW SCORES

#### B. Who would you not want in your ideal work group?

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
A	D, G	0.00	0.02	0.00	0.00	0.11	<b>←</b>
В	D, E	0.43	0.05	0.04	0.46	0.14	
C	D, E	0.29	0.27	0.00	0.58	0.14	
D	C, E	1.00	0.31	0.17	1.00	0.05	
E	C, D	0.43	0.29	0.01	0.64	0.12	
F	B, D	0.00	0.02	0.00	0.00	0.15	←
G	B, D	0.14	0.03	0.02	0.14	0.15	
Н	B, D	0.00	0.02	0.00	0.00	0.15	←

 $\textbf{IC} \text{ In-Degree PR PageRank BT Betweenness CL Closeness HU Hub ND No In-Degree} \ (\leftarrow) \ \text{No Out-Degree} \ (\rightarrow) \ \text{No In or Out-Degree} \ (\rightleftarrows) \ \text{No I$ 



DEMO | GROUP 3 SNA | RANK SCORES

#### B. Who would you not want in your ideal work group?

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
A	D, G	5	6	5	6	4	<del></del>
В	D, E	2	4	2	4	2	
C	D, E	3	3	5	3	2	
D	C, E	1	1	1	1	5	
E	C, D	2	2	4	2	3	
F	B, D	5	6	5	6	1	←
G	B, D	4	5	3	5	1	
Н	B, D	5	6	5	6	1	←

IC In-Degree PR PageRank BT Betweenness CL Closeness HU Hub ND No In-Degree  $(\leftarrow)$  No Out-Degree  $(\rightarrow)$  No In or Out-Degree  $(\rightleftharpoons)$ 



# **DEMO | GROUP 3**

# **SNA | NODES ORDERED BY METRIC**

#### B. Who would you not want in your ideal work group?

RANK	IC	RANK	PR	RANK	ВТ	RANK	CL	RANK	HU
1	D	1	D	1	D	1	D	1	F
2	В	2	E	2	В	2	E	1	G
2	E	3	С	3	G	3	С	1	Н
3	C	4	В	4	E	4	В	2	В
4	G	5	G	5	A	5	G	2	C
5	A	6	A	5	C	6	A	3	E
5	F	6	F	5	F	6	F	4	A
5	Н	6	Н	5	Н	6	Н	5	D

IC In-Degree PR PageRank BT Betweenness CL Closeness HU Hub



**DEMO | GROUP 3** 

**SNA | LINKS GROUPED BY TYPE** 

B. Who would you not want in your ideal work group?

Non reciprocal edges

 $X \rightarrow Y$  in network  $B \cdot not Y \rightarrow X$  in network B

 $(A \cdot D)(A \cdot G)(B \cdot D)(B \cdot E)(F \cdot B)(F \cdot D)(G \cdot B)(G \cdot D)(H \cdot B)(H \cdot D)$ 

Reciprocal edges

 $X \to Y$  in network  $B : Y \to X$  in network B

 $(C \cdot D) (C \cdot E) (D \cdot E)$ 

Half symmetrical edges

 $X \to Y$  in network  $B \, \cdot \, X \to Y$  in network A

No edge of this type

Reversed half symmetrical edges

 $X \to Y$  in network  $B \cdot Y \to X$  in network A

**Full symmetrical edges** 

 $X \to Y, Y \to X$  in network  $B \, \cdot \, X \to Y, Y \to X$  in network A

No edge of this type



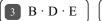
DEMO | GROUP 3 SNA | SUBGRAPHS

### B. Who would you not want in your ideal work group?

------

### Cliques

Each node can reach every other node: a) without intermediaries; b) ignoring the direction of connections



 $\left[\begin{array}{c} \mathbf{B} \cdot \mathbf{D} \cdot \mathbf{F} \end{array}\right]$ 

 $\left(\begin{array}{c} \mathbf{B} \cdot \mathbf{D} \cdot \mathbf{H} \end{array}\right)$ 

 $B \cdot D \cdot G$ 

 $A \cdot D \cdot G$ 

 $C \cdot D \cdot E$ 

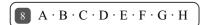
### **Strongly Connected Groups**

Each node can reach every other node: a) with or without intermediaries; b) following the direction of connections



#### **Weakly Connected Groups**

Each node can reach every other node: a) with or without intermediaries; b) ignoring the direction of connections





DEMO | GROUP 3 SNA | DESCRIPTIVE

# A. Who would you like in your ideal work group?

ID	Count	Min	Max	Median	Mean	SD	CV	SK	KT	P25	P75
In degree Centrality	8.00	0.00	0.86	0.29	0.29	0.31	1.25	0.94	0.35	0.00	0.36
PageRank Centrality	8.00	0.02	0.31	0.13	0.12	0.11	1.44	0.51	-0.73	0.02	0.18
Betweenness Centrality	8.00	0.00	0.21	0.03	0.06	0.08	1.67	1.22	0.64	0.00	0.10
Closeness Centrality	8.00	0.00	0.88	0.54	0.41	0.35	1.51	-0.25	-1.83	0.00	0.61
Hub Centrality	8.00	0.03	0.17	0.13	0.12	0.05	1.35	-1.11	0.74	0.11	0.17

Min Minumum value Max Maximum value SD Standard deviation CV Coefficient of variation SK Skewness KT Kurtosis P25 25° percentile P75 75° percentile

### B. Who would you not want in your ideal work group?

ID	Count	Min	Max	Median	Mean	SD	CV	SK	KT	P25	P75
In degree Centrality	8.00	0.00	1.00	0.21	0.29	0.34	1.50	1.42	2.20	0.00	0.43
PageRank Centrality	8.00	0.02	0.31	0.04	0.12	0.14	2.21	0.65	-2.14	0.02	0.28
Betweenness Centrality	8.00	0.00	0.17	0.01	0.03	0.06	0.90	2.54	6.68	0.00	0.03
Closeness Centrality	8.00	0.00	1.00	0.30	0.35	0.37	1.69	0.61	-0.82	0.00	0.60
Hub Centrality	8.00	0.05	0.15	0.14	0.12	0.03	1.19	-1.95	4.16	0.12	0.15

Min Minumum value Max Maximum value SD Standard deviation CV Coefficient of variation SK Skewness KT Kurtosis P25 25° percentile P75 75° percentile



DEMO | GROUP 3 SOCIOGRAM

ID	RP	RR	GP	GR	MP	MR	BL	OR	IM	AI	II	ST
A	2	0	2	2	1	0	2	0	2	2	3	marginal
В	0	3	2	2	0	0	-3	0	3	-3	0	disliked
C	2	2	2	2	1	2	0	0	4	0	3	ambitendent
D	0	7	2	2	0	2	-7	0	7	-7	0	rejected
E	0	3	2	2	0	2	-3	0	3	-3	0	disliked
F	4	0	2	2	1	0	4	0	4	4	5	appreciated
G	2	1	2	2	1	0	1	0	3	1	3	ambitendent
Н	6	0	2	2	2	0	6	0	6	6	8	popular

RP Received preferences RR Received rejections GP Given preferences GR Given rejections MP Mutual preferences MR Mutual rejections BL Balance OR Orientation IM Impact AI Affiliation index II Influence index ST Sociometric status



# **DEMO | GROUP 3**

# SOCIOGRAM | NODES ORDERED BY METRIC

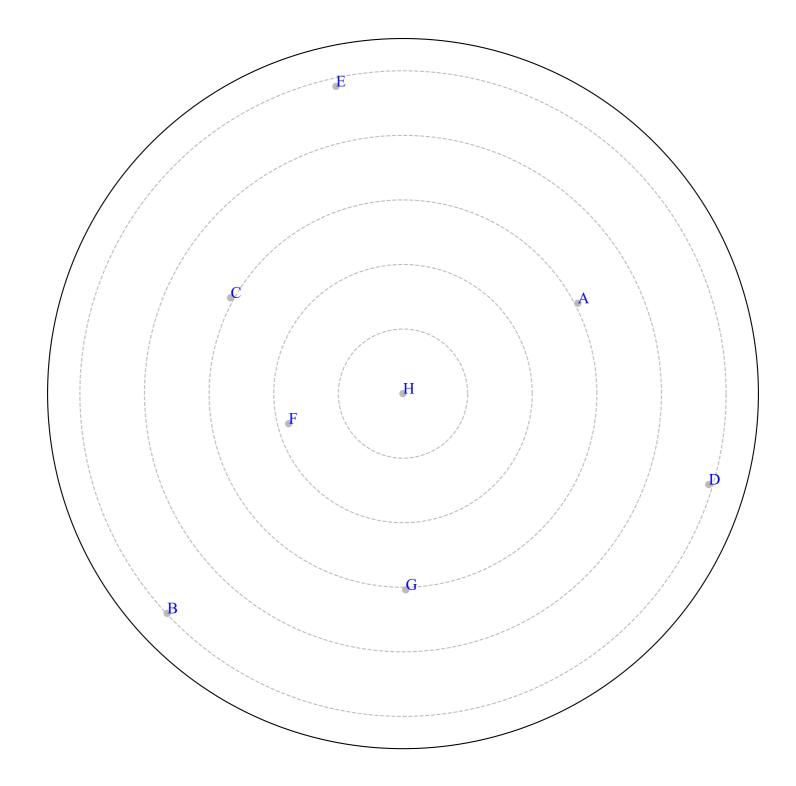
RANK	BL	RANK	IM	RANK	AI	RANK	П	RANK	ST
1	H	1	D	1	<u>Н</u>	1	H	popular	H
2	F	2	Н	2	F	2	F	appreciated	F
3	A	3	С	3	A	3	A	ambitendent	С
4	G	3	F	4	G	3	C	ambitendent	G
5	C	4	В	5	C	3	G	marginal	A
6	В	4	E	6	В	4	В	disliked	В
6	E	4	G	6	E	4	D	disliked	Е
7	D	5	A	7	D	4	Е	rejected	D

RP Received preferences RR Received rejections GP Given preferences GR Given rejections BL Balance IM Impact AI Affiliation index II Influence index



DEMO | GROUP 3 SOCIOGRAM | GRAPH

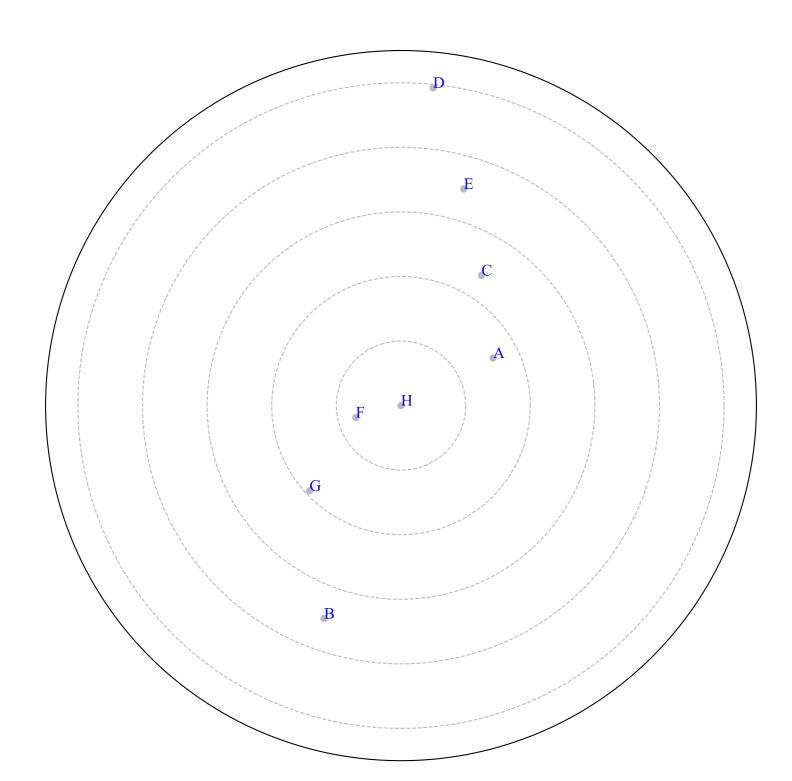
Influence index





DEMO | GROUP 3 SOCIOGRAM | GRAPH

Affiliation index





**SOCIOGRAM | DESCRIPTIVE** 

DEMO | GROUP 3

Type I cohesion index: 37.50% Type II cohesion index: 0.38 Type I conflitct index: 37.50% Type II conflitct index: 0.38

ID	Count	Min	Max	Median	Mean	SD	CV	SK	KT	P25	P75
Received preferences	8.00	0.00	6.00	2.00	2.00	2.14	1.25	0.94	0.35	0.00	2.50
Received rejections	8.00	0.00	7.00	1.50	2.00	2.39	1.50	1.42	2.20	0.00	3.00
Given Preferences	8.00	2.00	2.00	2.00	2.00	0.00	1.00	0.00	0.00	2.00	2.00
Given rejections	8.00	2.00	2.00	2.00	2.00	0.00	1.00	0.00	0.00	2.00	2.00
Mutual preferences	8.00	0.00	2.00	1.00	0.75	0.71	1.33	0.40	-0.23	0.00	1.00
Mutual rejections	8.00	0.00	2.00	0.00	0.75	1.04	2.67	0.64	-2.24	0.00	2.00
Balance	8.00	-7.00	6.00	0.50	0.00	4.21	inf	-0.28	-0.39	-3.00	2.50
Orientation	8.00	0.00	0.00	0.00	0.00	0.00	nan	0.00	0.00	0.00	0.00
Impact	8.00	2.00	7.00	3.50	4.00	1.69	1.12	0.95	-0.03	3.00	4.50
Affiliation index	8.00	-7.00	6.00	0.50	0.00	4.21	inf	-0.28	-0.39	-3.00	2.50
Influence index	8.00	0.00	8.00	3.00	2.75	2.82	1.27	0.80	0.32	0.00	3.50

Min Minumum value Max Maximum value SD Standard deviation CV Coefficient of variation SK Skewness KT Kurtosis P25 25° percentile P75 75° percentile