Network Centrality

Sociometric
Network Management Report

Company Name:
No. of Candidates:
Date:

Introduction

If we imagine two very different substances, coal and diamond, we understand that at a fundamental level, they are equivalent being composed of carbon atoms. It is only by understanding the relationships between the carbon atoms that we can understand the properties of diamond and coal. Organisations, like coal and diamond, are structures composed of individual 'atoms', but to better understand these organizational structures, Network Centrality and the Sociometric report visualise and analyse the organization through individual level Social Quotient metrics; network level Social Capital metrics; and the overall structure through the use of social network diagrams.

This Sociometric report will therefore allow organisations to better understand their human and social capital, the relationships between individuals, and the structure of the organization as a whole. By viewing and analysing organisational networks, Network Centrality allows organisations to identify weak points and strong points of functioning, important individuals and relationships, and allocate resources appropriately.
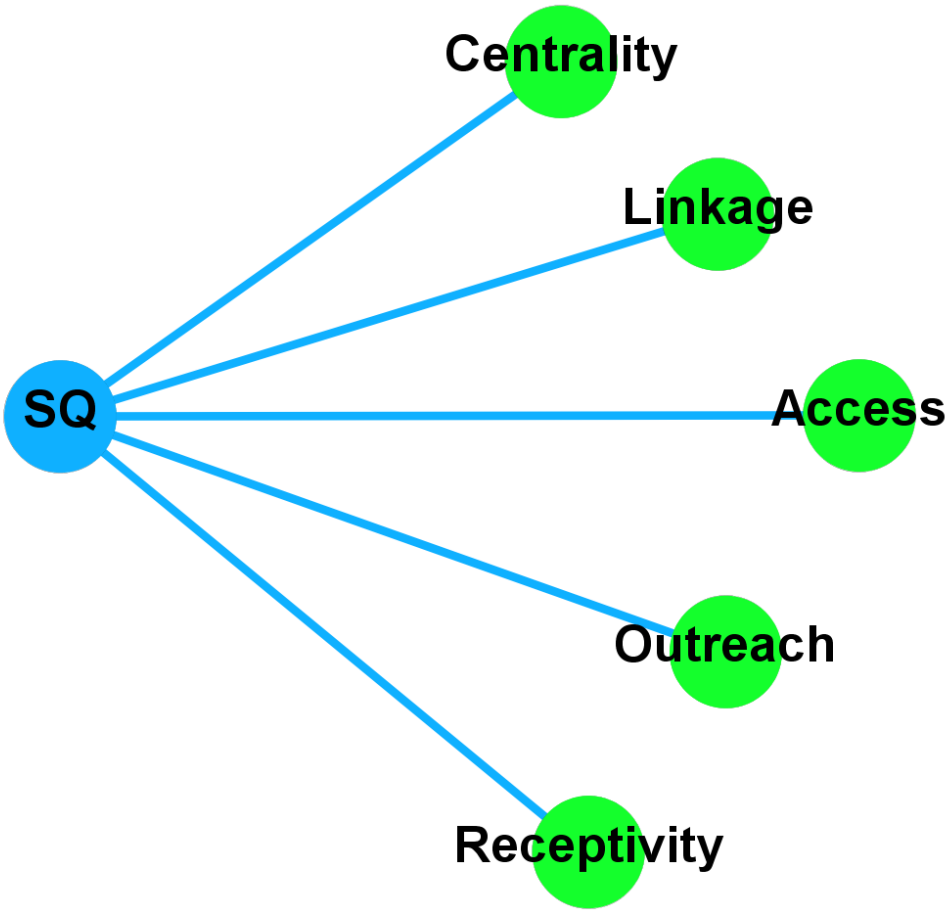
Individual Level Metrics

The Social Quotient

The Social Quotient is a measure of relational capital – how a particular person interacts with others in their organization, and how their interpersonal behaviours are likely to influence those around them.
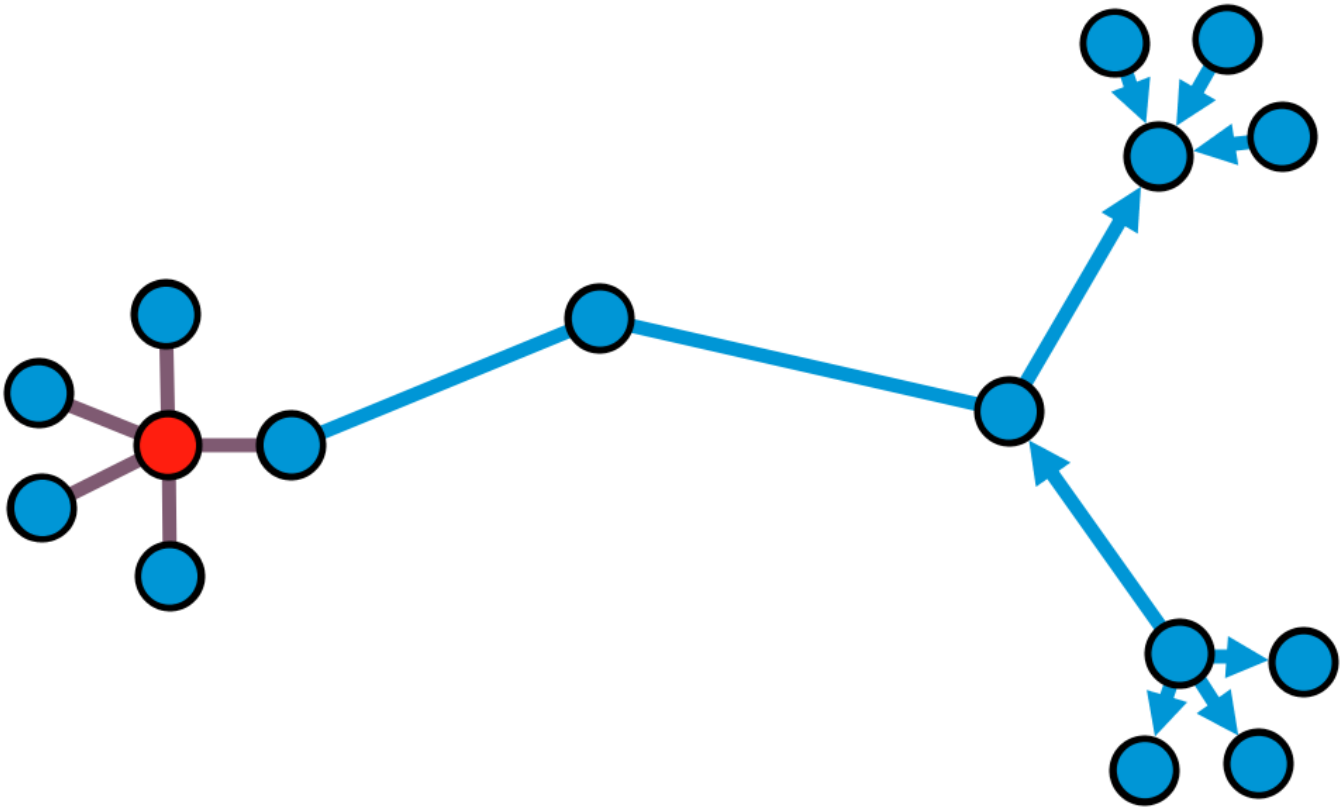
The 5 SQ metrics included in this report are: 1) Centrality; 2) Linkage; 3) Access; 4) Outreach; and 5) Receptivity. These metrics will be discussed on the following pages.

Centrality

Centrality is a measure of how central an individual is to the whole social network. Individuals scoring highly on Centrality tend to be situated towards to the core of the organisational communication network, and have access to, and communicate with, a large number of individuals.
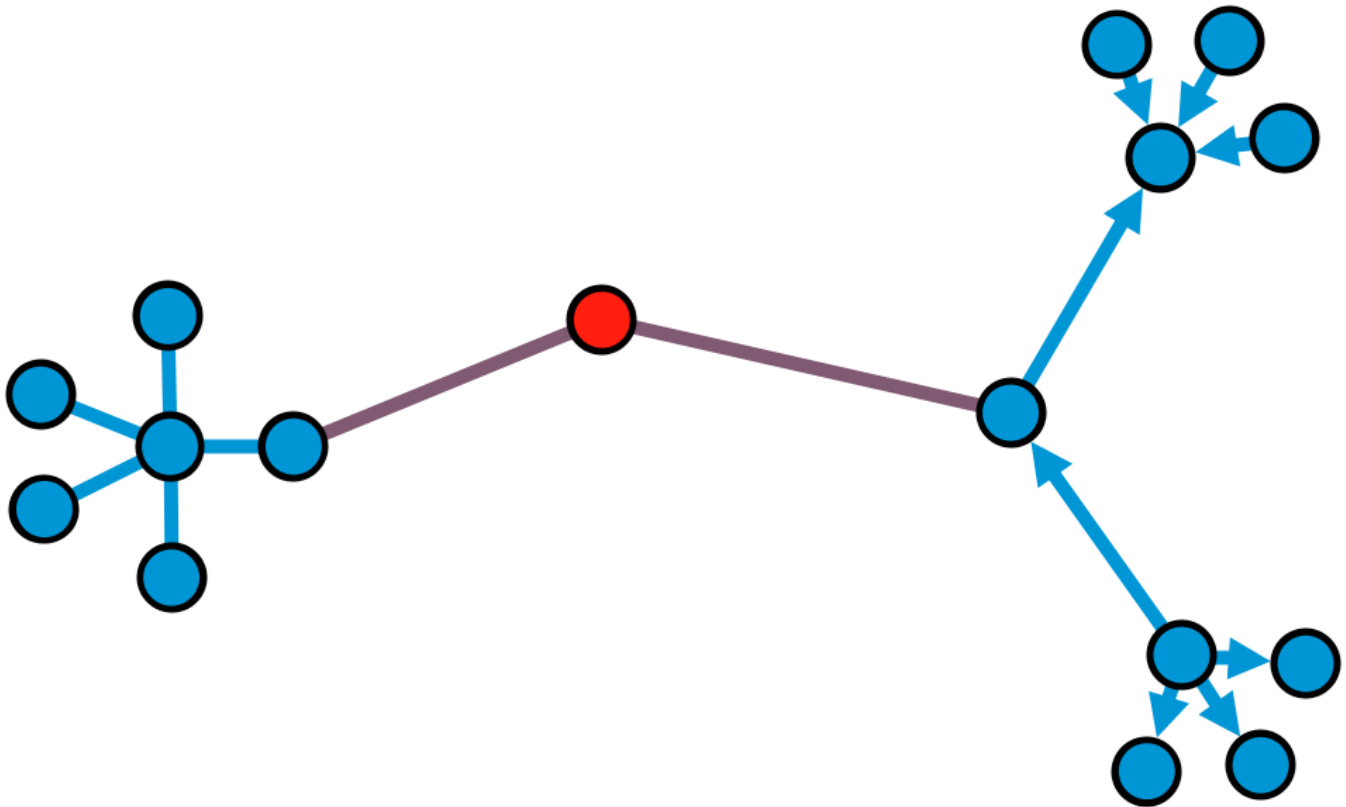
In the diagram below, an example social network is depicted – circles represent individuals, and lines represent communication relationships. In this diagram, the individual highlighted in red is an example of someone with high SQ Centrality.

Linkage

Linkage is a measure of how much an individual connects disconnected groups or individuals in the communication network. Individuals scoring highly on Linkage provide communication channels between different departments and groups. As such, these individuals know who holds important information, how to access it, and how to distribute it.
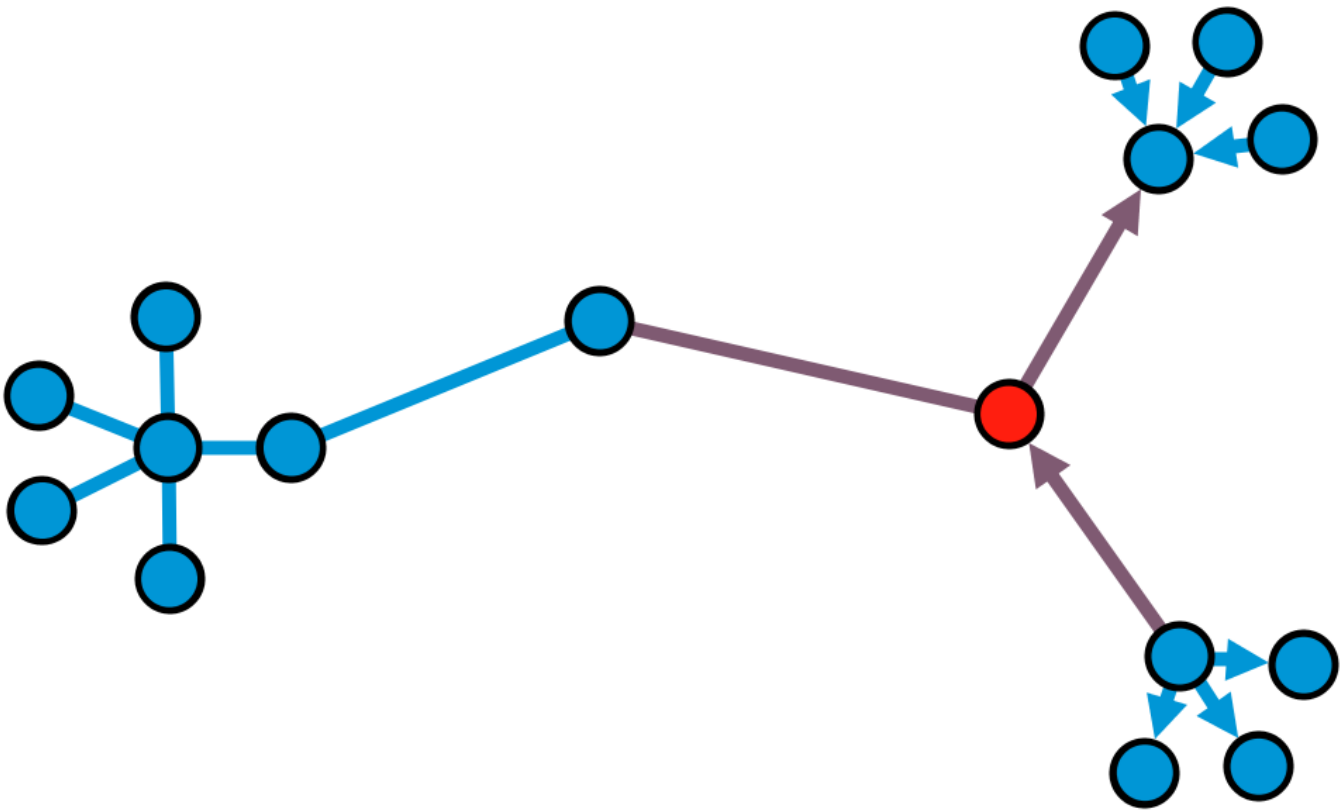
In the diagram below, the individual highlighted in red is an example of someone with high SQ Linkage.

Access

Access is a measure of how much access an individual has to other individuals in the communication network. Individuals scoring highly on Access are able to rapidly and efficiently communicate with individuals across the organisational network, and may be able to exert influence over them.
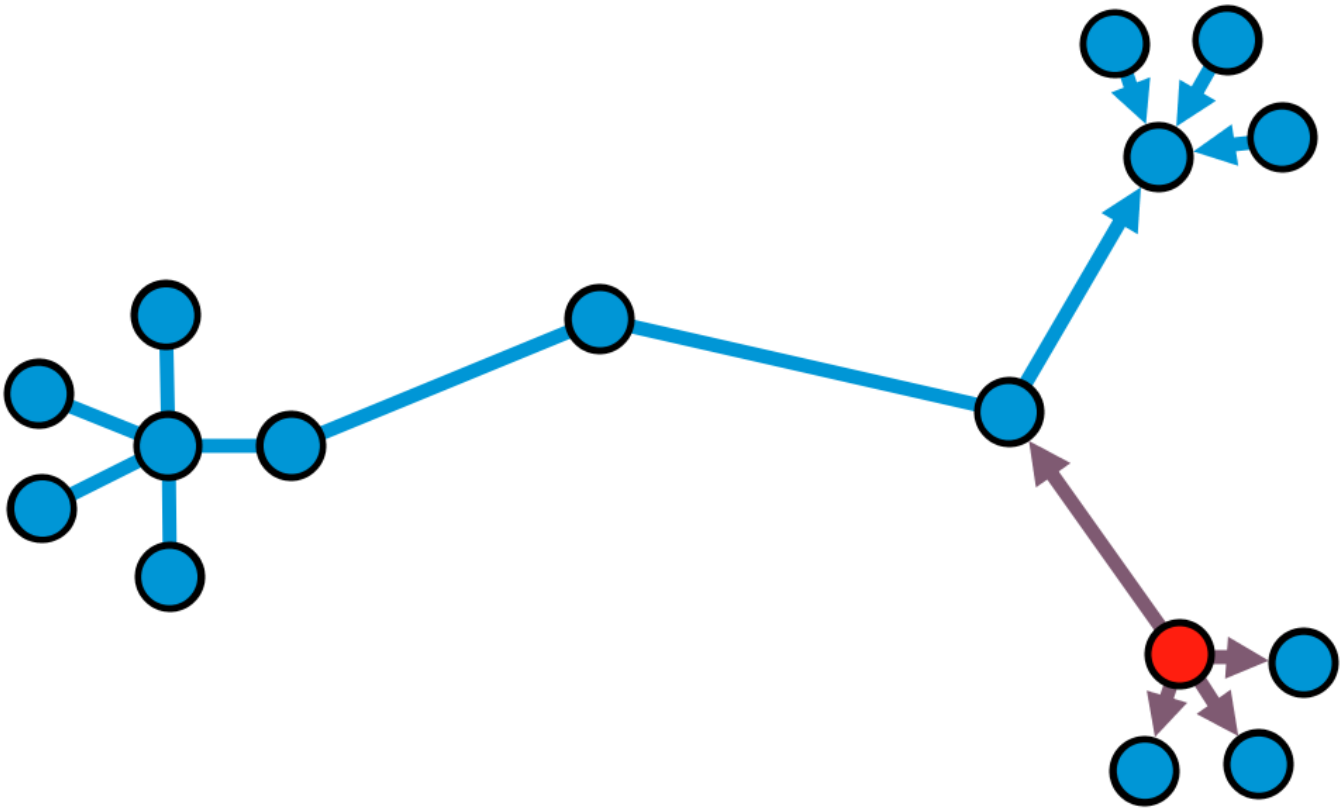
In the diagram below, the individual highlighted in red is an example of someone with high SQ Access.

Outreach

Outreach is a measure of how much an individual reaches out to other individuals in organisation network to establish connections and communicate. Individuals who score highly on Outreach are often sociable and popular, and find it easy to communicate with disconnected or isolated individuals.
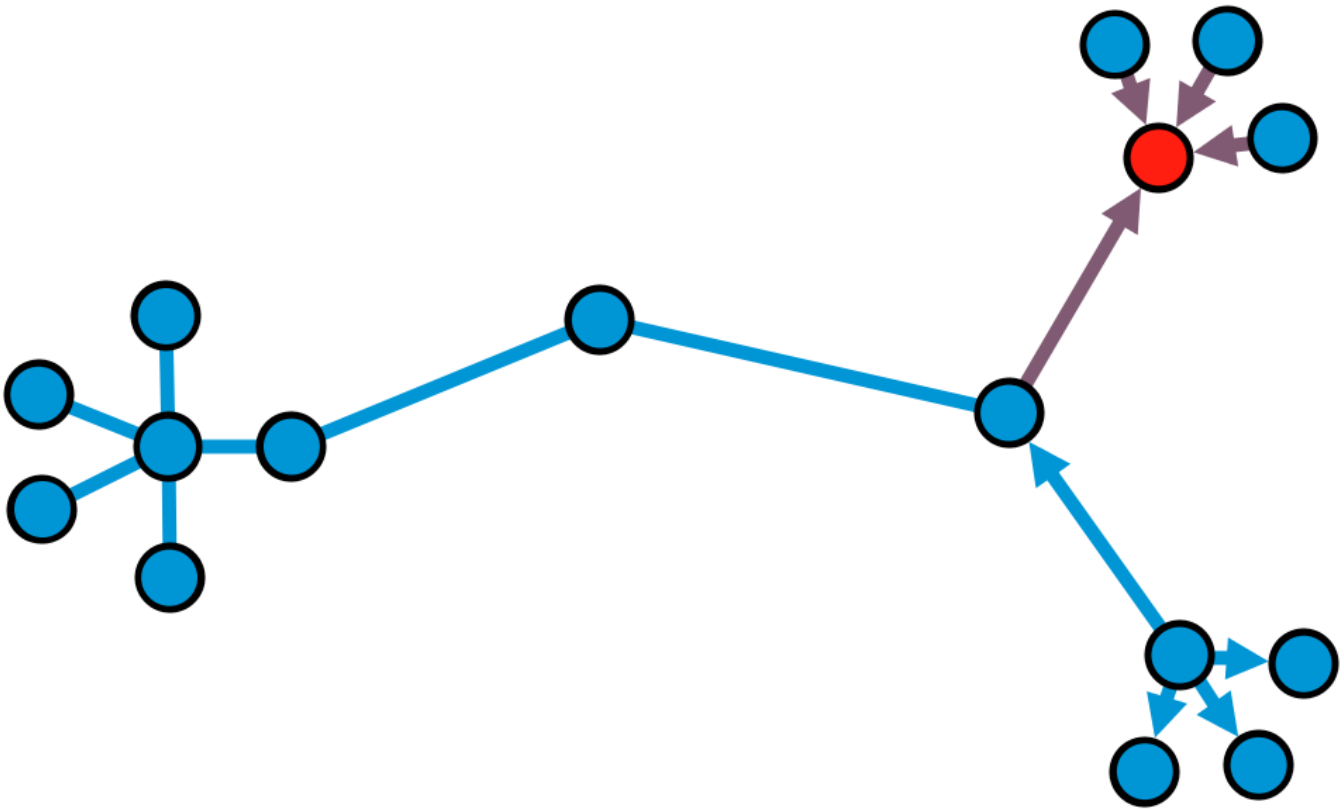
In the diagram below, the individual highlighted in red is an example of someone with high SQ Outreach.
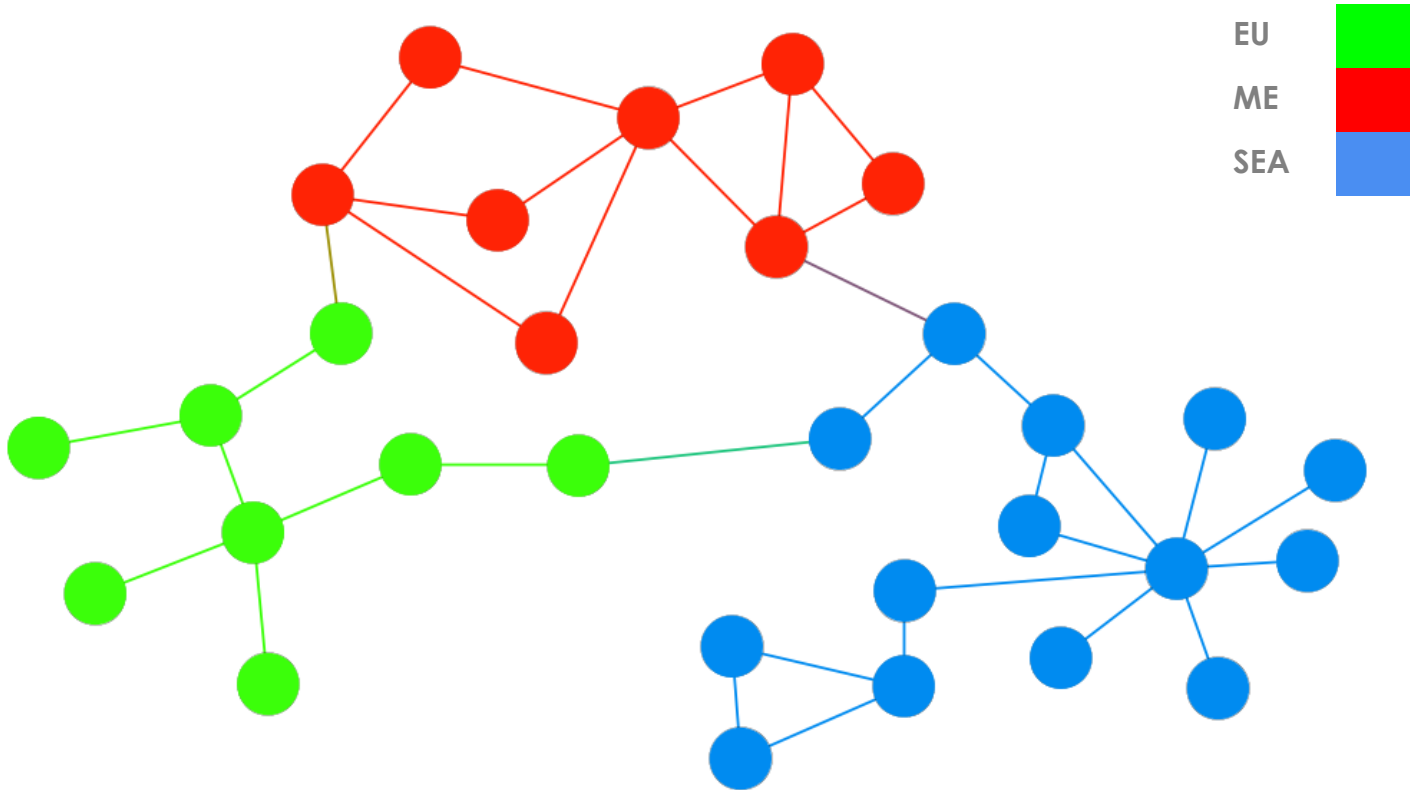
Receptivity

Receptivity is a measure of how much other individuals reach toward a particular individual to connect or communicate. Individuals high on Receptivity are highly respected and trusted for their opinion, advice and expertise.

In the diagram below, the individual highlighted in red is an example of someone with high SQ Receptivity.
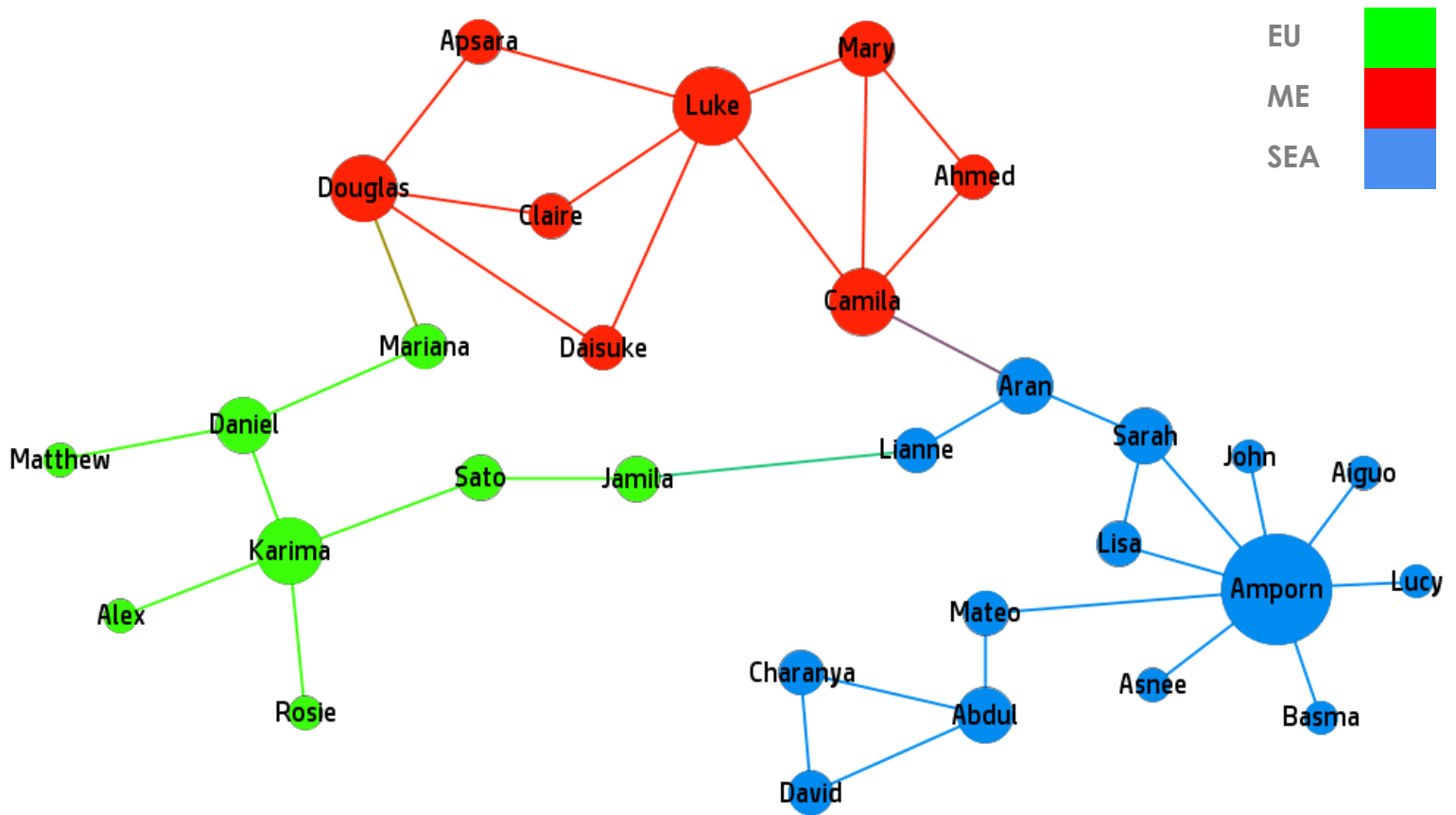
Individual Level Metrics at Organisation X

Organisation X is a multinational engineering company. In the Network Diagram below, 30 of it's consultants are shown across 3 geographic locations – Europe (EU, green), The Middle-East (ME, red), and Southeast Asia (SEA, blue). The lines depict communication relationships.

EU
ME
SEA

Centrality at Organisation X

In the Network Diagram below, individuals with higher Centrality are depicted as larger circles. These individuals may be considered the informal leaders of the organizational network. Table 1 shows the individuals with the 5 highest Centrality scores.

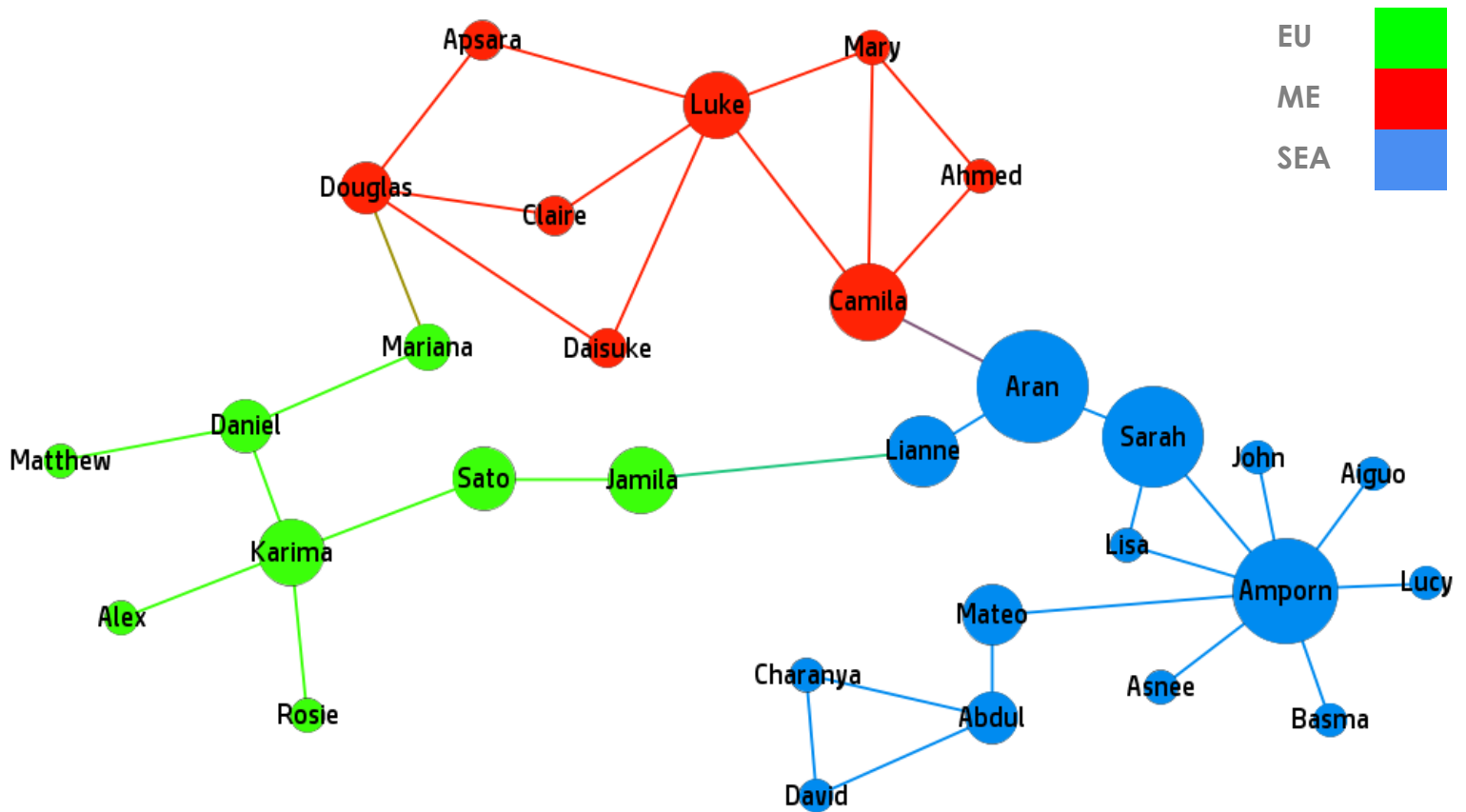| Centrality Position	Centrality Score	Name
1st	72	Amporn
2nd	60	Luke
3rd	46	Douglas
4th	45	Karima
5th	41	Camila

Linkage at Organisation X

In the Network Diagram below, individuals with higher Linkage are depicted as larger circles. These individuals may be considered the brokers of the organizational network, connecting disconnected groups and individuals. The table below shows the individuals with the 5 highest Linkage scores.

Linkage Position	Linkage Score	Name
1st	78	Aran
2nd	71	Sarah
3rd	70	Amporn
4th	54	Camila
5th	49	Karima

Access at Organisation X

In the Network Diagram below, individuals with higher Access are depicted as larger circles. These individuals can communicate with others more efficiently and quickly. The table below shows the individuals with the 5 highest Access scores.

EU	
ME	
SEA	

Access Position	Access Score	Name
1st	82	Aran
2nd	74	Sarah
3rd	65	Camila
4th	63	Lianne
5th	52	Luke

Outreach at Organisation X

In the Network Diagram below, individuals with higher Outreach are depicted as larger circles. These individuals tend to reach out to communicate with others. The table below shows the individuals with the 5 highest Outreach scores.

Outreach Position	Outreach Score	Name
1st	80	Amporn
2nd	62	Mateo
3rd	58	Daisuke
4th	57	Charanya
5th	55	Aspara

Receptivity at Organisation X
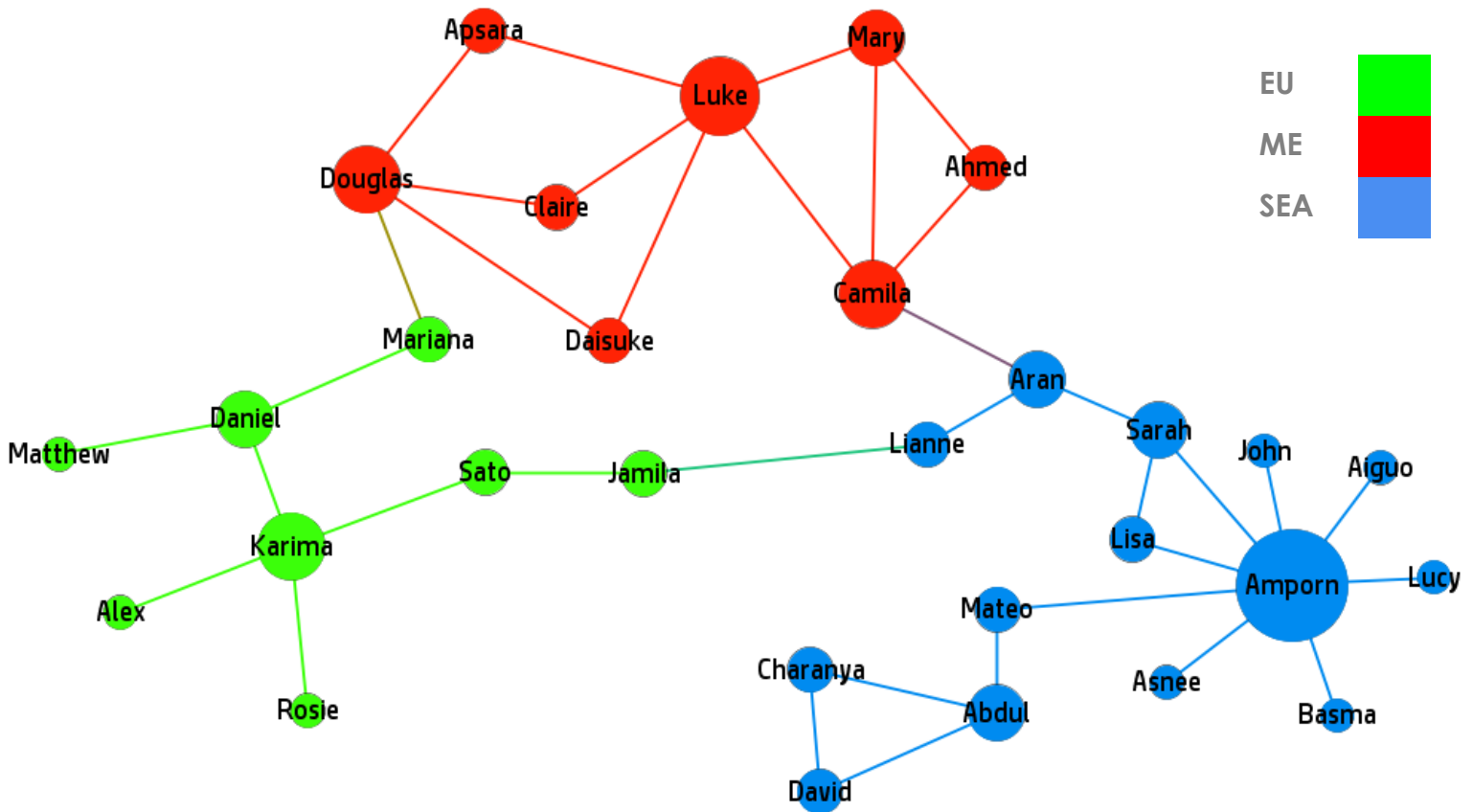
In the Network Diagram below, individuals with higher Receptivity are depicted as larger circles. These individuals tend to have others approach and communicate with them. The table below shows the individuals with the 5 highest Receptivity scores.

Receptivity Position	Receptivity Score	Name
1st	79	Amporn
2nd	63	Luke
3rd	61	Karima
4th	60	Douglas
5th	58	Camila

Network Level Metrics

Social Capital

Whereas the SQ metrics illustrate how an individual is likely to interact and communicate with others, the Social Capital metrics analyse relationships at the overall network level. The 5 Social Capital metrics are Diameter, Density, Cohesion, Collaboration, and Fragmentation.

Diameter
Diameter is measure of the distance between the two furthest individuals in a network. If the Diameter of a network is 5, the two furthest individuals would have to communicate through four other individuals to reach each other. Diameter is therefore a good indication of how quickly and efficiently individuals can communicate through a network.

Density
Density is the percentage of communication relationships that exist out of the possible number of relationships that exist. Networks with high density have greater connectivity and communication, while networks with low Density have weaker connectivity and communication.

Cohesion
Cohesion is Density at the intra-group level – for example, the percentage of communication relationships being utilised between employees of the same department.

Collaboration
Collaboration is Density at the inter-group level – for example, the percentage of relationships being utilised between employees from two different departments.
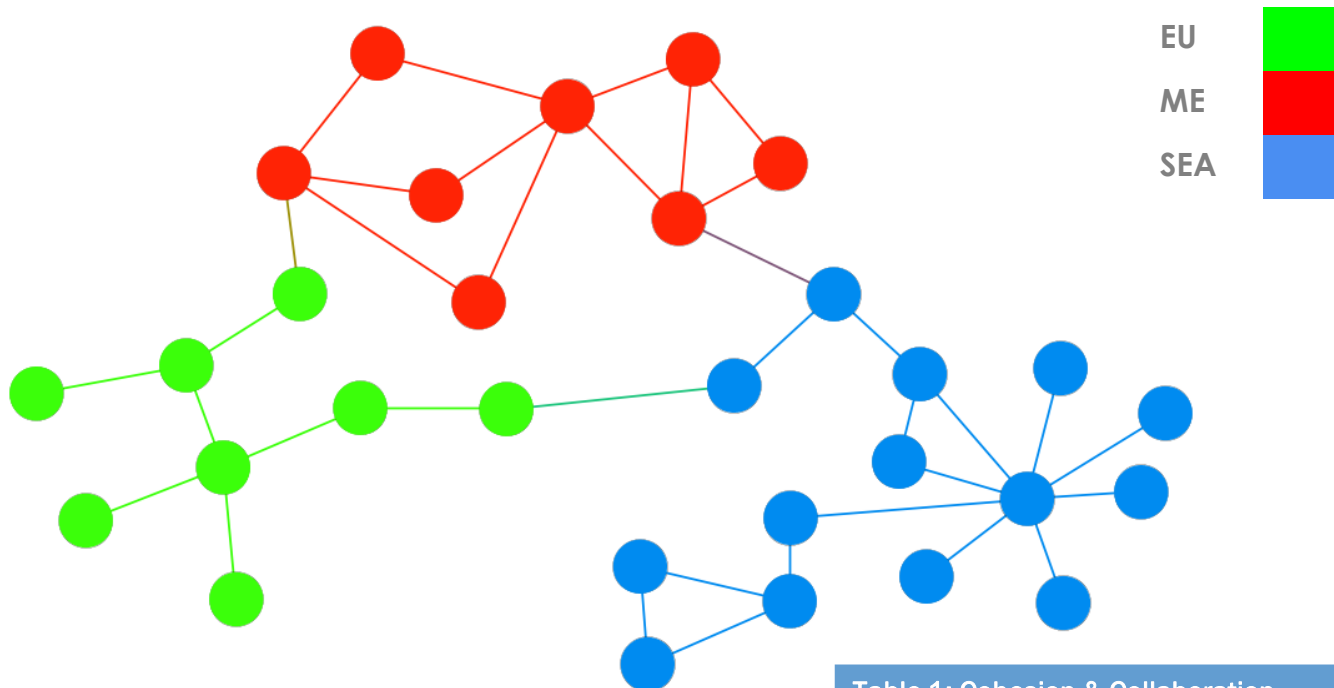
Fragmentation
Fragmentation is a percentage measure of how susceptible the network is to disruption. If Fragmentation is high, only a few members of the network would have to leave to cause real disruption. If Fragmentation is low, the network is relatively robust to change and employee turnover.

Network Level Metrics at Organization X

In the Network Graph below, the consultants at the engineering company are shown once more. Below the Network Graph, the Network Level metric scores are shown and explained.

Table 1: Cohesion & Collaboration

	EU	ME	SEA
EU	30.79%		
ME	4.33%	45.21%	
SEA	2.50%	3.06%	42.56%

Diameter: 5
This relatively high diameter suggests that the two furthest individuals would have to communicate through 4 other people before reaching each other. This suggests that communication between separated in this organisation would be slow and inefficient.

Density: 10.50%
The Density Score suggests that only 10.5% of possible communication relationships are actually utilised. Or conversely, 89.50% of individuals in this network are not actively communicating.

Cohesion: Diagonal cells in Table 1.
The relatively high Cohesion scores suggest that a large percentage of individuals communicate with one another within the same geographic region. This is indicative of a 'silo' effect – where individuals are cohesive and connected within their particular departments or locations, but less connected to other members of the organization.

Collaboration: Other cells in Table 1.
The low Collaboration scores suggest that very few communication relationships exist between individuals from different locations. Again, this is indicative of a silo effect by location of the organisation's employees.

Fragmentation: 72.32%
This high Fragmentation score suggests that very few individuals would need to leave the organisation to cause serious disruption to communication and workflow. This network is therefore not robust to change or employee turnover.