TRANSFORMING TO A POST-INTEGRATION HEALTHY ORGANIZATION: A SOCIAL IDENTITY, COHESION, AND ATTACHMENT PERSPECTIVE

Mak Chee Wai

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ABSTRACT

Title of Dissertation	TRANSFORMING TO A POST-INTEGRATION HEALTHY ORGANIZATION: A SOCIAL IDENTITY, COHESION, AND ATTACHMENT PERSPECTIVE
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Mergers and acquisitions (M & As) have continued on an increasing trend over time, although slowed over the last few years. Thus, the current study fills a knowledge gap in M & A (a) regarding post-integration organization cohesion, and (b) enabling human resource professionals to better guide M & As to success, with implications to Thailand.

This study deployed social network analysis as the quantitative approach and participant interview as the qualitative approach. The data collected with N=315 'ego-seeds' resulting in n=21416 ego-alter pairs used to elicit social network graphs for 13 item-questions related to constructs (a) 'cohesion', (b) 'social identity', and (c) 'attachment'. The results and findings suggested three salient points.

Firstly, 'cohesion' of the post-merger integration multi-national manufacturing company in Thailand was examined using network cohesion measures calculated from social network graphs elicited; network cohesion measures did not support a cohesive organization. Interviews revealed cohesiveness in terms of small group belonging and relationships.

Secondly, cohesion measures did not support theses that 'social identity' and 'attachment' contributed to cohesion in the post-merger organization. Interviews again revealed cohesiveness in terms of focus and activities within small groups..

Thirdly, weak ties and strong ties analysis of the social networks showed contribution to organization cohesion. Weak ties (a) offer pathway as bridge or connectors enabling access to larger resource pools, (b) enhance reciprocity and belonging, and (c) may trigger attention to maintain relations. Strong ties (a) bridge two (or more) groups within the network and (b) connect between members of

the same work location) only.

The social network analysis methodology provided a different perspective to traditional quantitative survey and qualitative interview methods of inquiry. This study also offered (a) senior management pondering organization cohesion would benefit from the insights of this study, (b) the co-creation of a super-identity grounded in community work and corporate social responsibility for the organization could help enhance organization cohesion, and (c) recognizing the influencers could position them to enhance cohesion.

However, this study remains a single case study set in the context of (a) post-merger integration in a (b) multi-national manufacturing company in (c) Thailand. Expanding this study to other M & As in Thailand and other geographies, and futhering the study longitudinally would add value.

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CHAPTER 1

INTRODUCTION

Scholars continue to write about mergers and acquisitions (M & As) focused on various areas, including 1) critical and deliberate amalgamation, sociocultural assimilation, and know-how and knowledge (Graebner, Heimeriks, Huy, & Vaara, 2016; see also Brueller, Carmeli, & Markman, 2016), 2) change and transition (e.g., Naz & Nasim, 2016), 3) HR challenges (e.g., Jain & Jaisinghani, 2017), and 4) technology risks (e.g., Khazanchi & Arora, 2016).

According to Deloitte (2016a), 87% of respondents to their survey expected the number of merger and acquisition deals to exceed or match that of 2015. In Deloitte (2016b), 75% of respondents expected deal activity to increase, with deal sizes, volume and divestitures expected to rise. More recent reports corroborate the view of increasing M & As (Deloitte, 2017; Wall et al., 2017).

1.1 Global Merger and Acquisition Outlook

As M & As were expected to rise in 2016, Macmillan and Prakash (2015) focused on key factors influencing mergers and acquisitions, citing 1) diverging results in global economic performance, 2) diverging monetary policies employed to address economic performance, 3) diverging corporate performance around the world, 4) diverging deal valuations and cash positions, 5) impact of Chinese market slowing down resulting in a steep increase in merger and acquisition activities, 6) strong resurgence in Japanese deal making and an increase in outbound investments, and 7) expected cost synergies to create shareholder value.

The actual number of M & As came down in 2016 compared to 2015, though still high comparatively out of the last ten years (Macmillan & Prakash, 2016). In analyzing the outlook for 2017, Macmillan and Prakash (2016) reviewed developments under three themes, namely, 1) fueling growth through innovation, 2)

uncertainty as the ‘new normal’, and 3) creating shareholder value through divestments. According to them, market disruptions like 1) technology shifts (e.g., artificial intelligence, internet of things (IoT), robotics, digital and social business models, Fintech, big data and cognitive analytics), 2) consumer behavior shifts (e.g., peers over corporate, access over ownership, collaboration over competition), and 3) convergence across sectors (e.g., future of consumers, future of mobility, future of finance, future of manufacturing, future of health) drive strategic choices in a buy decision. They also mentioned political elections, economic policy uncertainties, political tensions, humanitarian crisis, and slow-down in global trade as increasing uncertainty.

Corroborating M & As analyses from Deloitte (2016b), Figure 1.1 shows top importance of M & A; top items relate to growth fueled by innovation.

Figure 1.1 The Most Important Purposes of Mergers and Acquisitions
Source: Adapted from Deloitte (2016b, p. 20).

Human resource development professionals need to be equipped with skills and knowledge to execute merger-integrations in a manner that the organization can maintain financial performance. Executives need to be able to stabilize and move organization forward quickly, thereby requiring appropriate support from human resource development professionals.

Scholars (e.g., Alexandridis et al., 2012; Fu et al., 2013; Garfinkel & Hankins, 2011; Gugler et al., 2012; Haleblian et al., 2012; Kastrinaki & Stoneman, 2013) have studied the behavior of mergers in terms of waves (as cited by Snieska & Burksaitiene, 2017, p. 598). Theories have also been examined for the trends and behaviors (e.g., see Gugler et al., 2012, pp. 2-4). The M & A waves of United States were well documented by scholars (Ribeiro, 2010). Graphical representations in the literature (e.g., McCarthy, 2013) but in specific periods amd regions studied.

Table 1.1 describes the M & A waves, mapped against a popular trend of technology driving economic cycle known as the Smihula Economic-Technical waves (Smihula, 2009).

Table 1.1 M & A Waves in United States and United Kingdom Since 1851

Period	United States Wave	United Kingdom Wave	Smihula Economic-Technical Wave
Yr: 1600 - 1740			Financial-Agricultural (Finance, agricultural, trade)
Yr: 1780 - 1840			Industrial (Textile, iron, coal, railways)
Yr: 1886 - 1891		#1	Technical (Chemistry, machinery)
Yr: 1895 - 1904	#1	#2	
Yr: 1917 - 1921		#3	
Yr: 1922 - 1934	#2	#4	
Yr: 1933 – 1939		#5	
Yr: 1953 - 1974	#3	#6	Scientific-Technical (Nuclear, cybernetics)
Yr: (1973 – 1980)			
Yr: 1985 - 1992	#4	#8	Information
Yr: 1993 - 2002	#5	#9	Technology (internet)
Yr: 2003 – 2009	#6	#10	
Yr: 2012 – now	#7	#11	Post-ICT (AI, machine

Period	United States Wave	United Kingdom Wave	Smihula Economic-Technical Wave
			learning, robots)

Source: Adapted from IMAA (2019a, 2019b); Smihula (2009).

Note: Each wave denotes a cycle of swing between a high and low number of M & A activities within the period. Wave #7 for United Kingdom is missing per data source.

It is interesting to note that the United Kingdom experienced more waves than the United States, particularly in the second Smihula Economic-Technical wave (Smihula, 2009) in the period between 1880 through 1920. During this period, the United Kingdom led the world in terms of economic development and growth, through better use of its natural resources (for example, coal, iron and other mineral resources), a stable political environment, and their reach overseas via colonization creating an advanced financial system (see Horn et al., 2010; Mokyr, 2008; Reisman, 1996; Wrigley, 2018).

It is noteworthy that the current case of interest was founded during wave #3 of the United States M & A wave and engaged in multiple M & As during waves #5 and #6 of the United States M & A waves (see Table 1.1) as the industry the case is situated in underwent consolidation and vertical integration from early 1990s to late 2000s (Igami & Uetake, 2015; Sestanj, 2015).

The data seems to suggest a link between technological disruption and the number of mergers and acquisitions.

Schmidt (2002b) outlined the stages in the life cycle of M &A:

1) Pre-deal
2) Due diligence
3) Integration planning
4) Implementation (p. 4).

The extent to which each stage is being focused on depends on the specific condition of the M & A case (Schmidt, 2002b).

Only 25% of M & As delivered desired financial or strategic objectives in the last 30 years or more according to Marks and Mirvis (2010); the merging of different companies cultues often underestimated leading to failure to optimize synergies (e.g., Burke, 2014; Schweiger & Lippert, 2005).

This less-than-chance success rate makes studying M & As attractive and necessary, especially from the perspective of interactions that form culture – "values, norms, and behaviors that characterize the company and its work environment" (Schmidt, 2002b, p. 8).

1.2 Academic Publication Landscape for Mergers and Acquisitions

Although increasing focus on work and employee engagement by academia is well documented (e.g., Bakker et al., 2008; Schaufeli, 2012; Schaufeli, 2014; Schaufeli et al., 2006), there is limited research focused directly on antecedents of employee engagement in M & As over the last 16 or more years (see Figure 1.2). Of the research published in English counted between years 2000 and 2019 from the data, there is a lack of research in this specific context of Thailand as observed by Tharinee and McLean (2014). It is also observed from Figure 1.2 that while the number articles published focused on work engagement and employee engagement is increasing at an increasing rate from years 2000 and 2018 (2019 is excluded as data only represents first quarter of calendar year 2019) while the number of articles published focused on mergers and acquisitions plateaued out and even declined slightly from year 2011 onwards.

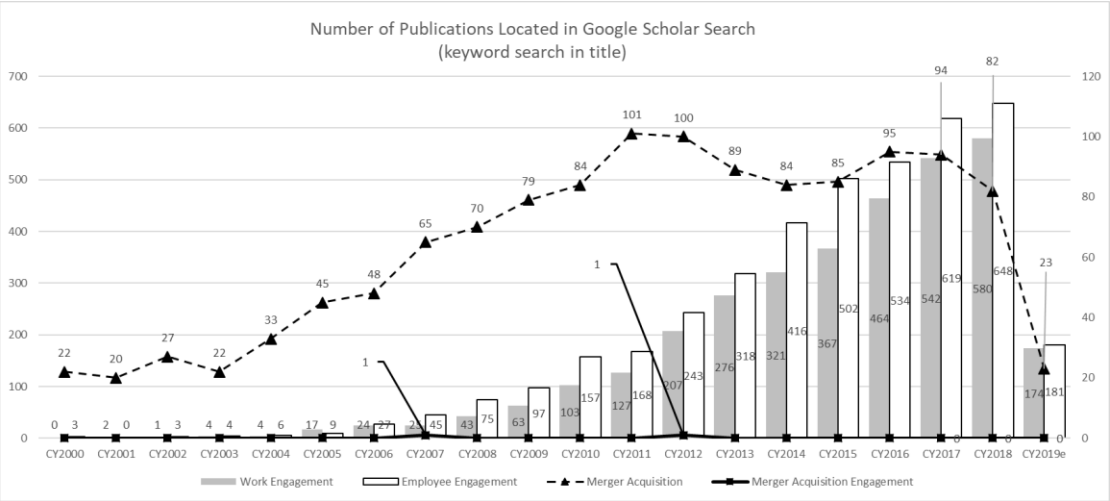


Figure 1.2 Number of Publications Found with 'Work Engagement', 'Employee Engagement', 'Merger Acquisition', and 'Merger Acquisition Engagement' in the Title between 2000 and 2019 (to-date) through Searching Google Scholar Performed 28 April 2019

A desired outcome of M & As is organization cohesion (see Goulet & Schweiger, 2006; Shook & Roth, 2011; Steger & Kummer, 2007). However, the concentration of research on organization cohesion in the context of M & As from years 2000 to 2019 is low in comparison from a search of articles using Google Scholar with keywords 'organization cohesion' and 'mergers and acquisitions' performed, as shown in Figure 1.3. The total number of publications of organization cohesion in the context of M & A is then casted (overlaid) upon the number of M & As recorded in the United States of America in the same period of time (calendar year 2000 to 2018; IMAA, 2019b), as shown in Figure 1.4. It is observed that the trends of both sets of data track, albeit a time lapse of about one year, regardless of the magnitude of the numbers. However, from a relative perspective, the number of publications is still a very small proportion of the total number of M & As recorded.

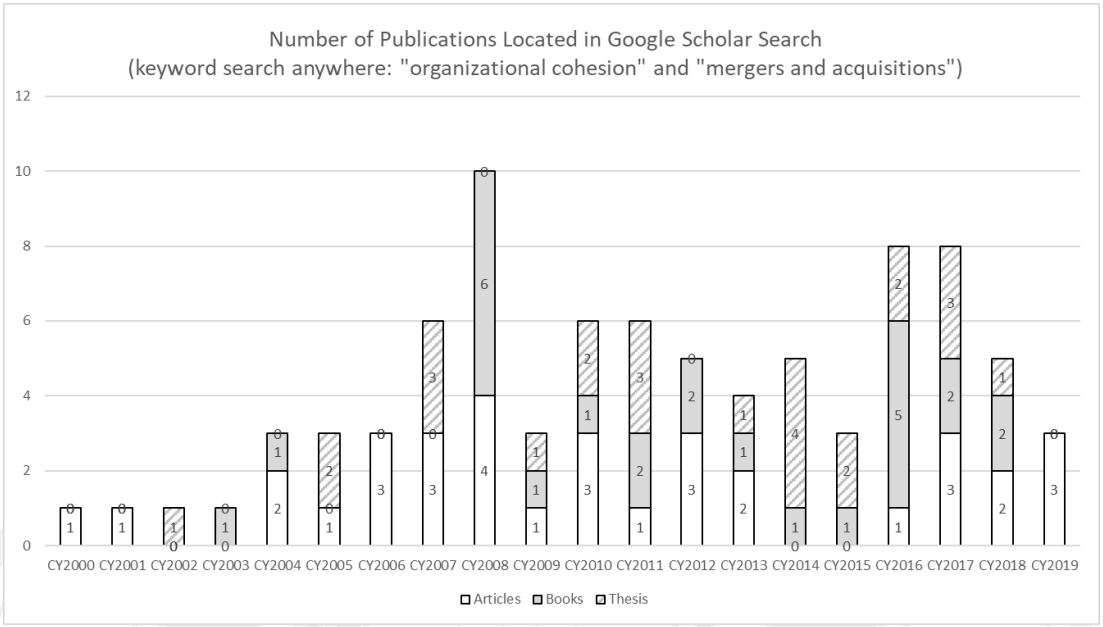


Figure 1.3 Number of Publications Found with 'Organization Cohesion' and 'Mergers and Acquisitions' in Articles between 2000 and 2019 through Searching Google Scholar Performed on 28 April 2019

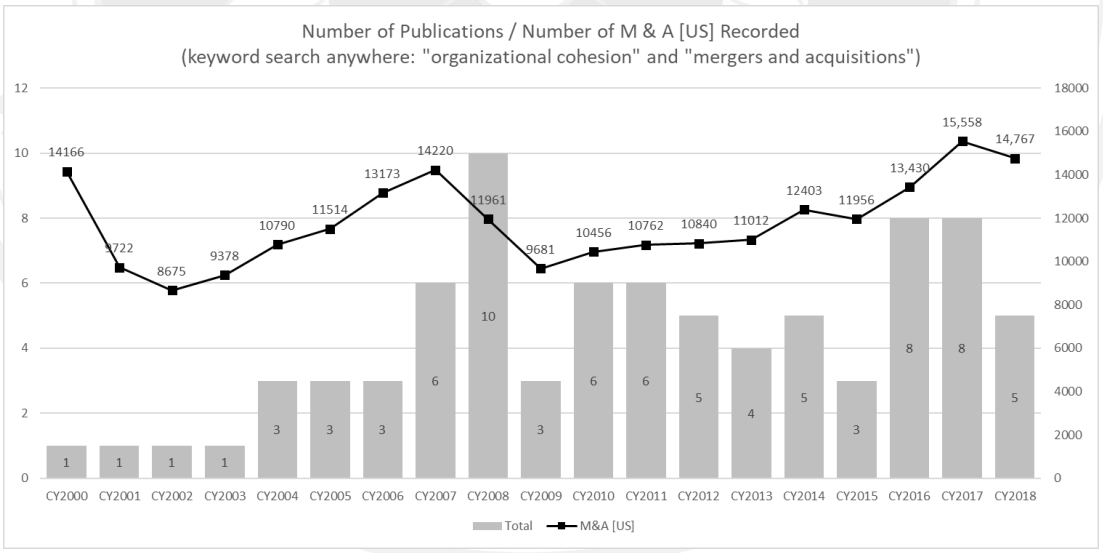


Figure 1.4 Number of Publications Found with 'Organization Cohesion' and 'Mergers and Acquisitions' in Articles between 2000 and 2018 through Searching Google Scholar Performed on 28 April 2019 Overlaid on Number of M & A in US in the Same Period (IMAA, 2019b)

A similar search is also performed for articles with keywords ‘healthy organization’ using Google Scholar in the context of M & A as there could be equivalency between the concepts of healthy organization and organization cohesion (for example, Matthews, 2000), as shown in Figure 1.5 and Figure 1.6. As can be observed, the number of publications that mentions both ‘healthy organization’ and ‘mergers and acquisitions’ is low relative to the available literature around ‘healthy organization’ (see Figure 1.5). The search becomes challenging when performed with the keyword ‘healthy organization’ as part of the title (see Figure 1.6) and creates an impression that there is a lack of literature in the area of healthy organization.

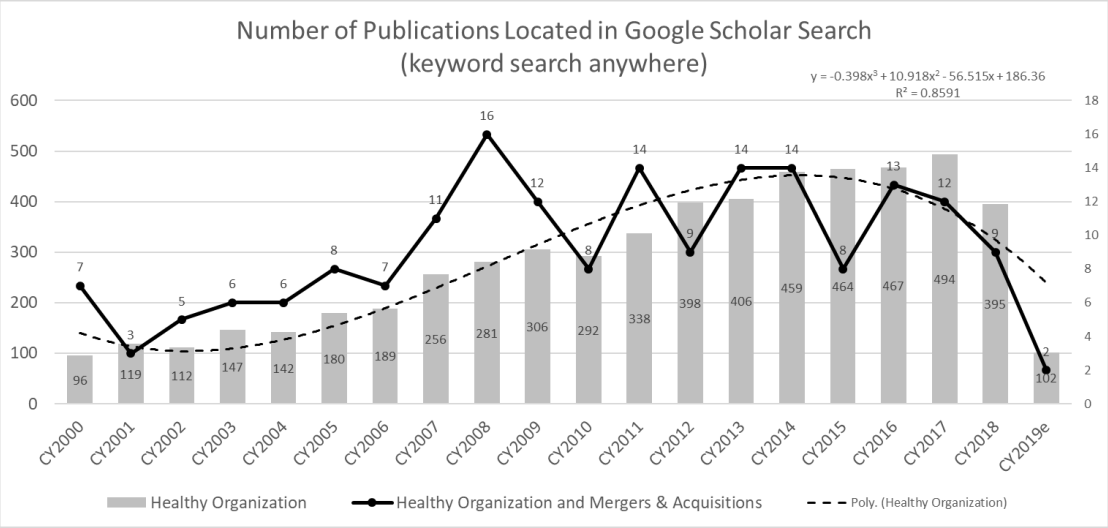


Figure 1.5 Number of Publications Found with ‘Healthy Organization’ Singularly, and in Relation to ‘Mergers and Acquisitions’ between Years 2000 to 2019 through Searching Google Scholar Performed on 28 April 2019

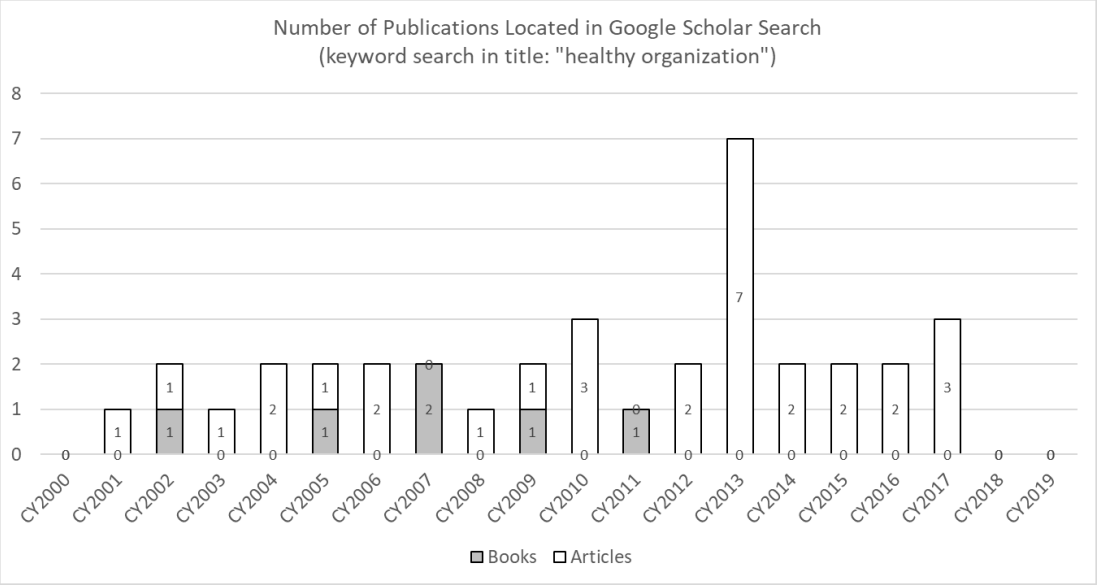


Figure 1.6 Number of Publications (Classified as Books and Articles) found with 'Healthy Organization' as Part of the Title between Years 2000 to 2019 through Searching Google Scholar Performed on 28 April 2019

Of the research counted, there was a lack of research in the context of Thailand. Would healthy organization or organization cohesion take a different meaning in Thailand?

1.3 The Notion of Healthy Mergers and Acquisitions and Healthy Organization

Xenidis and Theocharous (2014) stated that "organizational health (OH) is a term that currently exists in the literature to describe aspects of the working environment related to employees' health" (p. 564). According to Lencioni (2012), "organizational health is about integrity … when it is whole, consistent, and complete, that is when its management, operations, strategy, and culture fit together and make sense" (p. 5).

The organization to human analogy is also well explained by Stanford (2013); the commonality and apt comparison between organization and human draws from the following reasons:

1) Concepts and works used to convey ideas about organizations relate to human capability.

2) Diagnosis and treatment are integral part of organizations and humans. The investigative and prescriptive method and concepts used are also similar.

3) The notion of a life process applies to both organizations and humans from the perspective of stages that have to be experienced sequentially. Similarly, the concept of how long the cycle lasts applies to both the organization and human.

4) There is a need to consciously take care and grow to survive.

5) The way of life and external influences affect and triggers responses in both the organization and human.

6) Organizations and humans can be thought of as systems that require constant interaction between inter-dependent functions within.

Xenidis and Theocharous (2014) explained how a healthy organization could turn ill from a pathological perspective. This explanation could be extended to mergers and acquisitions, where the post-integrated condition could be one that is transformed and healthy, or one that is divided and ailing, as shown in Figure 1.7. The assumption is that prevailing conditions and events transpiring during integration could trigger either of the change. Such prevailing conditions and events could result in favorable combinations and innovations leading to a healthy state or cause pathogenic sub-cultures to be formed that turns into an ailing and unhealthy division.

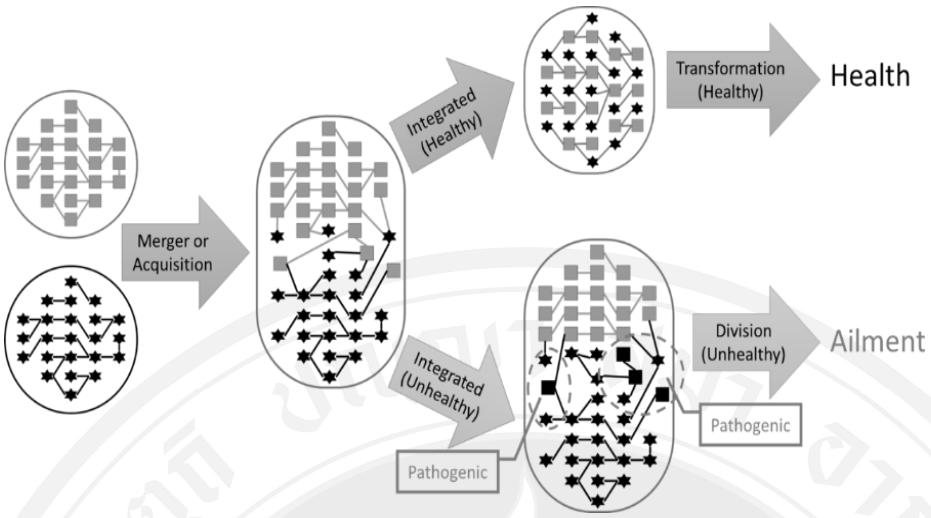


Figure 1.7 A Pathological Perspective of a Merger and Acquisition of Two Probable Outcomes.

Source: Adapted from Xenidis and Theocharous (2014).

Scholars (e.g., Clark, 1962; Matthews, 2000; Miles, 1965; Orhan & Tosuntaş, 2015; Selznick, 1948; Tüfekci & Uysal, 2017; Zweber et al., 2016) have previously, albeit different ways, linked the concept of healthy organization to one that is cohesive. Measurements were also developed by scholars (e.g., see Ahola et al., 2011; Lindström et al., 1997). Pizer and Härtel (2005) added that a healthy organization should also be taking care of attachment needs of employees and, focusing on secure attachment (as opposed to avoidance or anxious attachment) of employees. They however, warned against the perils of like-mindedness and disregard for diversity in the name of cohesion and unification as competitive advantage.

Woodyard (2000) proposed the narrative of a healthy organization as one that (a) operates with values as its core (Brooks, 2000), (b) embraces change and builds a culture of change (D. M. Bradshaw, 2000), (c) provides a positive environment for diligence, gratification from work, cohesion and togetherness (J. L. Bradshaw, 2000; also citing Reich, 1998), and (d) chooses and develops a right set of leaders for sustained success (Cody, 2000), thus encapsulating a multitude of qualities of a healthy organization described afore in regards to interaction and cohesiveness (Matthews, 2000). Task completion is propelled by cohesion, as noted by Reffay and

Chanier (2003); cohesion and interaction reinforcing each other reciprocally in a perpetual cycle (Homans, 1950; as cited).

1.4 Background: The Current Case of Interest

The current problem of interest is about three successful (in terms of revenue, market position, and profitability) companies involved in an acquisition-merger. The company names have been withheld to protect its identity. The situation can be described as:

1) Company 'A' bought Company 'B' of equal market size. Company 'A' and 'B', however, were held separate for two years due to regulatory requirements.

2) When Company 'A' and 'B' integrated two years later and the senior management team elected to run the integrated organization came mainly from Company 'B'; 'NewCo' result.

3) 'NewCo' acquired Company C soon after.

4) 'NewCo' continued to transform its business model and diversify its business through further acquisitions.

The integration of Company 'A', 'B' and 'C' is characteristic of two strategies highlighted by Anand (2004) for mature / declining industrial sectors looking for growth, namely,

1) Redeployment – acquisition as a means of accessing new resources, or entry to new markets (Teece, 1988), and

2) Consolidation – combination of two firms in the same mature industry bring about divestitures, retirement of excess capacity, asset sales, plant closings and employee layoffs (pp. 165-166).

This adds to the already complex situation, making this study interesting and valuable to existing literature.

There is a belief that a high level of employee engagement is the result of a high degree of organizational cohesion; for example, Getha-Taylor (2009) writes, "In the context of the U.S. Coast Guard, reports suggest that the organization's strong internal cohesion contributes to high levels of performance and employee

engagement" (p. 204). Key lenses through which 'NewCo' can be viewed along this belief includes, 1) communication as a key elements of cohesion and antecedent to employee engagement (e.g., Tourish & Hargie, 1998, 2009), 2) the concepts of organizational cohesion and organizational health (e.g., De Smet et al., 2014; Keller & Price, 2011), and 3) a network perspective of communication (e.g., De Jong & Zwijze-Koning, 2009) and cooperation (e.g., Kenis & Oerlemans, 2010) that could be used as lenses through which to view the 'NewCo' situation.

An employee engagement (conducted in October 2017) involving 24,479 respondents in 'NewCo' concluded and was reported out in February 2018. Excerpts from the survey are attached in Appendix A (see Figure A and Figure A). A positive conclusion was drawn from the survey as the results were determined by the committee to be significantly improved over last year. The aggregate results in each of the portrayed dimensions do not suggest significant differences between 'Company A', 'Company B', and 'Company C'. A logical conclusion, based on the belief that employee engagement resulting from cohesion mentioned earlier, it should be expected that cohesion can be observed of 'Company A', 'Company B', and 'Company C', through general interaction.

For a better understanding of how the transformation to 'NewCo' was perceived, focus group discussions were conducted approximately a year into integration at one of the manufacturing sites in Thailand. A total of 42 participants joined two focus group discussions with the transformation project leader. In addition, a follow-up in-depth interview of 9 employees of different levels and departments was conducted. Table 1.2 shows a summary of sub-themes discovered from the interviews and discussions.

Table 1.2 Sub-themes Discovered from Focus Group Discussions and In-depth Interviews ('NewCo' Internal Study, 15 December 2016)

Abbreviation	Description
W	Who are we? Bringing clarity and meaning to identity.
E	Ethical practices – fairness, equality and justice through standardization of processes and policies.

Abbreviation	Description
A	Autonomy and empowerment.
R	Relevance and resolute; where do I fit? What is my contribution? What is my value?
E	Erosive and detracting factors – be aware of uncertainty, oppositions, misalignments, complacency, stagnation, and misbehavior.
O	Being together as ONE; togetherness.
N	Network of care, support and concern for each other.
E	Engagement; mentorship, coaching, motivating, and knowing the employees.

The sub-themes shown in Table 1.2 links to the following ideas:

1) In-group relationships: ‘W’ (who are we / identity), ‘R’ (relevance and resolute), ‘O’ (being together / togetherness), and ‘N’ (network of care / support / concern for each other).

2) Employee centripetalism: ‘W’ (who are we / identity), ‘O’ (being together / togetherness, and ‘N’ (network of care / support / concern for each other).

3) In-group affection / attraction: ‘O’ (being together / togetherness), and ‘N’ (network of care / support / concern for each other).

4) Concern towards association: ‘E’ (ethical practice), and ‘E’ (erosive and detracting factors like uncertainty).

5) Resistance towards association: ‘E’ (erosive and detracting, like opposition, misalignment).

The above observations prompt a thought on concepts, such as 1) identifying with the type of work or business involved, 2) the way work or business is conducted, 3) interaction / relation due to need of work or business, or type of work or business conducted, that would be otherwise unassociated, and 4) if interaction / relation where work is unassociated is non-existent. This further prompts questions if constructs such as 1) social identity, 2) association or attachment, 3) centrality, 4) ties or affection within group, and 5) relationship or association avoidance play a part in how

and where the relationships exist, especially in the case of M & A. Several propositions from Hogg and Terry (2000) corroborates this approach.

It seems insufficient, without thoroughly understanding relevant assumptions, to extrapolate organization cohesion based on engagement levels or engagement surveys, especially for the case of M & A as in the case of 'NewCo'. Perhaps there is value (and possibly necessary) to visit the 'NewCo' situation from the perspective of the small world problem as described by Milgram (1967). As Uzzi and Spiro (2005) posits, "a small world network" (p. 449) influences behavior of the actors associated in a context or setting by forging the degree of connectedness and attachment; the small world problem allows a view through the multitude of lenses mentioned afore.

1.5 The Problem Statement, Purpose of Study & Operational Definition

It was highlighted in prior sections that 1) outlook for M & As set to increase, substantiated further by Deloitte (2017) and Wall et al. (2017), 2) a general lack of research (published in English) in M & A in the context of Thailand (Tharinee & McLean, 2014), 3) a general lack of research (published in English) in M & A in organizational health and/or organizational cohesion, 4) a possibility of theoretical implication that M & A of the future taking the form of multi-stage processes, 5) a desire to achieve organization cohesion and thus healthy organization (Matthews, 2000) as a favorable outcome of M & A, and 6) a need to understand progress and degree of integration from an organizational network perspective beyond employee engagement. Therefore, the purpose of this study is to fill this knowledge gap in M & As 1) regarding organization cohesion or healthy organization post-integration, and 2) enabling human resource professionals to better guide M & As to success, with implications to Thailand.

This study will answer the following research questions (RQ):

RQ 1: How cohesive is the organization in the context of post-merger integration of a multi-national manufacturing company in Thailand?

RQ 2: How does social identity and attachment contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

RQ 3: How does social ties contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

From prior sections, this study explores the notion of 'healthy organization' as a group of individuals connected together in a net or grid arrangement of relationships (Granovetter, 1973, 1985) in a cohesive manner (Adler & Kwon, 2002; Kogut & Zander, 1992; Stanley, 2006). As Stanley (2006) puts it, being 'healthy' is being part of, being involved with, and being connected to others. Such a group might have (a) a common social identity (shared norms, beliefs, and symbols; see Bourdieu, 1986) recognizing the needs of members (Clark, 1962; Haslam et al., 2017; Lewis et al., 2007; Webster, 2004), and (b) an affecting attachment (Beyer & Niño, 2001; De Dreu et al., 2001; Hazan & Shaver, 1990; Pizer & Härtel, 2005) in the pursuit of tasks and objectives (Carron et al., 1998); see also the work of Miller (1994) and (Carron et al., 1998; Miller, 1994); Walumbwa and Christensen (2013).

Embedded in the research questions are three concepts with the following operational definitions in this study,

1) Cohesion as the sense of belonging and pride of membership (Bollen & Hoyle, 1990), the desire to reach goals and targets together, the willingness to cultivate and maintain social ties with each other, and the attraction to the group (Carless & De Paolo, 2000); see section 2.4 in following chapter in this volume. The relationship structure is viewed via a social network map (Burt, 1992; Lee, 2009; Uzzi, 1999) in order to differentiate between perceived cohesion and reality (Tulin et al., 2018); see section 2.5 in following chapter in this volume.

2) Social identity as the tendency and desire of staying with the group, the tendency to think of the group, and positive sentiments of being part of the group (Ashforth & Mael, 1989; Cameron, 2004); see section 2.1 in following chapter in this volume.

3) Attachment as the sense of unworthiness and concern associated with being with a group and the comfort level of being close or intimate with others within a group (Smith et al., 1999); see section 2.2 in following chapter in this volume.

1.6 Scope of Study

This study targets two manufacturing sites situated in Thailand that were involved in the merger-integration case of interest ('NewCo') described prior. One manufacturing site belonged to Company 'A' while the other belonged to Company 'B', providing the opportunity to study legacy cultures, practices, identities, and attachments as contributing factors, if any.

The participants included in this study will comprise of both Thai nationals and foreign nationals employed at the two manufacturing sites, including foreign nationals who travel frequently to work at the manufacturing sites. The study will consist of individual-level relations within a hierarchical structure and cross-functional role structure.

There is a multitude of areas that can be studied in the context of M & A which are important (e.g., seeSalyachivin, 2013 for a comprehensive list). This study will borrow appropriate knowledge (e.g., social identity theory) suited to the phenomenon understand and within the context of the study but will not investigate all of the extensive lists constructs / variables in these fields. The discovery and subsequent understanding of relationships and interactions between individuals, amongst groups by individuals are of primary concern in this study, as opposed to developing or testing measurements, scales and instruments. Appropriate delimitation will be provided in a later chapter.

1.7 Implications to Theory and Practice

M & As in the future under the influence of global trends could require new theories, especially indigenous to the context. Approached from a mechanics of interaction perspective in the light of human-human and human-machine contact, one could being to ponder the effects of (a) the speed of information, wider applications for artificial intelligences, and other trends (for example, see Table 1.1) that would require new coping skills, particularly in dealing with volatility, uncertainty, complexity, and ambiguity or VUCA. Lord et al. (2014) introduced a quantum approach to time and change (QATC), which emphasizes that life changes as the

individuals and collectives interact with their environment. Quantum skills and similar coping skills discussed by scholars as documented in earlier works of the author (e.g., Mak & Kyaw, 2017; Mak et al., 2016; Mak et al., 2017) are relevant and need to be brought into the M & As context. This research enables human resource professionals to design interventions to help individuals, teams, and organizations integrate more effectively and efficiently in an M & A. This research triggers an individual's philosophical debate between holding on to an identity in the light of continued existence and survival (e.g., leaving a legacy).

1.8 Dissertation Outline

This dissertation is organized into six chapters.

Chapter one (this chapter; the introduction), provides the reader with basic information about this study. In this chapter, relevant information around 1) mergers and acquisitions, 2) academic publications landscape of mergers and acquisitions, 3) healthy and ailing mergers and acquisitions, 4) the notion of a healthy organization, and 5) background on the current case of interest are provided leading to the purpose, problem statement, research questions, and significance of this study.

Chapter two, focused on literature review, familiarizes the reader with the theoretical underpinnings and conceptual framework essential to this study. Divided into seven sections, this chapter covers 1) social identity theory and the social identity approach, 2) attachment theory, adult attachment, and attachment style, 3) a further look at mergers and acquisitions within the conceptual framework, 4) group / organizational cohesion within the conceptual framework, 5) the social network analysis approach, 6) the case of interest in the context of the conceptual framework, 7) the research model, and 8) delimitations of this study.

Chapter three, focused on the research design, methodology and methods, outlines the mixed-method research undertaken in this dissertation. Organized in three main sections, this chapter covers 1) social constructivism as the epistemological posture for this study, 2) the research design and methodology detailing how a case study-mixed methods design achieves the objectives of this

study, and 3) the methods involved in executing the actual study involving social network analysis as the means to the mixed methods design.

Chapter four, focused on results obtained in the research undertaken in this dissertation. Organized in five main sections, this chapter covers 1) item-objective congruence measured before beginning the study, 2) a discussion around observations on the data obtained, 3) results obtained regarding RQ 1, 4) results obtained regarding RQ 2, and 5) results obtained regarding RQ 3.

Chapter five, focused on discussing results obtained in the research as well as observations and approaches to aid future research. Organized in sections, this chapter covers 1) insights and additional analysis in each of the research questions (RQ 1, RQ 2, and RQ 3), 2) implications and recommendations to the scholarship and practice in the context of mergers and acquisitions, 3) implications and recommendations to the case of interest, and 4) limitations of this study.

1.9 Chapter Summary

This chapter began with a global outlook on mergers and acquisitions which is set to increase in the future. A landscape of academic publications regarding mergers and acquisitions was provided, painting a picture of the lack of focus on organization cohesion or healthy organization in the context of mergers and acquisitions, especially in Thailand. The notion of healthy merges and healthy organization was described, followed by the background of the current case of interest, which led to the problem statement and purpose of this study. Three research questions were proposed, namely 1) what is an ideal, cohesive organization in the context of post-merger integration in Thailand, 2) how social identity and attachment contribute to organization cohesion in post-merger integration, and 3) how social ties contribute to organization cohesion post-merger integration. The scope of the study was defined to be a case of merger and acquisition of two successful multinational manufacturing companies situated in Thailand. Possible implications of this study to theory and practice were stated.

The next chapter is devoted to literature review, where the theoretical underpinnings and conceptual framework in relation to this study are discussed.

CHAPTER 2

LITERATURE REVIEW

While it may not be difficult to imagine an organization as a social unit or as part of a social systems and appreciate its impact, it could be neglected in organization theory or organization research (Stern & Barley, 1996). This chapter aims to take the reader through a social perspective of an organization, a relevant research framework for mergers and acquisitions, underpinning theories, and important areas but not in scope of this study. This chapter is organized in the following manner:

1) The discussion begins with a 'social' perspective of an organization and connection to mergers and acquisitions.

2) A relevant research framework to study mergers and acquisitions is then proposed.

3) An introduction to the underpinning theories driving this study (see sections 2.1 and 2.2) highlights key variables of interest associated with the phenomenon in this study.

4) A brief on mergers and acquisitions, group and organization cohesiveness, social network analysis approach, and the case of interest (see sections 2.3, 2.4, 2.5, and 2.6 respectively).

5) A description of the research model adopted for this study follows in section 2.7.

6) As it is not quite possible to cover all grounds in any study, several important topics that are relevant but not within scope of this study are discussed in section 2.8.

7) A chapter summary closes this chapter.

The study of organization as a social unit occurs at four levels (Etzioni, 1958) with part of the work based on Parsons (1956a, 1956b). Cohn (1979) cited Blau and Scott (1962), Caplow (1964), Etzioni (1964), and Parsons (1956a) as scholars who

take the meaning of an organization as a socially established collective group with a purpose of achieving a specific objective, paving the way to discuss organizations from the perspective of a social unit.

Social exchange within the social unit generates emotions, which in turn affect relationships within (e.g., Lawler, 2001; Von Scheve & Von Luede, 2005). Understanding the relationship between emotions and group ties within a social unit tie together relationships and organization health.

Emotions are an embedded part of transformation and change (Kiefer, 2002). Emotions experienced as a group (e.g., Kiefer, 2002; Menges & Kilduff, 2015) could lead to attitudes towards change (Helpap & Bekmeier-Feuerhahn, 2016). Emotions also lead to behavioral differences between individuals (e.g., Jones & Hartley, 2013; Marston, 1928) and temperaments in turn affects teamwork (Gilley et al., 2010). Social comparison influences the way we perceive and think (Suls et al., 1991), feel (Fliessbach et al., 2007) and act or behave (Yadin, 2015), positively or negatively. However, the present environment may also be affected by the past.

Nostalgia (Wildschut et al., 2006) connects emotions to individuals' past (Zhou et al., 2012), which could be explained from the perspective of social identity theory (Sierra & McQuitty, 2007) and attachment theory (Shaver & Mikulincer, 2010), providing a different angle to looking at mergers and acquisitions.

For individuals involved in a merger and acquisition, it is possible that psychological health improve as a result of a good leadership behavior (Maslow, 1998), cast upon leader-member exchange at multiple levels of organization structure (Graen & Uhl-Bien, 1995) and motivation to face increased demands of transformation (Benson & Dundis, 2003). Ultimately, it is continued existence of desire for longevity and survival (e.g., Burton, 2010; Salanova et al., 2012) and continued existence as the desired outcome of a merger or acquisition for the individual employee, organization, and community, as it relates to a healthy organization (De Smet et al., 2014; DeJoy & Wilson, 2003; Orvik & Axelsson, 2012).

Two prominent theories inform this study, namely 1) social identity theory (Tajfel, 1974; Tajfel & Turner, 1979, 1986; Tajfel & Turner, 2004), and 2) attachment theory (Ainsworth, 1967, 1978; Ainsworth et al., 1978/2015; Ainsworth & Bowlby, 1991; Bowlby, 1946, 1951). The topic of dealing with emotions arising from mergers

and acquisitions surfaces relations to both these theories; how willingly team members' contribute within a team depends on relative social status of their identities within an M & A (Wit & Kerr, 2002, as cited in Coisne, 2013, p. 185). Petkova and McCarthy (2013) referenced how adult attachment (attachment theory) constructs anxiety and avoidance affected interactions in an M & A in their work.

A research framework (see Figure 2.1) consisting of these theories guides this study. This study, situated in Thailand, potentially adds a different perspective than other nationalities.

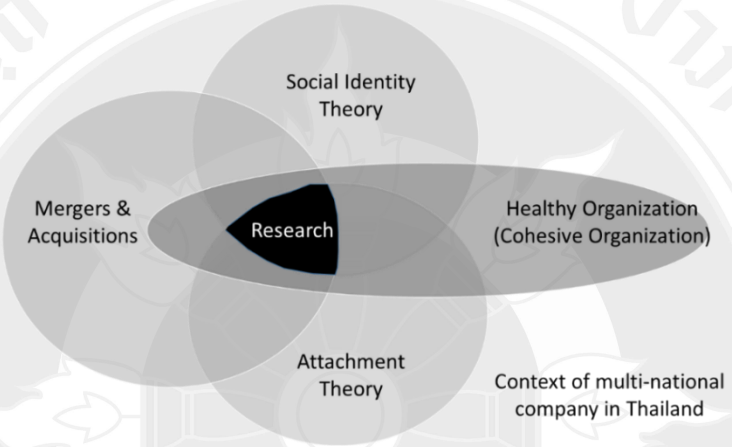


Figure 2.1 Research Framework Consisting of Social Identity Theory
Source: Tajfel (1974); Tajfel & Turner (1979, 1986); Tajfel & Turner (2004); Ainsworth (1967, 1978); Ainsworth et al. (1978/2015); Ainsworth & Bowlby (1991); Bowlby (1946, 1951).

Specific to this study, focus is placed on the following concepts within the theories and framework, namely,

1) Social identity theory – while in-group relations and importance of the group are key, perceived continuation of the pre-merger identity strengthened post-merger relationships (van Leeuwen et al., 2003) from the perspectives of the employees (van Dick et al., 2004) as a merger is an integration of an in-group and an out-group. The perception of self-worth and how often one thinks of the team signal membership or affinity to a group (Cameron, 2004).

2) Attachment theory – Smith et al. (1999) brought attachment theory to the group level, focusing on attachment anxiety and avoidance. Anxiety relates to

distress and discomfort of being attached to a group while avoidance relates to resistance in forming a relationship with the group (Smith et al., 2010). Individuals who are inclined to attachment to familiar, irreplaceable organizations (Lin, 2009) could find it difficult to change. The social process itself within a group could put pressure on individuals to give up personal identities to adopt a common, group identity to increase the sense of belonging (Hogg & Terry, 2000).

The following sections dwell into details of the fundamental theories and concepts underpinning this study.

2.1 Social Identity Theory and the Social Identity Approach

Social Identity Theory (Tajfel, 1974; Tajfel et al., 1971; Tajfel & Turner, 1979, 1986) explains intergroup behavior, social conflict and social change predicated on the assumptions that 1) individuals strive to enhance self-esteem, 2) the group they are in, by representation of social value, is a means of achieving value, and 3) groups derive prestige through comparison with other teams (Tajfel & Turner, 1986). An equally important notion out of this description is the individual distancing himself / herself from groups with lower social status as a reaction to the negative connotation or association, offering reasons and excuses for temporary association with the group (Ashforth & Mael, 1989). Concepts like 1) prejudice, 2) discrimination, 3) stereotyping, and 4) competition are often associated with social identity theory (Ashforth & Mael, 1989; Goldberg, 2003; Tsui et al., 1991), whereas similarity between groups can become a useful construct as well.

The beginning of and what set Social Identity Theory on its path was Realistic Group Conflict Theory (RGCT), which was officially named by Donald T. Campbell although discussed by several scholars (Brief et al., 2005; Campbell, 1965; Jackson, 1993) RGCT describes the phenomena of negative interactions (e.g., hostility, stereotyping, prejudices, etc.) occurring or arising between groups due to perceived scarcity or threat to availability of resources and groups acting in defense or in retaliation regardless of truth (Jackson, 1993; Khan & Samarina, 2007); sustained state of negative sentiments (or even animosity) are reinforced due to competing goals or contest for resources (Jackson, 1993).

Tajfel and Turner (1979) posited that RGCT could not explain 1) intergroup conflict enhanced in-group identification and positive attachment, 2) such an identification was ignored in RGCT, and (c) RGCT neglected processes of creating and sustaining group identity, and the effects on in-group and intergroup behavior.

Subsequent work on social categorization (Tajfel et al., 1971) and social identity (Tajfel, 1974) cumulated into Social Identity Theory (SIT); see Figure 2.2. One interpretation of Tajfel and Turner (1979, 1986) is an individual's ability to choose or to design to identify with a group of higher status in order to boost his / her self-esteem. In the experiments, participants were assigned randomly and anonymously to the task to be performed (Otten, 2016; Tajfel, 1970); the participants did not have a choice. Yet, choice could have implication; acquired identity versus ascribed identity carry different meaning to commitment (Huddy, 2001).

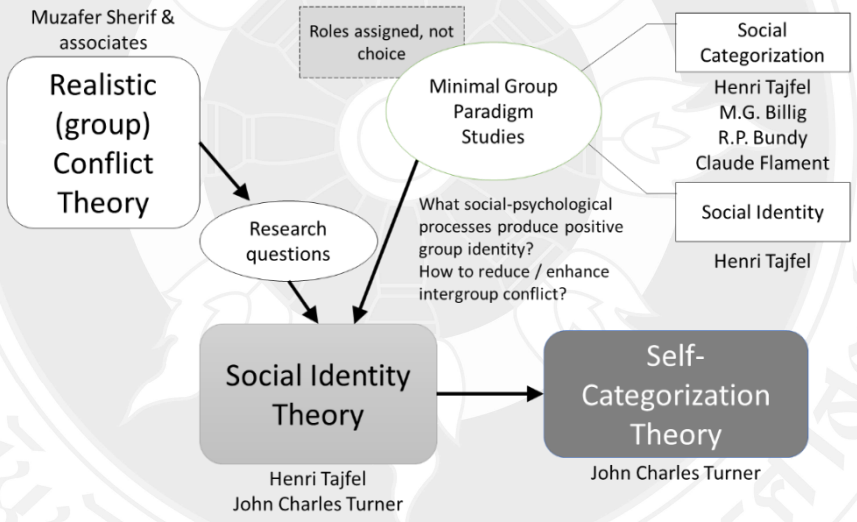


Figure 2.2 Schematic Representation of Development of Social Identity Theory
Source: Hornsey (2008); Tajfel & Turner (1979, 1986).

As described in Tajfel and Turner (1979, 1986) and Hornsey (2008), interaction between individuals operated on a continuums. One end of the continuum describes interaction based on relationships between individuals and individual traits (Tajfel & Turner, 1986). The other end of the continuum describes interaction based

on participation or enrollment in different social bodies or divisions (Tajfel & Turner, 1986).

Another continuum described the individual's belief system (Tajfel & Turner, 1986). One end of this continuum describes social mobility, where movement of individuals between groups is possible or occurs with ease as a manifestation of acceptance or embracement of difference (Tajfel & Turner, 1986). The other end of this continuum describes the social change, where social status prevents movement to other groups as a manifestation of perceived differences in reputation (e.g., bad reputation) or coming from a different background (Tajfel & Turner, 1986).

Figure 2.3 shows a graphical representation of the interaction and belief-system continuums described, with 1) representing the interaction continuum as one moves between interpersonal (e.g., dyadic relationship) to intergroup where one acts as part of a group, and 2) representing the attitudinal expression due to personal value and belief system traversing acceptance (that is, openness to movement between groups) to change (that is, collective change is required to allow movement between groups). The continuums offer explain intergroup interaction and behavior. For example, if a group is described to be at the social change end of the belief continuum, and at the intergroup end of the interaction continuum, it can be predicted that those individuals would have a more uniform behavior towards other groups and even act to maximize the difference between themselves and the other groups, to the extent of discriminating against the other group.

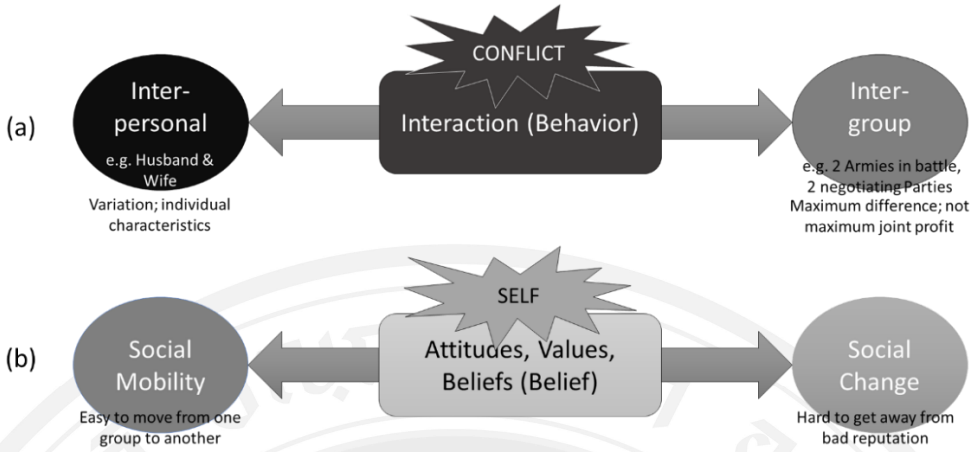


Figure 2.3 Two Continuums Describe the Gaps Identified within RGCT that is Filled by SIT

Source: Tajfel & Turner (1979, 1986).

Note: 1) interaction continuum as one moves between interpersonal (e.g., dyadic relationship) to intergroup where one acts as part of a group, and 2) attitudinal expression due to personal value and belief system traversing acceptance to resistance (that is, collective change intervention is required).

Turner (1999) explains the attitudinal expression continuum shown in Figure 2.3 2) further, that individuals are not likely to be able to change their identity (that is, moving freely between groups) through their own (individual) actions but are subject to the social beliefs, rules and structures in place; that is any movement along the continuum would be an interplay between communal (collective) and cognitive / emotional (individual) factors. He stressed that individuals could change their social standings through collective actions from a common association perspective and relying on group belong as bargaining power in the social system.

In other words, it can be difficult for members of different groups to move across groups or come together to form a new group. Take for instance in a mergers and acquisitions situation, where both the acquiring group and acquired group will act to protect their own interest during merger integration as opposed to coming together to capitalize on the potential brought about by the merger.

An interpretation of how the two continuums act on individuals and groups described in Figure 2.3 is shown in the form of a matrix of probable consequences in Figure 2.4 and shown in Figure 2.3 above.

Social Identity Theory		Interaction (behavior)	
		Interpersonal ⟷	Intergroup
Belief System (attitude, values, beliefs)	Social Mobility ↕ Social Change	Variation; individual characteristics as dominant	Amicable relations between groups; harmonious co-existence
		Discrimination at individual level; isolation or rejection	Maximize difference, not maximum joint profit; competition as dominant

Figure 2.4 A Probable Array of Consequences Depending on One's Position on the Continuums Described

Source: Hornsey (2008); Tajfel & Turner (1979, 1986); Turner (1999).

Social identity theory can also be seen in the light of four linked concepts, namely,

1) Social categorization, where groups of individuals devoid of personal interests act to preserve or maximize the benefit (meaning) to the group (Tajfel et al., 1971; Tajfel & Turner, 1979, 1986).

2) Social identity, where social categorization constructs and/or designates an individual's placement within the society (that is, social stratification) (Tajfel & Turner, 1986) and individuals maintain self-esteem by making comparisons to others (Tajfel, 1974; Tajfel & Turner, 1986).

3) Social comparison, where comparisons are to maintain or achieve higher status (Tajfel & Turner, 1979, 1986).

4) Positive distinctiveness, where the reactions to low group status include individual's ability to leave (physically or psychologically) the group, redefining how status is measured or how groups are compared, and direct competition with out-groups to raise status (Tajfel & Turner, 1979, 1986).

This describes the probable actions and/or reactions of individuals and groups in terms of 1) competing for resources, 2) creating identification, 3) continuous comparison, and 4) constructing sense of belonging or differentiation.

It is essential, for completeness, to mention Minimal Group Paradigm (MGP) as it filled the gap between RGCT and SIT; the studies in fact led to SIT. Tajfel believed that although bias (or any form of preconception of enmity), dispute or hostility, and classification (social or otherwise) could explain discrimination between groups, the factors may not be necessary or enough to start the act of discrimination (Diehl, 1990). As documented by Diehl (1990), Tajfel and his colleagues (Billig & Tajfel, 1973; Tajfel & Billig, 1974; Tajfel et al., 1971) devised a research experiment to study the minimal factors required to sufficiently start the discrimination (see Ferguson & Kelley, 1964 for history of experiments). The MGP experiments grouped participants randomly together (sometimes based on an insignificant reason such as the liking of one artist versus another) and had the participants award points to in-group and out-group participants based on situational questions. The notion of merely belonging to an assigned group seems to have resulted in the participant acting against members of another group without even the consideration of similarities or differences in characteristics, beliefs, ideologies, or factors that would have otherwise bounded the group together (Tajfel et al., 1971). Competition was also not a necessary instigating element (Ferguson & Kelley, 1964).

As Spears et al. (1999) points out, SIT suggests that 1) grouping, and 2) meaning and purpose evoked by that grouping resonating with the individuals of the group in a specific social context are necessary elements for social differentiation. In other words, one must belong (e.g., Cohen & Garcia, 2008) and be socially connected (e.g., Lee & Robbins, 1998). Group commitment is a key element influencing how actors behave and express themselves in front of the group (Ellemers et al., 1999). As Spears et al. (1999) noted, the dynamics of reality within a specific social context clearly exerts some form of influence on the individual situated in that context. Social categorization is thus complementary and results in social identity (Turner & Reynolds, 2012).

Self-categorization theory (Turner, 1987, 1996, 2010; Turner et al., 1987; Turner & Oakes, 1989, 1997; Turner et al., 1994) developed quickly within the

framework of social identity theory (Turner & Reynolds, 2012). Social identity theory explained why participants behaved to differentiate between in-group and out-group in the Minimal Group Paradigm studies, whereas self-categorization theory sought to explain why participants identified with their assigned (minimal) groups and why participants exhibited conformance or commitment to the assigned (minimal) groups. Turner (1975) showed how social identity processes related to rivalry in a social context that accounted for the minimal and in-group bias. Opposing or argumentative viewpoints were not necessarily for the rivalry to ensue (Turner, 1975); the act of 'grouping' leads to highlighting or emphasizing similarities within a group and differences between groups resulting in the definition of the in-group and comparison to the out-group (Oldmeadow et al., 2003). The individual could be typecast (Haslam et al., 1999; Haslam et al., 1997; Hogg & Turner, 1987).

Turner and Reynolds (2012) further explains that an individual's position or placement in a social context (for example, in a society) is defined by what is perceived by that individual's reality (self, emotions, value systems and beliefs), resulting in social identity. When an individual experiences a process of embracing the idea of belonging to a group and start to be like the group, that individual has undergone a process of "depersonalization" (Turner & Reynolds, 2012, p. 402), the main tenet of self-categorization theory (Turner, 1984). Depersonalization happens when an individual identity (how one thinks, what one says, what one does, etc.) given way to a group identity (how the group thinks, what the group says, what the group does, etc.). When an individual is recognized as part of being a group, others perception of that individual changes from seeing that individual as being unique, to a member of a group who has the same traits as the group (Hogg & Reid, 2006; Oldmeadow et al., 2003). The individual is therefore typecast with the characteristics of the group and expected to feel, think, act, or see in a specific manner that differentiates the group from another (Haslam et al., 1997; Hogg & Reid, 2006); his or her personality is lost as the group's traits become dominant, hence depersonalized. The more the individual become similar to the group and different than comparison groups, the better they fit (Abrams & Hogg, 2010).

Social identity theory and self-categorization theory are different theories relating to social identity. Self-categorization theory is an extension of social identity

theory explaining the mechanism to group behavior (Turner & Reynolds, 2012); they complement each other and forms the social identity approach. The social identity approach has greater implications in that the creation of a group is not just an artefact of relationships existing amongst a group of individuals, but is a dynamic exchange and evolution of mindsets, character, bias, demeanor, approach, and conduct of individuals towards each other (Turner, 1999). The key idea here is to view group behavior from a standpoint of a collective body as opposed to a collection of individuals (Turner, 1999); a view of social cohesion due to social identity approach (Anastasio et al., 1997) within and between groups or sub-groups from the perspective of a common or shared perception of similarities (Hogg, 1992; Turner, 1982; Turner et al., 1987; Turner et al., 2006; Turner et al., 1983) and changes due to the interactions and exchanges between the individuals as self and individuals as a member of the group (Haslam et al., 1997; Jetten, Postmes, et al., 2002; Reicher & Haslam, 2004, 2006; Reynolds et al., 2000; Sani & Reicher, 1998; Stott & Drury, 2004; Stott & Reicher, 1998).

In the view of Jenkins (2008), organizations are connected networks of individuals that separates members from non-members that follow specific ways of "doing things together" (p. 169). He also believed that organizations are connected networks of identities of individuals and collective groups, interacting, and influencing the processes employed within the organization.

The social identity approach considers both 1) the classification or act of grouping, and 2) the act of comparing within a social context as mental and cognitive processes (Hogg & Abrams, 1988), that brings together how the contextual and situational understanding interacts and affects members of social groups (Hogg & Abrams, 1988) from a "macro-social" (Hogg & Abrams, 1988, p. 54) perspective (Tajfel & Turner, 1979; Taylor & McKirnan, 1984). Figure in Appendix B shows an outline of social identity approach in a large-scale intergroup relation setting.

The individual's choice to want to belong or distance from a group brings on the discussion on the next underpinning theory of this study.

2.2 Attachment Theory, Adult Attachment, and Attachment Style

Attachment theory (Ainsworth, 1978; Ainsworth & Bowlby, 1991; Bretherton, 1992), developed by Edward John Mostyn Bowlby (Bowlby, 1946, 1951) and Mary Dinsmore Salter Ainsworth (Ainsworth, 1967, 1979; Ainsworth et al., 1978/2015) predicts that the social and emotional relationship between infant and caregiver in the initial years of the infant later shapes that individual's social behavior with others in his/her adult life. Bowlby (1951) concluded that a newborn, baby, toddler or kid should have an affectionate, loving, cherished, satisfying and stable relationship with his / her mother or any substitute care-provider so as to be mentally healthy in life (Bretherton, 1992). One of the paths to understanding the tenets of attachment theory is to trace the development of the theory through the perspectives of both the theorists, as shown in Figure 2.5. The forty years of development can be broadly divided into the following periods:

1) Up to 1954 both scholars are primarily focused on studying children (particularly infants of less than 24 months old) and the mother-child (or care provider-child) pair relationship.

2) From 1954 to 1963, Mary Ainsworth focused on the reaction of the child to adverse situations and how that affects the mother-child bonding while the diverse interests broadened the way John Bowlby looked at attachment.

3) From 1963 to 1980, Mary Ainsworth focused on the attachment style measure of the mother-child pairs and John Bowlby focused on the affective aspect / consequence of attachment.

4) From 1980 to 1990, John Bowlby focused on developing therapy guidelines based on attachment theory.

Smith et al. (1999) brought attachment to the group level, focusing on attachment anxiety and avoidance. Anxiety relates to distress and discomfort of being attached to a group while avoidance relates to resistance in forming a relationship with a group (Smith et al., 2010).

As discussed by Mikulincer and Shaver (2016) and Shaver and Mikulincer (2006), anxiety and avoidance as attachment styles impacts the quality of relationships. This adds a flavor to understanding individuals act and react in a work

environment (e.g., Richards & Schat, 2011), especially relating to how one views oneself in relation to others within an environment (Brennan et al., 1998; Mikulincer & Shaver, 2005; Richards & Schat, 2011), as described well by Richards and Schat (2011; see p.170),

1) Individuals who are ‘anxiously attached’ maintain and carry a pessimistic or unfavorable outlook, and they try very hard to get others’ attention, care and support, almost to the point of being possessive of others (citing Mikulincer & Shaver, 2005).

2) Individuals who are ‘avoidantly attached’ perceive others as unapproachable, inaccessible or nonexistent, insensitive and cold, and even being punitive against them (citing Bowlby, 1973; Mikulincer & Shaver, 2005). Often this leads to these individuals thinking that being by oneself is better than being with others, rejecting the usefulness and positive effects of relationships and shunning affection and emotional closeness (as cited in Mikulincer & Shaver, 2005).

Figure 2.5 Development of Attachment Theory through the Perspectives of John Bowlby and Mary Ainsworth

Source: Adapted from Ainsworth & Bowlby (1991); Bretherton (1992).

In their work, Richards and Schat (2011) also cautioned professionals responsible for social support interventions (such as building positive relationships, communication / emotional support, etc.), as well as organizations requisitioning that such social support interventions should consider possible negative reactions from anxiously attached individuals. This as an important aspect that is rarely (explicitly) expressed in literature, whereas constructs of bias (e.g., Magai et al., 2000), uncertainty, stress, loss experiences, acculturation process, and violation of psychological contract (see Cartwright, 2014 for comprehensive review), or a focus on cultural aspects (see Teerikangas & Véry, 2014 for comprehensive review) are given emphasis. This is a reminder of key components of attachment theory (see Simpson & Rholes, 1998 for discussion).

Brennan et al. (1998) casted the key elements of the Ainsworth et al. (1978/2015) diagram onto two discriminant functions (avoidance and anxiety) in an enhanced representation. Scholars who study infant-caregiver attachment (e.g., Crittenden, 1988; Main & Solomon, 1990) added in their results (that is anxious-ambivalent and disoriented/disorganized), resulting in the infant attachment model shown in Figure 2.6. As Fraley (2002) noted, a principal thesis of attachment theory is that an individual's attachment experience at the infant stage affects how he or she connects and attaches to others later in life (that is, in adulthood); a viewpoint also echoed and substantiated by Sroufe (2005).

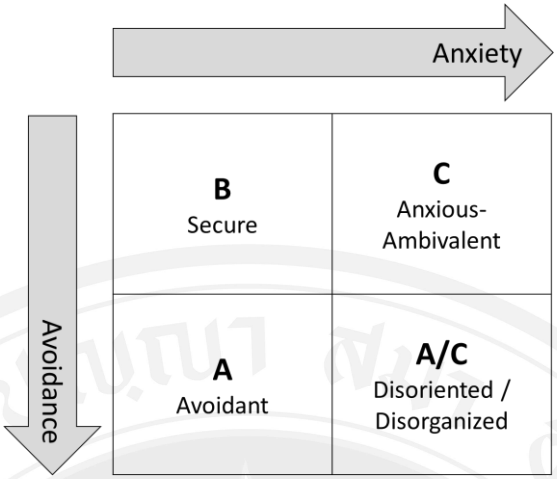


Figure 2.6 The Four Infant Attachment Types against the Two Discriminant Functions: Avoidance and Anxiety

Source: Adapted from Brennan et al. (1998, p. 50).

In earlier work, Brennan et al. (1991) compared Hazan and Shaver's (1987) three-category typology of attachment style (secure, anxious-ambivalent, and avoidant) to Bartholomew's (1990) four-category typology of attachment style (secure, preoccupied, fearful, and dismissing); see Brennan et al. (1991, p. 452), Table 1) for details. They further noted that while Bartholomew's (1990) 'secure' and 'preoccupied' categories matched closely to Hazan and Shaver's (1987) 'secure' and 'anxious-ambivalent' categories respectively, her 'fearful' and 'dismissing' categories accounted for a difference arising from how Hazan and Shaver (1987) versus Main and Solomon (1990) viewed and operationally defined 'avoidant'. As Brennan et al. (1991) noted, Bartholomew (1990) recognized that both kinds of 'avoidant' individuals existed and therefore has set her framework to include both categories separately.

Bartholomew's work (e.g., Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994; Scharfe & Bartholomew, 1994) extended infant attachment styles to adolescents and adults. At the same time, she and her co-authors (e.g., Scharfe, 1996) interchanged the axes of model of self with anxiety and axes of model of other with avoidance, proposing that an adverse or pessimistic view of 'self' is akin or linked to 'anxiety' as it relates to desertion and an adverse or pessimistic view of

'others' is akin or linked to evasive action or escapism from others. This circles back to explanation of the 'self' context of Bartholomew and Shaver (1998) earlier.

In a merger and acquisition situation, it is often heard anecdotally of anxiety (e.g., uncertainty, job insecurity, fear of being let go) and avoidance (e.g., unwilling to participate, unwilling to accept new work arrangements, unwilling to accept new colleagues or team members). It is through the lens of adult attachment styles within attachment theory that this study is conceived, with attachment theory as a theoretical underpinning in this study.

2.3 A Brief on Mergers and Acquisitions

Mergers and acquisitions have been described as 'waves' (e.g., Ribeiro, 2010; Schmidt, 2002a; Weston, 2001). The strategies and processes involved in integrating two or more entities in a merger and acquisition situation is explored in a little more detail in this section.

The complexity involved in a merger and acquisition cannot be captured in full from singular perspectives taken. As such, Buono and Bowditch (2003) proposed a framework of integrated typology based on a summary of perspectives (e.g., Pritchett, 1985). This integrated typology, as show in

Figure 2.7, is a convenient way to describe a merger and acquision situated in the three perspectives, 1) level of desired integration, 2) degree of friendliness-hostility, and 3) strategic purpose. Where some mergers and acqusitions are situation on singular points on the cubic grid, others may require a block of points; this study being case in point where the situation is 1) strategic and operational – a key motivation being to get into a different market segment in order to diverse the business, 2) friendly-collaborative and laissez-faire – a goal being to add complementary products and services to the business portfolio and to address any market opportunities arising, and 3) horizontal integration and product / market extension using this integrated typology – where new business / product opportunties could be opened as products are combined to form new offerings. It is important to state that the typology may be describing the perspective from the business but it

might not accurately reflect the perspective of the employees involved; the process of integration may offer a linkage.

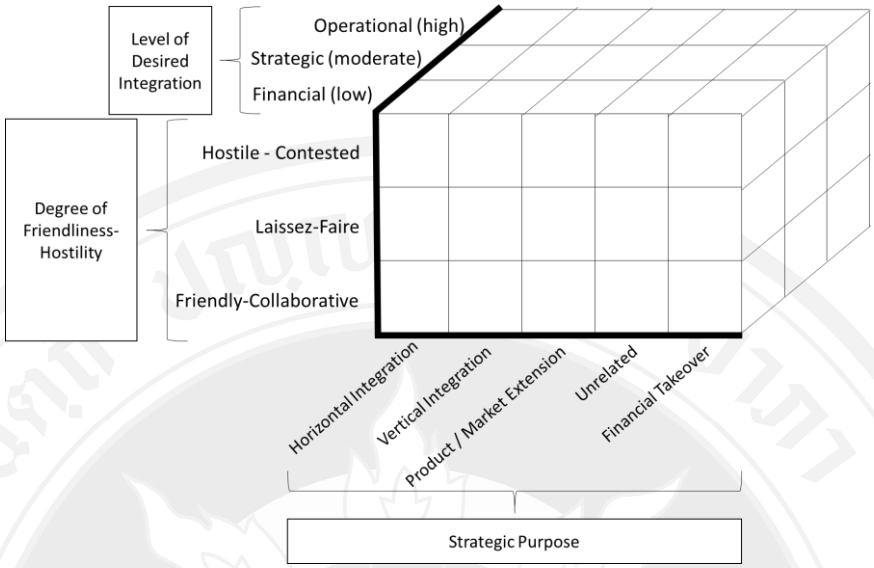


Figure 2.7 An integrated typology of mergers and acquisitions
Source: Adapted from Buono & Bowditch (2003, p. 75).

Executing a merger and acquision follows a defined process (see Ivancevich et al., 1987; Pritchett, 1985; Schweiger et al., 1987). Buono and Bowditch (2003), in capturing important works of scholars (Jemison & Sitkin, 1986a, 1986b; Pondy, 1967; Sales & Mirvis, 1984; Tuckman, 1965), proposed a seven stage process often trasversed during the combination of entities involved in a merger and acquision. This seven stage process, as shown in Figure 2.8, consists namely of,

1) Precombination – where things remain status quo and organizations remain stable.

2) Combination planning – where some level of fear surfaces as speculations stirs.

3) Announced combination – where mixed emotions and expectations surfaces.

4) Initial combination process – where questions on roles, structure, jobs surfaces and threatens the stability of the organization. For example, as new

organization structures are announced, employees may spend time speculating what is to come and job focus is lost.

5) Formal combination – where changes take place physically, entities are changed legally, and instability and conflict could cripple the organization. For example, employees reporting to a different supervisor and having to learn new processes to perform could face conflict with team members and question rationale of the process.

6) Combination aftermath – where some level of instability, uncertainty, differences, identity still grips the organization. For example, employees still use 'I / we' versus 'you / they' type language in communications.

7) Psychological combination = where harmonization and integration is achieved and organization is returned to stability.

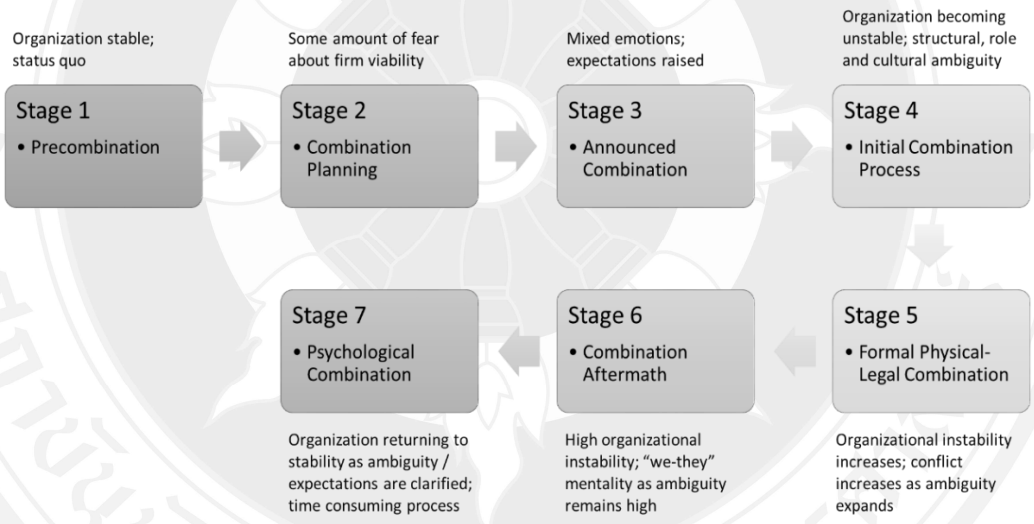


Figure 2.8 Seven Stage Process Typical of a Merger and Acquisition and Associated Uncertainties and Ambiguities

Source: Adapted from Buono and Bowditch (2003, p. 89).

Pitkethly et al. (2003) proposed a continuous scale depicting how far assimilation (within a merger and acquisition context) that described the different typologies proposed by Haspeslagh and Jemison (1991), as shown in Figure 2.9. Aside from a typology perspective, the continum could be looked at as stages that a merger and acquision might go through (such as for the case of interest in this study)

as a result of regulatory requirements (e.g., hold-separate) or business strategy (e.g., brand retention). For example, the sales division might be kept separate in order to ensure realization of full market potential (that is, each prior brand maintaining their market share).

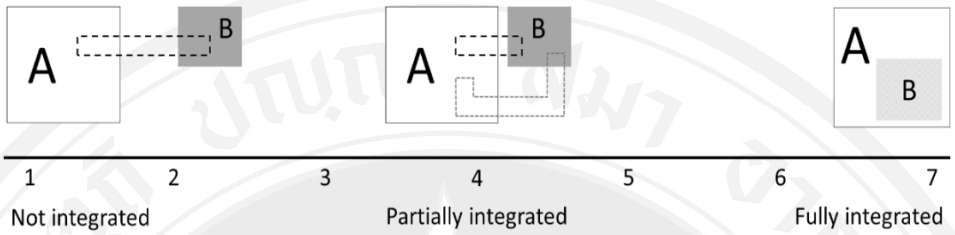


Figure 2.9 Spectrum of Integration (Degree of Integration Continuum)
Source: Adapted from Pitkethly et al. (2003, p. 33).

Chakravarty and Chua (2012) opined that Asian companies are likely to face similar levels of challenges in integration post-merger and acquisition as their Western counterparts. They, however, think Asian companies are less familiar with the challenges, less fluent with tools and approaches compared to their Western counterparts, and less likely to see external consultative assistance.

As McKinney Jr. et al. (2017) pointed out, 'people' are at the center of any M & A, driving development and innovation. Chakravarty and Chua (2012) agrees, pointing out that companies acquire another not because of the assets (or for the matter, market opportunity, technology, financial capital, products and services) but the human capital; it is the employees – that is, the human capital – who innovate and create new products or services, build brand names, form relationships with customers and propel sales. McKinney Jr. et al. (2017) recommends exploring the definition and use of 'merger' and 'acquisition' properly (Piekkari et al., 2005), proper management of people policies (e.g., Birkinshaw et al., 2000; Schuler & Jackson, 2001; Walsh & Ellwood, 1991), involvement of the human resource function in the entire process of the merger and acquisition as this is generally lacking (Cartwright & Cooper, 1993), organizational fit (Datta, 1991), corporate culture (Cartwright & Cooper, 1993; Cartwright & Schoenberg, 2006), and national culture (Stahl & Voigt, 2008; Stulz & Williamson, 2003). Chakravarty and Chua (2012) posited that the human resources

and technology departments (such as information technology) are crucial to engaging and effecting change in a merger and acquisition process; having the ability to either make or break the integration.

As Schweiger et al. (1987) claimed, employees of acquired firms experience similar loss of attachment as young children separated from their primary care-giver; "Employees attach themselves to organizations, jobs, coworkers, work routines, the application of personal skills, and performance and career goals" (p. 127). According to them the loss, evident in studies (e.g., Costello et al., 1963; Graves, 1981; Schweiger & DeNisi, 1987, 1991; Shirley, 1973), follows a predictable cycle of 1) protesting the separation, 2) recovering the loss relationship, 3) losing interest, and 4) becoming emotionally detached as outlined in the works of John Bowlby (see Bowlby, 1969/1982, 1973). Schweiger et al. (1987) described five concerns of employees (cf. Schweiger & Very, 2003 above) involved in a merger and acquisition, of which loss of identity is relevant and important to this study. According to them, the loss of identity is a loss due to something that is foundational or definitive and traumatic in nature according to Freud's theory of neurosis (see Fenichel, 1946; Horney, 1946); an example being the crushing of a reputation or statue of prior success.

Work on community (Cohen, 2001) and ethnic groups (Barth, 1998b) from a social anthropology perspective could provide insight to human reactions in a merger and acquisition. One could understand the assertive reaction between merging entities at the onset of a merger and acquisition from the work of Cohen (2001),

1) The assertive (sometimes viewed as adverse) reaction to integration stems from members perceiving an external drastic intimidation upon them that compels them to express themselves for the fear of not being able to in the future.

2) These members achieve this by consolidating and uniting behind a collective or communal space where they share an identity; a common voice of who they are.

3) These members react to any external forces invade this collective or communal space as if their own self is being depraved and blemished.

Also from Barth (1998b),

1) Any recognized or privileged (that is, with restricted membership) group could stay as a group if the barriers defining the group is maintained. The continuing (enduring) division between associate and alien is a phenomenon worthy of examination from a change perspective.

2) The recognition of a different person as an associate of the group entails a common value of what is norm on which an assessment or decision can be based. It then follows that within this dyadic relationship, there exist compliance and conformance to some agreed-upon rules or common ground. This also indicates that there is a possibility to diversify and expand the connection to include other areas.

Perhaps, as Cohen (2001) suggested, a good choice to understand such dynamics would be at the boundaries of the social categories. Of relevance to this study is also Mignerat and Marmenout's (2017) work around organizational clashes due to different value systems, intergroup dynamics through the lens of social identity theory (Fischer et al., 2007; Haunschild et al., 1994; Terry et al., 2001) and transitional identity (Clark et al., 2010) and impact to trust due to psychological impact of uncertainty (Hogg & Terry, 2000; Schweiger & DeNisi, 1991; Stahl & Sitkin, 2005). Fischer et al. (2007) posited that a merger and acquisition compels certain entities or groups to discard their previous social identities and such an action effectively changes the social categorization process (that is, the definition of who is an associate versus foreigner) that exist. According to them, members of such groups would exhibit resistance or adverse reactions to the new social identity assigned thereby jeopardizing the integration. Terry et al. (2001) also approached it from a social identity perspective.

2.4 Group/Organizational Cohesiveness

A challenge to beginning this discussion lies with the attempt to understand the human collectivity posed by Jenkins (2002) as being the salient task of sociology. Rooted in our 'self', our 'interaction' with others (keeping in mind each as a 'self'), and our 'interaction' with everything else around us, 'collectivities' are both the physical (of constituent individuals) and intangible (artefacts, knowledge, symbols, procedures, customary acts, etc.) most often with unclear boundaries, as described by

Jenkins (2002). Encompassing ‘meaning’ (as it is to the individual, and the consequent interaction), and ‘material’ (as what is said, what is done, where, how it is done, etc.), Jenkins (2002) proposed a three-legged model of collectivity (see Figure 2.10) consisting of:

1) An individual order that stands for the singularity of each person who is part of the collectivity.

2) An interactional order that stands for the connection and relation between the members of the collectivity.

3) An institutional order that stands for the standardized, accepted and endorsed systemic way of how the group operates.

Moving back in time, Goffman (1983) spoke about 1) “the interaction order” (p. 2) which is inter-person, in-presence interaction that assumed the context of the interaction was purely that specific (narrow) social situation, whereas, where the broader implication of the social surrounds of the persons could have mattered, 2) “the categoric identification and the individual identification” (pp. 3-4) which is about how one perceives another in the process interaction given how things are said and heard (that is, dependent on each person’s worldview) and prior knowledge of any social unit that the persons might have been associated with, all that are the foundation of how interactions take place within any community, and 3) descriptions of arrangements, processes, and rules akin to institution or institutionalization; perhaps the foundational ideas that influenced Jenkins (2002).

Looking at Figure 2.10, one could ask if the three-legs (that is, the individual order, interactional order, and institutional order) emancipated from the collectivity or resulted in the collectivity. Though simple, it is a question aimed at the approach rooted in sociology, albeit anthropological or psychological. It is also interesting to note that Postmes et al. (2006) described the social cohesion model to be a process that takes the form of the collectivity driving the three orders; accordingly, the social cohesion model attempts to claim that the sense of belonging to a group creates an emotional grounding that the ‘togetherness’ binds the individuals together in that group. In comparing the social cohesion model with social identification, Postmes et al. (2006) suggested that the three orders drove collectivity from a social identification perspective as according to the social identification model,

1) How one sees oneself and others around oneself (that is, one's mental model of 'self' and 'others') depends on a deeper, philosophical social classification.

2) That such social classifications become part of the notion of 'self' within oneself through embodiment and embracement of these social classifications.

3) That such notions of 'self' held results in a collective or communal model and interaction flows that drives how the group acts or conducts itself.

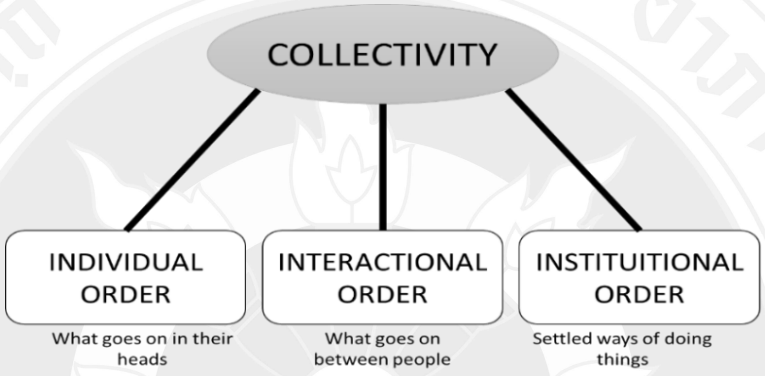


Figure 2.10 Diagram Depicting the Description of a 'Collectivity' According to Jenkins (2002) Borrowing Terms Used in Goffman (1983).

Source: Jenkins (2002, p. 19); Goffman (1983).

The process depicted in Figure 2.10 should be interpreted in both directions. Under certain circumstances, it would be collectivity emancipating from or because of the workings of the three orders while in some other circumstances, it would be collectivity driving or dictating the workings of the three orders. Such circumstances would depend on the stability of the 'collectivity' and the balance (that is group cohesiveness) within the framework. In the context of mergers and acquisitions, this is true depending on the typology and even within a typology depending on the state of the cohesiveness of the group.

King (2006) posited that 1) communication enabled social cohesion and collective drills, 2) formal collective drills resulted in social cohesion, and 3) there existed social cohesion between actors (that is, comradery). Siebold (2007) critiqued the work and referred back to the benchmark for coherence for militaristic

organizations. King (2007) responded by emphasizing how he viewed cohesion as social cohesion, task cohesion, and combat effectiveness combined. Griffith (2007) added to the conversation by pointing out that prior discussion missed out salient elements like, 1) the primary function of cohesion as a performance enabler and not a performance enhancer, and 2) that cohesion acted as a moderator to performance due to the demonstrated similarity between social support and cohesion. It is noteworthy that most common definition of social cohesion and task cohesion used in these studies came from MacCoun (1993), who defined social cohesion as "the nature and quality of the emotional bonds of friendship, liking, caring, and closeness among group members" (p. 291) and task cohesion as "shared commitment among members to achieving a goal that requires the collective efforts of the group" (p. 291). He further explained that a group can be described as socially cohesive if its members expressed an affinity towards each other, willing to invest time socially with each other, and appreciate the affectionate intimacy in the company of each other, whereas a group can be described as task cohesive if members shared a collective purpose or ambition and are propelled towards achieving that common objective through integrated and harmonized actions.

2.5 The Social Network Analysis Approach

Social network analysis has progressed in the field of human resource and organizational development, albeit not yet becoming a mainstream research tool (Hatala, 2006; Storberg-Walker & Gubbins, 2007) although scholars have written about it over the last two or more decades (e.g., Cross & Parker, 2004; Gubbins & Garavan, 2005; Lengnick-Hall & Lengnick-Hall, 2003; Storberg-Walker & Gubbins, 2007; Yamkovenko & Hatala, 2015) since the seminar work of Wasserman and Faust (1994). As Hatala (2006) pointed out, the social network analysis approach can illuminate an organization's ability to adapt to change, and the dynamics of relationships between organizations and within the organization. Such areas would include learning and knowledge transfer (e.g., Parise, 2007) and performance related to social capital (e.g., Han et al., 2019; Osman-Gani & Rockstuhl, 2008), and even research impact in HRD (e.g., Cho & Park, 2012; Hyun et al., 2015; Jo et al., 2009).

In the field of human resource and organizational development in mergers and acquisitions, social network analysis is seldom applied; a Google Scholar search using keywords ‘hrd’, ‘merger’, and ‘social network analysis’, for example, turned out only 36 article counts. Therefore, this study contributes to and extends social network analysis in this field.

It is important to understand the relationship between the actors in a merger and acquisition, as it is equally important to understand the evolution of that relationship and the social network approach would do so eloquently (Mirc, 2016). The social network approach is not only an instrument providing insight to how relationships between actors are arranged but in itself a systems view and theoretical model of the system of connections and embodiment (Burt, 1992, 2005; Granovetter, 1973; Uzzi, 1997; Wasserman & Faust, 1994; Wasserman & Galaskiewicz, 1994). According to Mirc (2016), the social network approach is aptly suitable to studying inter-organizational interaction in mergers and acquisitions but is lesser deployed to studying mergers and acquisitions. She did however, provide a summary of seminal use cases of scholars (e.g., Allatta & Singh, 2011; Beckman & Haunschild, 2002; Briscoe & Tsai, 2011; Haunschild, 1993; Mirc, 2012; Öberg, 2012; Öberg et al., 2007; Yang, Lin, et al., 2011; Yang, Sun, et al., 2011) deploying social network approach to study mergers and acquisition. She also noted that collective coherence (that is, group cohesion) substantially prohibited and obstructed unification and that the propensity for people to be drawn to others similar to oneself was bolstered and enhanced by cohesiveness (see Mirc, 2016, p. 265); a notion that is linked to the crux of this study (see research model as described in section 2.7 later in this chapter). According to Mirc and Véry (2015), a small group of actors bridged the gap between the sides involved in a merger and acquisition, providing a path to integration.

Burt (1982) suggested that a community or collective arrangement (e.g., a social formation), often also describing a set of collective likeness, is likely to constrain the way a member behaves or acts; the member willingly adhere due to favorable positioning of the collective. He further suggested that members thus in pursuance of a common benefit could modify the collective arrangement, resulting in new constraint for all members of the community. Such a causative relationship is illustrated in Figure 2.11, and described as labelled, (a) a member’s place in the

collective arrangement forms the context of discussion that, (b) influences or shapes the member's interest and thus constrains (c) the member's action, which is also influenced by the collective arrangement, resulting in collective action that in turn, (d) defines the collective arrangement. Burt's (1982) description is similar to the concept of categorization in the social identity approach as described in the prior chapter (see section 2.1 of this volume).

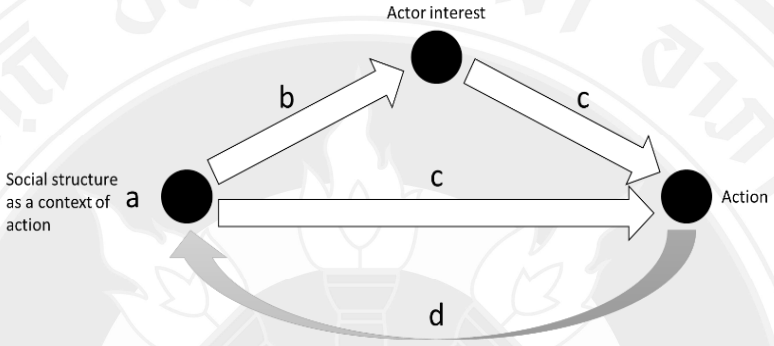


Figure 2.11 An Anatomy of an Action in a Social Context
Source: Adapted from Burt (1982, p. 9).

To illustrate the concept and introduce the concept of social network, let's assume we asked a group of six individuals ('A', 'B', 'C', 'D', 'E', and 'F') working together in an office 'who in this office do they have lunch with' (see Holland & Leinhardt, 1973; Moreno, 1934; 1960 for setting up of questions). Each of the six individuals will list who they have lunch with, and we tabulate the results, as show in Table 2.1. Reading Table 2.1, we have the following relationships.

1) 'A' has lunch with 'B' and 'C'.
2) 'B' has lunch with 'A' and 'C'.
3) 'C' has lunch with 'A' and 'B'.
4) 'D' has lunch with 'F'.
5) 'E' has lunch with 'C'.
6) 'F' has lunch with 'D'.

Table 2.1 Tabulated Results from List Returned for our Hypothetical Scenario

Individual	'Who I have lunch with'	Relationship
A	B, C	R_1, R_2
B	A, C	R_3, R_4
C	A, B	R_5, R_6
D	F	R_7
E	C	R_8
F	D	R_9

To expand the idea a little more, consider a physical line to represent a relationship between a pair of actors and represented the actors as nodes (Wasserman & Faust, 1994). Such a drawing based on the relationships described and assuming we represented equal strength of the relationships, a possible mapping we could arrive at is shown in Figure 2.12. It can be observed immediately that (a) actors 'A', 'B', and 'C' could form a closed-loop relationship amongst them, (b) actors 'D' and 'F' form a separate grouping (a probably sub-group within the office), and (c) actor 'C' could mediate the relationship between actor 'E' and actors 'A' and 'C'.

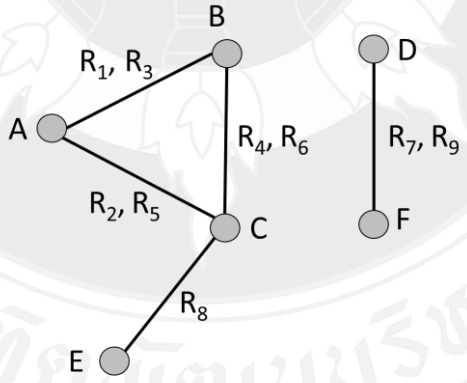


Figure 2.12 Mapping of all the Relationships Described by R_1 to R_9 above in our Hypothetical Example

Associated with a social network diagram such as one shown in Figure 2.12 (or sociogram) are a set of quantitative descriptors. An essential listing (e.g., Hawe et al., 2004; Tabassum et al., 2018) is summarized in Table 2.2 illustrating key

parameters for measuring cohesion of a social network. While a social network diagram or sociogram (such as the illustrative example shown in Figure 2.12) 'shows' how relationships around a concept (for example, 'trust', 'teamwork') occurs within a group of actors, the quantitative descriptors put a 'value' to that relationship. The visual map (of the sociogram) shows what 'teamwork' looks like within the group, the descriptors 'quantifies' the teamwork relationships within the group.

Table 2.2 Summary of Essential Quantitative Network Characteristics Used Commonly to Describe Cohesion of Social Networks

Network Measure	**Description**
Number of nodes	Measures the number of actors in the network
Size/Number of ties	Measures the number of unique pairs of relationships in a network given *n* (unique) actors
Average degree	Ratio of the sum of all nodal degrees to the total number of actors present; larger the number, greater cohesion
Density	Ratio of the number of ties present to the number of possible ties in the network; between values 0 and 1; higher value equals higher cohesion
Components	Maximum number of connected actors in a subgroup within the network; smaller the number, the greater cohesion in the network
Component ratio	Measures how fragmented a network is, measures ratio of number of components to the total number of actors in the network. Higher values indicate higher isolation
Size of largest component	Number of connected actors in the largest subgroup within the network; larger the size, greater the cohesion
Proportion	Ratio of the number of actors in the largest component to the number of actors in the network
Average distance	The largest number of actors in between two actors being evaluated; larger number equals greater cohesion

Network Measure	Description
Std deviation distance	The standard deviation of the shortest connected path between an actor to another actor
Diameter	Measures the highest number of ties (connections or edges) between two actors; higher number equals greater cohesion
Compactness	The normalized summation of inverse of all distances in the network; smaller means less connected and more isolation

Source: Borgatti et al. (2002); Burt (1976); Hanneman & Riddle (2011); Scott (2017); Wasserman & Faust (1994).

The calculated quantities differentiate the type of network (or combination of type of network), offering a quantitative means of looking at an (somewhat) arbitrarily chosen means of displaying the network.

The hypothetical network example (see Figure 2.12) used for discussion thus far can also be displayed with other demographic details incorporated to provide more qualitative information. For example, demographic information such as tenure (length of service in the company) or age group collected as part of the network survey could be included such that the network nodes can be ‘colored’ to denote the demographic information, as shown in Figure 2.13. As an example, group 1 in Figure 2.13 could reference age-group of 36-40 years old, group 2 reference age-group of 31-35 years old, and group 3 reference age-group of 26-30 years old. A possible interpretation could then be related to ‘generation’, for instance.

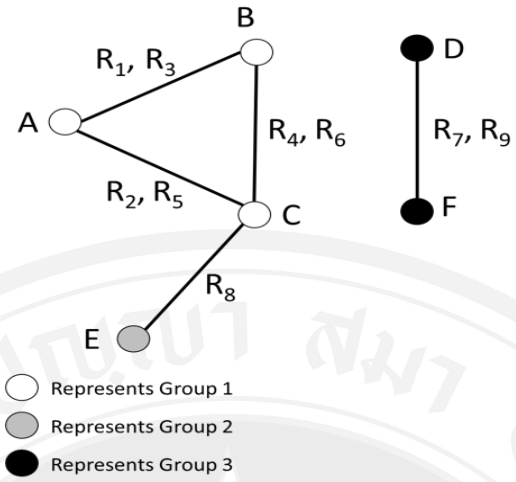


Figure 2.13 Network in Figure 2.12 Displayed with Added Demographic Information

Scott (2011) noted that early social network models focused on forces that push and pull groups of people together (e.g., Festinger, 1954; Heider, 1958; Lewin, 1936 as cited), while modern day (post-1940s) social network analysis focused on quantities like distance and density. He also noted that recent social physics theorists (e.g., Barabási, 2002; Watts, 1999; 2004, as cited) operated mainly based on mathematics of graphs, completely devoid of sociological aspects. From a history perspective, Scott (2011) noted that the sociological branch and the mathematical branch of social network analysis developed separately but posits that there is a collaborative opportunity.

Social network analysis is based on graph theory, a mathematical technique, while at the same time, based on ethnography or studies of affinity in relationships and social relationships (Edwards, 2010). Social network analysis uses information gathered from questions to generate 1) a qualitative network diagram illustrating the relationships among actors and also of the social makeup of those relationships, and 2) quantitative indices describing the networks, thus making it essentially a mixed methods technique (Teddlie & Tashakkori, 2009). Social network analysis has been around for more than 50 years (Moreno, 1934) and has gained much popularity in the last two decades or so in the mixed methods community through the works of scholars like Carrington et al. (2005), Durland and Fredericks (2005), Marsden (2005), Wasserman and Faust (1994), and Wasserman and Galaskiewicz (1994).

2.6 The Case of Interest: History

To better understand the case of interest, it is quite necessary to review the history, shown schematically in Figure 2.14. This shows the journey of how Company A came to be today through various mergers and acquisitions. All the real names of the business entities are replaced with pseudo-names that have been consistent in describing all the entities throughout this document to protect confidentiality of the entity.

Key eras depicted in Figure 2.14 included 1) Company A's own journey through mergers and acquisitions as response to the trends within the industry where it is situated, 2) Company B's own journey through mergers and acquisitions as a response to the trends within the industry where it is situated, and 3) Company C's own journey through mergers and acquisitions as growth within the industry where it is situated. Salient to Company A's journey is the growth-decline cyclical nature of the industry and vertical integration of critical supply chain elements that drove consolidation (see Igami & Uetake, 2015; Sestanj, 2015). Company B's journey is slightly different in that at formation, the absorbed entity was already vertically integrated and a technology leader in the industry. Company C's journey is completely different as the industry it is situated in is different and has yet to see major consolidations. Thus, the current case of interest is quite different than what has been studied thus far and offers an opportunity to add to the current mergers and acquisitions knowledge.

Mergers and acquisitions throughout the history of the companies in the case of interest has been for growth themselves, as well as for market expansion. The primary industry where Company A and Company B are situated has consolidated (acquisition of competitors) and vertically integrated (acquisition of suppliers) from early 1990s to late 2000s (Igami & Uetake, 2015; Sestanj, 2015). Company C underwent growth by acquiring market enablers (end-product solutions).

From a leadership perspective, the following key points provide insight to the case of interest as well:

1) During the years between 2007 and 2012, a group of senior executives from Company A joined Company B to run Company B.

2) After Company A acquired Company B, the senior leadership team selected to run the combined company were from Company B.

3) From an operational perspective, the biggest changes in leadership under Company A was within Company A, yielding positions to leaders from Company B.

From a work culture perspective, two mainstreams existed after integration of Company A, Company B and Company C following the two business mainstreams and product portfolio offerings to the market; work cultures of Company B and Company C become mainstream, as the market space occupied by the original Company A downsized. There were no efforts to cultivate a company culture for the combined 'NewCo', albeit the launch of a new set of core values; each legacy continued to operate in the same beliefs system prior to integration.

The historical background provided here enables the understanding of why the merger and acquisition in the case of interest is different than described models in literature. This amplifies the purpose of this study.

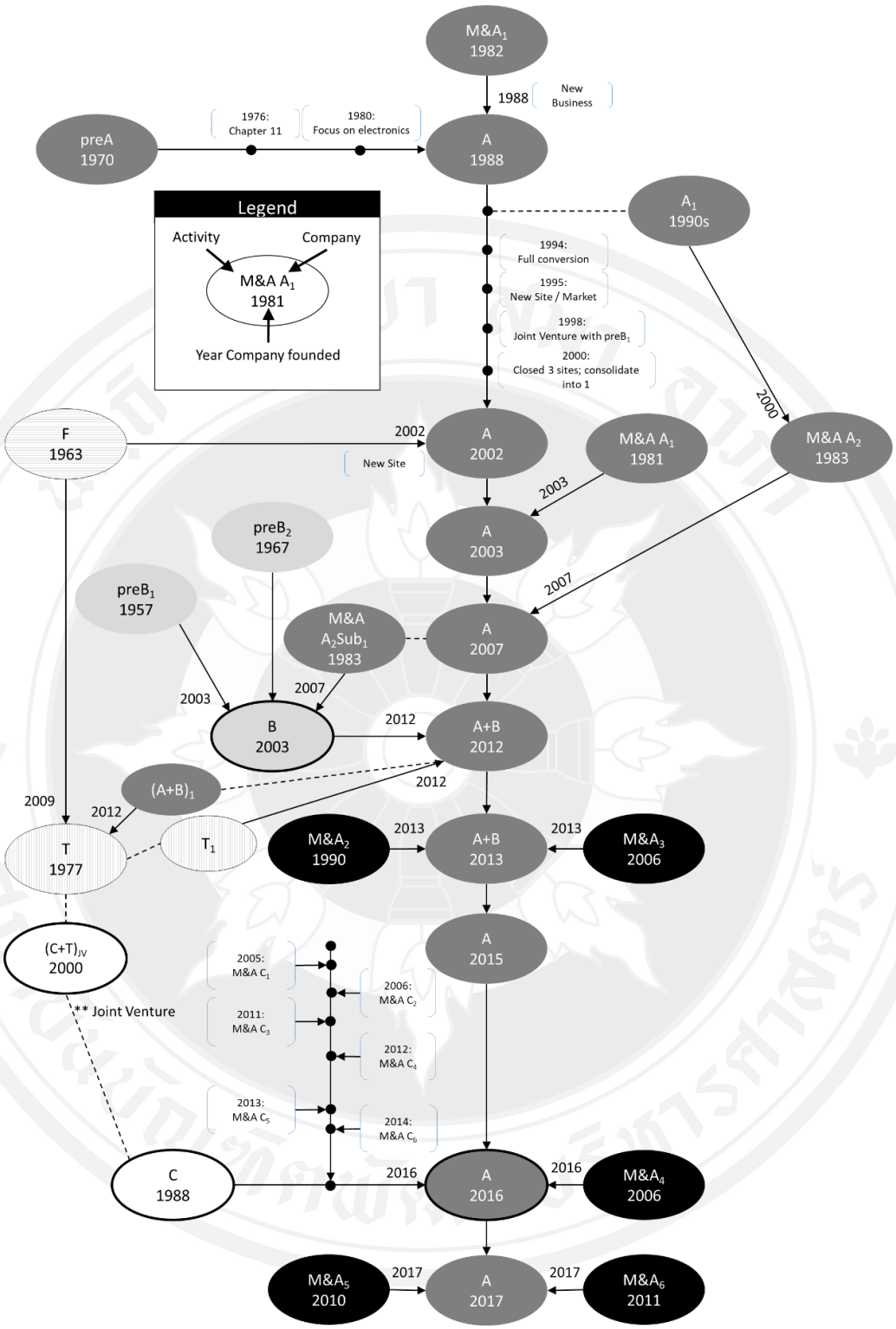


Figure 2.14 Schematic Showing History of Mergers and Acquisitions of Company A, Including the Acquisition of Company B and Company C.

Note: Reconstructed from company profile and archive documents

2.7 The Research Model

A research model based on the theoretical framework described afore and poised to answer the research questions discussed in the prior chapter is shown in Figure 2.15, depicting a healthy organization through the perspectives of social identity, attachment, and cohesion.

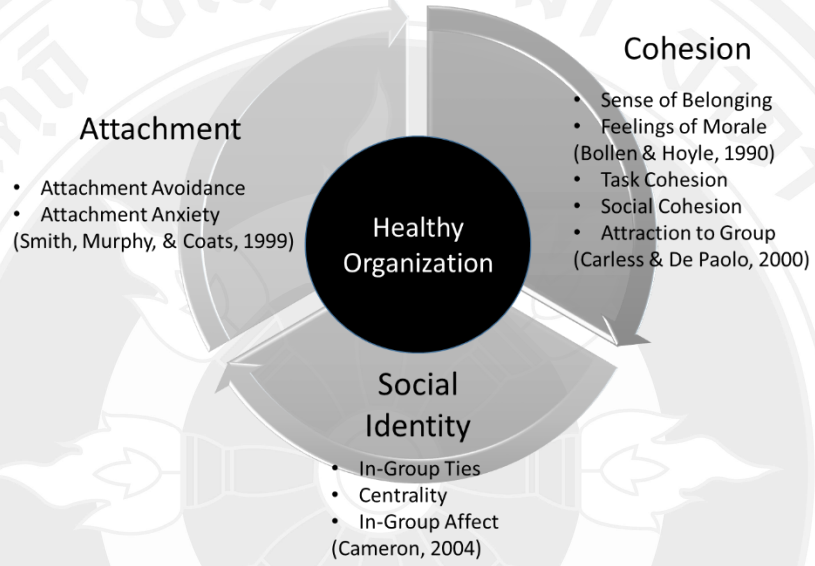


Figure 2.15 Research Model to be Applied in the Study to Answer the Research Questions

Source: Smith et al. (1999); Bollen & Hoyle (1990); Carless & De Paolo (2000).

Note: Key constructs based on relevant theories and concepts include attachment avoidance and attachment anxiety (Smith et al., 1999); in-group ties, centrality, and in-group affect (Cameron, 2004); sense of belonging and feelings of morale (Bollen & Hoyle, 1990); and task cohesion, social cohesion, and individual attraction to group (Carless & De Paolo, 2000).

From the literature reviewed thus far, including the history of the case, the underpinning theoretical framework (that is, social identity approach and attachment theory) describes the phenomena of the case of interest. The desired outcome (or lack

thereof, hence the reason and purpose of the study) comes to bear as group / organization cohesion in the proposed conceptual framework. Overall,

1) The social identity approach speaks to the social categorization that brings teams together or separates them.

2) The attachment theory speaks to anxiety and avoidance of integration, and rational for resisting change associated with brands.

3) A need to understand 'belonging', social cohesion and task cohesion as key aspects of a healthy organization.

4) A continuous review as progress is made, establishing a 'journey' rather than singular 'integration' events.

The research questions of this study are reiterated here:

RQ 1: How cohesive is the organization in the context of post-merger integration of a multi-national manufacturing company in Thailand?

RQ 2: How does social identity and attachment contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

RQ 3: How does social ties contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

The underpinning theoretical framework and research model towards answering the research questions set forth:

1) Cohesiveness would encompass the elements of the engagement approach discussed (see Bollen & Hoyle, 1990; Carless & De Paolo, 2000), such as an environment that facilitates open discussion.

2) The social identity approach (based on social identity theory) and adult attachment style (based on attachment theory) discussed in relation to employee engagement demonstrates a viable path to understanding the respective contributions to organization cohesion in this study.

3) A look at how social ties is formed around social identity, attachment and organization cohesion, visualized and quantified via social network analysis approach would manifest key learnings in this study.

There are also interesting topics which relate to the research model but are also not the aim of this study to dwell deeper than necessary. These are covered in the following section.

2.8 Delimitations of Study

As it is not possible to cover everything in a field within a study, this section describes areas that are closely related to the study but is not undertaken due to context and situation of the study. I would like to mention these areas as they could be considered for future undertakings beyond this study.

2.8.1 Identity Theory Versus Social Identity Theory

It may be worthwhile to note that there exists a separate theory with a similar name known as identity theory (Burke, 1980; Burke & Stets, 2009; Hogg et al., 1995; Stets & Burke, 2000; Stryker, 1968). While Hogg et al. (1995) argued that 1) there were significant dissimilarity in terms of level of analysis, 2) the function and significance of interaction between groups, 3) the connection between the function or duty and the collective, and 4) the significance of the social setting or situation and identity, Stets and Burke (2000) countered with the differences being where attention is focused rather than essence and that the benefit of combining the two theories would provide a more complete perspective of 'self'.

When Stets and Burke (2000) argued that social identity theory and identity theory should be merged, they identified three key areas that could be linked between the two theories, namely,

1) From the perspective of how individuals assemble – where the association is by classification or divisions in a social context in social identity theory versus association by duty or function in a social context in identity theory. A subset would be the perspective of the right to association of the individual.

2) The impetus and the idea of significance or importance of 'identity' in both theories.

3) The essential discourse that follows when an identity for the collective or community emerges, where concepts and mental models like

depersonalization versus self-verification, and self-esteem versus self-efficacy are concerned for social identity theory and identity theory respectively.

Questions raised about social identity theory included the absence of 'self' constructed from self (acquired) as opposed to constructed by group (ascribed) and influence of culture and history (Huddy, 2001), minimization of individuality (Postmes et al., 2005), concept of collective self-esteem versus individual self-esteem and other forms of self-esteem (Luhtanen & Crocker, 1992; Rubin & Hewstone, 1998), self-esteem versus in-group bias (Aberson et al., 2000), and 'self' at different levels of analysis (Brewer, 1991).

The arguments Stets and Burke (2000) and Tajfel and Turner (1979, 1986) brought forth most likely described phenomena aptly for their times. Almost two decades on from Stets and Burke (2000), today's world is far more volatile, uncertain, complex, and ambiguous. Identities and roles striped across context of multiple levels (individual-self, individual-mind, intragroup, intergroup, organization, national, and global) in the discussion of self, self-esteem, and self-efficacy. For example, an individual could play multiple roles within the organization and in social life, including on social media; 'place' and 'self' would depend on context.

This study takes the perspective from intergroup and intragroup relations towards groups and individuals in the context of a merger and acquisition. Thus, though identity theory and the arguments for merging are interesting and relevant, delimiting Identity Theory and Stets and Burke's (2000) argument for combining the theories in the context of this study would be appriopriate.

That said, the argument of similarity between identity theory and social identity theory brought forth by Stets and Burke (2000) and the rebuttal by Hogg et al. (1995) call to mind another traditional argument from the perspective of practice – that of social anthropology versus social psychology. The social identity approach is predicated upon changing one's perception of the groups we are interacting with (Hogg & Abrams, 1988). It is therefore appropriate to also examine, albeit in brief, the paradigms underlying social identity approach.

2.8.2 Underlying Paradigms of Social Identity Approach

Although this study is not about underlying paradigms of the underpinning theoretical framework used, it is worthwhile to mention them to gain a better understanding. Hogg and Abrams (1988) briefly discussed the following,

1) If 'society' is viewed as consisting of groups arranged in a structured manner, then a structuralist perspective is taken of the social categorizations (cf. Durkheim, 1893/2014; Marx, 1992; Merton, 1968; Parsons, 1951/1991; Weber, 2012; as cited).

2) Whereas the view of difference as the key tenet of the theory, then the conflict perspective (Marx, 1992; Weber, 2012; as cited) becomes relevant.

3) If 'norms', 'rules', 'expectations', 'representation' or 'conformance' form the centerpiece of the discussion, then the consensus perspective (Comte, 2009; Durkheim, 1893/2014; Farr & Moscovici, 1984; Merton, 1968; Parsons, 1951/1991; Sherif, 1936; Spencer, 1895) is dominant.

4) Yet if the focus is the constant exchange and interaction between 'self' and 'group' and modifications taking place in both, then the perspective of symbolic interactionism (Goffman, 1959; Mead, 1934; Meltzer et al., 1975) is adopted.

5) If the focus is purpose, which that of social identity approach is to translate social groupings into human groupings and to create a psychological reality from the social reality, then ethnocentrism (Sumner, 1906) is an appropriate perspective.

6) If the focus is the adaptive capability of the human organism is key, then the self-conceptualization, self-categorization as aspect of social identity approach can be viewed through the lens of a functionalist.

Similarly, de Fina et al. (2006) suggested social constructionism (citing Berger & Luckman, 1967; Hall, 1996; Kroskrity, 2000) as the lens to view identity (see Dreher & Vera, 2016 for view on constructivism versus constructionism). Their main argument revolves around identity being a real, interactional, involving negotiation and interpretation of social context (see Bauman & Briggs, 1990, pp. 66-78 for comprehensive discussion), resulting in groups of identities often with changing and evolving boundaries (Goodwin, 1999) and not individual descriptors nor emanating

from a single individual They also pointed out the perspective that individuals can act in an identity that is different than the physical representation (Barrett, 1999) and an interpretation of a complex relationship between concepts espoused by physical space, social representation and roles of social reality, respectively.

2.8.3 Identity and Language

Language structure could pose an interesting challenge, exemplified by the following situation. Looking at Figure 2.16, an English-speaking person could describe the animal as a ‘big, black, cat’. It would translate well in most language as-is, that is, word-for-word. If an attempt is made to have a Thai describe the animal, he / she will end up saying ‘cat, big, black’ literally translated back into English. This simple exercise demonstrates the logical difference in processing the sentence structure that could inhibit the messaging.

Figure 2.16 Picture of an Animal of the Feline Family
Source: LaggedOnUser (2010).

Gumperz and Cook-Gumperz (1982) emphasized the importance and role of language in the context of ‘society’,

1) Social interactions are highly figurative and includes representation specific to context, bearing meaning to authorities and power over control and management of resources.

2) The analysis and inquiry of language as a means of exchanging information show that figurative representation is modified by the process of exchanging information itself.

3) Thus, language is a means to understand the circumstances of how identities influence and are influenced by the very communal and procedural processes that create them.

They also maintained that language served to set up and upkeep social identity and ethnic background; Jupp et al. (1982) echoes the same.

de Fina et al. (2006) writes that language is not simply words or expressions related to a context but also a means of triggering a far more complicated order and structure that involves time intervals, scope, location, purpose, beliefs, culture and everything that makes up and defines the existence of a collectivity.

The complexity of merging the linguistic form of work in a merger and acquisition far outstrips that of an individual joining a new workplace. The level of difficulty to assimilate the respective (internal) vocabularies and dictionaries, particularly acronyms used, poses an aspect of integration work with a merger and acquisition that cannot be ignored. Though important, it is not in the scope of this study.

2.9 Chapter Summary

In this chapter, relevant literature, the theoretical and conceptual framework underpinning this study were reviewed, namely, 1) social identity approach, 2) attachment theory, 3) a brief review of mergers and acquisitions, 4) a look at organization cohesion, and 5) a review of social network analysis approach. In discussing the research model. Salient points that are interesting from the perspective of the theoretical and conceptual frameworks but are not within the scope of this study due to the constraint of time were provided; these delimitations could provide insight to future studies.

CHAPTER 3

RESEARCH DESIGN, METHODOLOGY & METHODS

Research is a methodical, organized and standardized way of gathering and amassing, assembling, examining and dissecting, and clarifying and making sense of information (or data) to enable the advancement of our comprehension and appreciation of an interesting or concerning occurrence, circumstance or experience that we are confronted with (e.g., Coombes, 2001; Leedy & Ormrod, 2015; Poole, 2013; Wisker, 2008). Research is an iterative and cyclical process that can be described to be consisting of steps that could require planning and re-planning (Leedy & Ormrod, 2015; Wisker, 2008).

The prior two chapters have addressed steps (a) through (d) described above. In this chapter, I will be laying down the plan to be executed for this dissertation; that is, addressing step (e) and describing the method that will lead to step (f) as described. This chapter is organized in the following manner:

1) A brief description of the researcher's paradigm as a philosophical posture per Creswell and Creswell (2018).

2) A discussion of the research design, with background and rationale for selecting a case study (Yin, 2014) that will deploy a nested mixed methods design (Guetterman & Fetters, 2018).

3) A description of the detailed plan of how data will be collected and analyzed follows, walking through a brief on social network analysis, the research design, the quantitative component, the qualitative component, and ethical considerations of social network analysis.

4) A chapter summary to close this chapter.

3.1 Social Constructivism as the Epistemological Posture

Instead of using the labels ‘quantitative’ and ‘qualitative’ to represent the philosophical stance behind a study, there actually is a need to have a robust conversation around how a researcher sees his/her world (e.g., Biesta, 2010; Greene & Hall, 2010; Shannon-Baker, 2016) in regards to the research. It might be appropriate (or even expected) that a pragmatic epistemology (Johnson & Onwuegbuzie, 2004; Johnson et al., 2007) is adopted for this study, taking advantage of the middle way between the purists’ view of objectivity and subjectivity and a lean towards a quantitative inquiry.

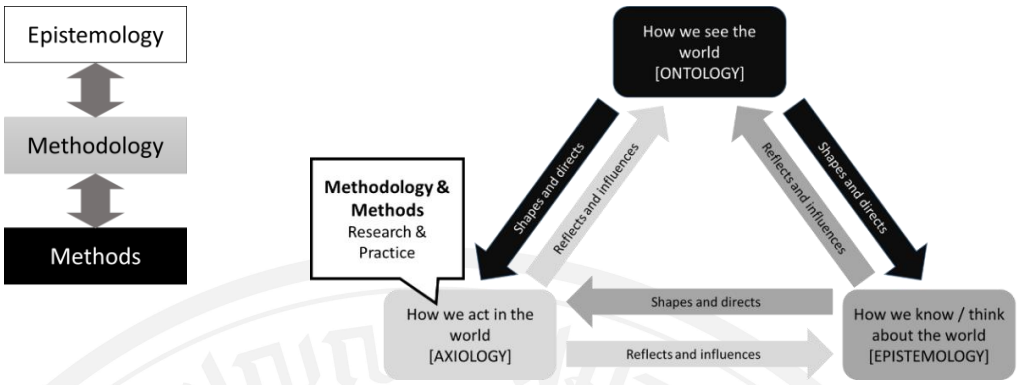
However, a closer review of the main elements of the research questions, 1) how cohesive is the organization, 2) how does social identity and attachment contribute to organizational cohesion, and 3) how does social ties contribute to organizational cohesion, points to an inquiry to understand the reality (e.g., how cohesive, what social ties mean, how attached they are, etc.) of the participants and how that reality is constructed via how members interact with each other and if ‘groups’ influence that interaction and reality. To a certain extent, the researcher’s personal experience and interpretation of the results of this inquiry is ‘constructed’.

The research design and methodology are discussed next.

3.2 Research Design and Methodology

In this section, the research design approach and rationale will be laid out.

Scholars viewed methodology as more than methods (Morgan, 2007; Sparkes, 2015). Drawing from the works of Lincoln and Guba (1985, 1988), Morgan (2007) viewed methodology as the bridge between epistemological issues and the mechanics of methods and preventing ontological assumptions from dominating the research design.



(a) (b)

Figure 3.1 Two Placements of 'Methodology'

Source: Morgan (2007, p. 69); Lynham and Ruona (2004, p. 153).

Note: (a) methodology as middle ground between epistemology and methods, adapted from Morgan (2007), and (b) methodology as part of axiology guiding how we should act, adapted from Lynham and Ruona (2004).

Lynham and Ruona (2004) defined methodology as "how we choose and use methods, conceptualize phenomena, analyse [sic] and collect data, and design interventions" (p. 157). A research design is basically a way of laying out what needs to be done to accomplish the study on hand (Christensen et al., 2015; Creswell & Creswell, 2018; Dannels, 2019; Maxwell, 2013).

According to Yin (2014), a case study research design should be use when 1) 'how' and 'why' type research questions are asked, 2) without the study having to govern / observe how participants behave, but 3) needing attention on-going / prevailing situation. In relation to mergers and acquisitions, the case study is the most likely chosen research method (Risberg, 2016; Zhang et al., 2015).

Scholars have, over time, suggested different ways of combining quantitative and qualitative methods in a single study (Creswell, 1994, 1998; Creswell & Creswell, 2018; Creswell & Tashakkori, 2007; Tashakkori & Creswell, 2007; Tashakkori & Teddlie, 1998, 2003, 2010; Teddlie & Tashakkori, 2003), to the point that some are suggesting an integration of both as a mixed method to mitigate the shortcomings of a single method inquiry (e.g., Hurmerinta-Peltomäki & Nummela, 2006; Jick, 1979; Tashakkori & Teddlie, 2003). Mixed methods studies have been

deployed in studying mergers and acquisitions (see Kroon & Rouzies, 2016, pp. 204-212, Table 12.1 for a summary).

Circling back to how the case study-mixed methods answer the research questions. The case involves two business units of a multi-national manufacturing company situated in Thailand involved in a merger and acquisition post-merger integration. For RQ 1 and RQ 2, quantitative data will be collected and analyzed quantitatively and qualitatively. For RQ 3, both quantitative data and qualitative data will be collected and analyzed quantitatively and qualitatively.

Construct validity, internal validity, and reliability are tests frequently use to ascertain the quality of a practical exploration (Yin, 2014). Lincoln and Guba (2000) urged researchers to ensure they provide adequate background of the situation of the inquiry so that another researcher can understand if the findings are conveyable to a different context; generalization (as a form of reductionism) may not always be possible as it requires complete understanding.

Formal approval from the institutional review board is essential prior to beginning the study (Enfield & Truwit, 2008). Formal approval from the Ethics Committee in Human Research, National Institute of Development Administration (ECNIDA) is required before the study can be executed, per the commitment of conduct of the submission (see Appendix C). A certificate for conducting the study is issued (see Figure D., Appendix D) and for any extension of the study (see Figure D., Appendix D).

The next section discusses the details of the method of how the research is executed.

3.3 Methods

Details of the methods used to accomplish the research design is discussed in this section.

3.3.1 Research Method: The Social Network Analysis Approach

Social network analysis brings a different way of ‘looking’ to answer the research questions set forth in this dissertation, namely,

RQ 1: How cohesive is the organization in the context of post-merger integration of a multi-national manufacturing company in Thailand?

RQ 2: How does social identity and attachment contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

RQ 3: How does social ties contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

The visual display (hence 'look') of relationships within the organization (as a social network) and the quantitative and qualitative information that can be elicited (network analysis) provide a different means of insight compared with qualitative description or quantitative correlations.

Bollen and Hoyle (1990) operationally described cohesion as encompassing "an individual's sense of belonging to a particular group and his or her feelings of morale associated with membership in the group" (p. 482), with the sense of belonging based on self-categorization (Turner, 1978). The work of Carless and De Paolo (2000) and their three constructs, 1) task cohesion (extent of inspiration and ambition to reaching the group's goals and targets), 2) social cohesion (ambition to cultivate and maintain social ties and connections within the group), and 3) individual attraction to group (significance of one's longing to linger; kinship, affinity, and togetherness) are used to investigate RQ1.

Tajfel (1978) operationally defined the concept of social identity as an individual's notion or idea of being based on the individual's awareness of association or connection to a social group, including meaning and affection due to the association or connection. Three constructs from Cameron (2004) based on this operational definition, 1) ingroup ties (reflecting the tendency of a group to 'stick together'), 2) centrality (reflecting how often being part of the group 'comes to mind'), and 3) ingroup affect (reflecting the sentimental characteristic of the membership) aligns well to the social networks (constructed in the context of the constructs) are used to investigate RQ2. Also included are two constructions from Smith et al. (1999) on adult attachment style, 1) group attachment anxiety (sense of unworthiness, worry and concern of not being accepted), and 2) group avoidance

(comfort level of being close, dependent and intimate with other members of the group).

In RQ 3, ‘strong ties’ and ‘weak’ ties – acquaintances or close-knit relations – are reviewed as ‘bridges’ between close-knit clusters (Granovetter, 1982).

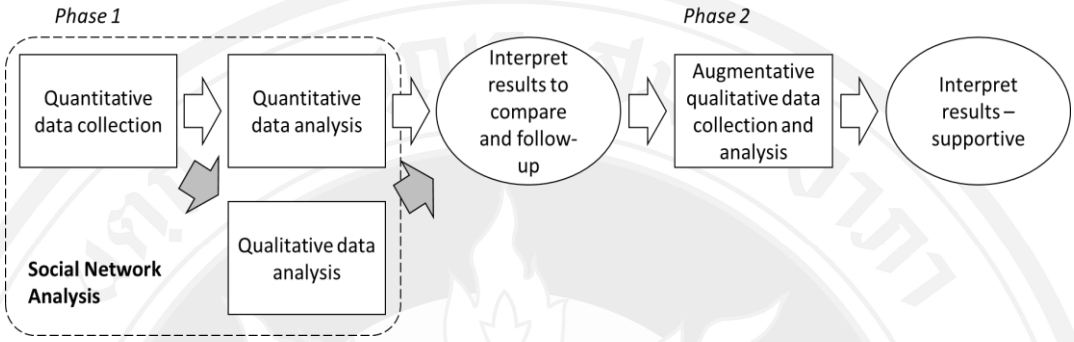


Figure 3.2 Research Design Chosen for this Dissertation; Social Network Analysis as the Mixed Methods Approach within a Case Study Design

Source: Froehlich (2020).

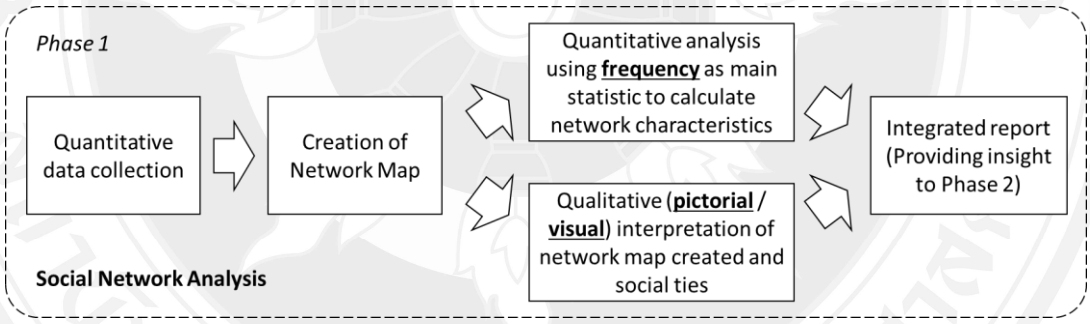


Figure 3.3 Schematic Representation of Phase One of Research Design Consisting of Quantitative Collection and Analysis of Data and Visual Interpretation of Result from Quantitative Analysis

Source: Adapted from Froehlich (2020, p. 128).

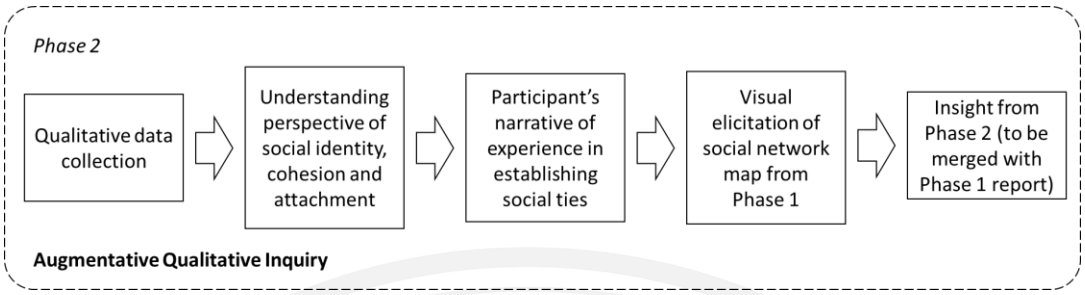


Figure 3.4 Schematic Representation of Phase Two of Research Design Consisting of Three Different Parts

Source: Adapted in part from Froehlich (2020, p. 128).

The research design (case study-mixed methods) for this dissertation is illustrated in Figure 3.2. The design is executed in two phases, namely, 1) phase one using social network analysis approach (as this technique generates both a quantitative and qualitative perspective), augmented by, 2) phase two qualitative component (hybrid between convergent and explantory design; see Creswell & Plano Clark, 2018, p. 66).

A schematic representation of phase one approach is shown in Figure 3.3 (see also Froehlich, 2020). This phase will start with data collection using a survey questionnaire, followed by creation of social network maps from the data collected. Quantitative descriptors of the social network maps are calculated using frequency of occurrence as the main statistic and important network features are extracted. At the same time a visual interpretation formalized by Herz et al. (2015) is used to understand 1) the structure (cohesion), 2) importance of actors relative to each other, and 3) the meaning of ties within the network (Froehlich, 2020). Such interpretations sensitize and inform phase two of this inquiry.

Figure 3.4 shows a schematic representation of phase two approach consisting of 1) an interview to understand the participants' perspectives of the concepts of social identity, attachment and cohesion, 2) a narration of the participants' experience in relation to the concepts of social identity, attachment and cohesion, and 3) a visual elicitation (e.g., Längler et al., 2020; Shannon-Baker & Hilpert, 2020, for mixed method social network analysis application) modified from the method of photo elicitation (Collier Jr., 1957; Harper, 2002).

3.3.2 Context, Scope of Participants, Sampling, and Sample Size

Wasserman and Faust (1994) emphasized the importance of knowing who the actors are and which actors to involve (or not involve, for the matter) in a social network research; a perimeter of actors involved in the social network research.

This study is to understand the degree of cohesiveness (integration) and if social identity and attachment styles played a part. The context is the merger of two manufacturing sites each a part of a multi-national company. The choice of participants would thus be defined by:

1) Actors come from both manufacturing sites involved in the merger and acquisition and post-merger integration.

2) Actors must be involved in daily work situations that exposes them to the other entity involved in the merger integration.

3) Actors must be involved in some form of decision making.

4) Actors from engineering, quality, production control, information technology, finance, human resources, and procurement functions supporting manufacturing operations would be ideal.

5) Actors are proficient in English language; the survey items need not be back translated to Thai.

The population (N=1038) of actors are shown in Table 3.1 below, further classified into three strata denoted by the roles played.

Table 3.1 Level, Role, and Population Size of the Sampling Frame of Target Participants of this Study

Staff Level	Role / Position	Population
S1: L112, L111, L110	Senior Management staff (directors, senior directors, and vice-presidents)	43
S2: L109, L108	Middle management (manager, senior manager)	515

Staff Level	Role / Position	Population
S3: L107	Working professional or first line supervisor	480

Note: Total population size N = 1038.

The works of Ove Frank comes to mind (e.g., Frank, 1977a, 1977b; Frank, 1977c, 1978, 1979a, 1979b, 1980, 1985, 1988) guide sampling in the field of social networks analysis, as noted by Wasserman and Faust (1994). Based on N=1038 (see Table 3.1) within the sample frame, a sample size of *n* = 300 is chosen (for calculations see Cochran, 1977, pp. 75-76, Equations 4.2 & 4.3; Cohen, 1992, p. 158, Table 2; Granovetter, 1976, p. 1296, Fig. 1; Israel, 1992; Morse, 1994; Yamane, 1973, p. 727, Equation 8). The setup to accomplish this design is summarized in Table 3.2.

Table 3.2 Summary of Sample Size for Each Phase of the Research Design Shown in Figure 3.2

Component	Implementation
Phase 1: Social Network Analysis	Recruit *n* = 300 respondents • Stratified 60 random 'ego-seeds' to begin 'link trace' process (Heckathorn & Cameron, 2017); refer to Table 3.1 for strata. • 'Link trace' (Coleman, 1958; Goodman, 1961) until the sample size *n* = 300 respondents reached; restart 'link trace' process with 20 stratified random 'ego-seeds' at each dead-end.
Phase 2: augmentative interview	Recruit up to *n* = 39 respondents or until saturation occurs (Creswell & Creswell, 2018; Creswell & Poth, 2018) • At least three participants per sub-group (Onwuegbuzie & Leech, 2007). • 13 subgroups defined as 13 social network graphs generated from phase one of inquiry.

Component	Implementation
	• Consider ending interview if saturation occurs; that is, when no new themes are discovered.

Source: Onwuegbuzie & Collins (2007, pp. 285-289).

Note: Data collection and analysis for both phases are discussed in the next sections

3.3.3 Quantitative Data Collection

The unit of observation for a network survey is the individual actor who is part of the network being 'measured' and is asked to respond to the network survey about their relation to other actors in the network in a specific context.

3.3.3.1 'Link Trace' Procedure

The 'link trace' process (Heckathorn & Cameron, 2017) deployed for quantitative data collection for the 'ego-networks' is shown in Figure 3.5. This process, proposed for researching social networks (Coleman, 1958; Goodman, 1961), differs from non-probability 'snowball' commonly deployed in qualitative inquiries (Heckathorn, 2011). The process begins with the 60 'ego-seeds' sampled from the three strata (20 each). The participants are requested to complete the network survey questionnaire (along with the informed consent form). The information (that is, list of names or 'alters') collected is then processed and captured in a secured spreadsheet database. The information is also screened to remove duplicate names to form the subsequent order of 'ego' candidates. These 'egos' are then requested to complete the network survey questionnaire (along with the informed consent form). The information collected is then processed, captured, and screened to form the next order of 'ego' candidates. If the 'link trace' process should halt because names listed are duplicated, the process is restarted with a stratified random sample (n = 20) of the remaining target population (Table 3.1) as 'ego-seeds' (Kowald & Axhausen, 2012). This is repeated until 300 respondents have completed the network survey questionnaire. The data collected is then cleaned and transferred to the social network analysis tool to begin data analysis.

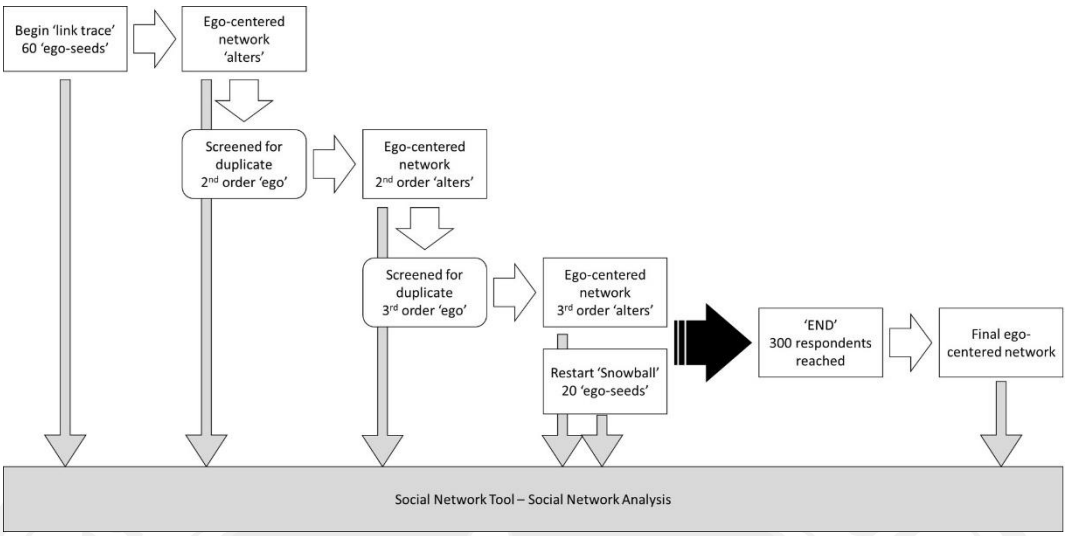


Figure 3.5 'Link Trace' Process for Quantitative Data Collection Based on 'Ego-Centered' Networks

3.3.3.2 The Network Survey Questionnaire

The survey instrument is deployed as a network survey where the designated participant is asked to name a minimum of five (up to a maximum of 10) people to whom they can relate to specific to the context of the question (Arena et al., 2017; Friedkin, 1984; Mirc, 2016; Moore, 1979). The questions are modified from existing instruments to include the name generating feature and a measurement in relation to the name individual in the same scale as if used in the existing instruments. As it is not possible to include every item of an existing instrument (risk of non-completion becomes high due to fatigue of thinking of names), only selected items (highest factor loading scores to account for variance) will be included.

On social identity, the selected items (three factor model from Cameron, 2004) modified for use in this study and the corresponding standardized factor loading from various studies conducted to derive the instrument are tabulated in Table 3.3; item one measures ingroup ties, items two and three measure centrality, and item four measures ingroup affect.

Table 3.3 Summary of Selected Items Modified for this Study and Corresponding Standardized Factor Loading

No.	Item	Study 1	Study 2	Study 3	Study 4	Study 5
1	I have a lot in common with (name)	-	0.72	0.79	0.67	0.79
2	I often think about the fact that I am part of a group with (name)	0.56	0.72	0.74	0.64	0.63
3	In general, being part of the group with (name) is an important part of my self-image	0.82	0.35	0.79	0.40	0.77
4	Generally, I feel good when I think about myself as being part of the group with (name)	0.72	0.60	0.24	0.71	0.82

Source: Adopted from Cameron (2004, pp. 244-245).

On group attachment, the selected items (Smith et al., 1999) modified for use in this study and the corresponding standardized factor loading are tabulated in Table 3.4; items one and two measure group attachment anxiety, and items three and four measure group attachment avoidance.

Table 3.4 Summary of Selected Items Modified for this Study and Corresponding Factor Loading (Smith et al., 1999)

No	Item	Factor Loading
1	I sometimes worry that (name) doesn't value me as much as I value him/her	0.78
2	I don't worry about being alone or not being accepted by (name)	-0.69
3	I prefer not to depend on (name) or to have him/her	0.70

No	Item	Factor Loading
	depend on me	
4	I want to feel completely as one with (name)	-0.74

Source: Smith et al. (1999, pp. 101, 110).

Cohesion is divided into two parts. In part one, two items from the Perceived Cohesion Scale (Bollen & Hoyle, 1990, p. 485, Table 1) were adopted and modified for use in this study as shown in Table 3.5; item one measures the sense of belonging, and item two measures the feelings of morale. This part measured constructs 1) sense of belonging, and 2) feelings of morale, chosen due to the similarity of the theoretical underpinnings to that of this study and relevance to the context.

Table 3.5 Selected Items Modified for this Study

No.	Item
1	I feel that I am a member of a team with (name)
2	I am excited to be working with (name)

Source: Adopted from Perceived Cohesion Scale Bollen & Hoyle (1990, p. 485).

In part two, Carless and De Paolo's (2000) work based off the Group Environment Questionnaire (Brawley et al., 1987; Carron et al., 1985; Widmeyer et al., 1985) and adapted for work teams was selected, as tabulated in Table 3.6; item one measures social cohesion, item two measures individual attraction to group, and item three measures task cohesion.

Table 3.6 Selected Items Modified for this Study

No	Item	Factor Loading
1	I would like to spend time together with (name) outside of work	0.76
2	For me, being with (name) in a team is one of the most important social groups to which I belong	0.79
3	(Name) and I are united in trying to reach the organization's goals for performance	0.67

Source: Adopted from Revised Scale of Cohesion (Carless & De Paolo, 2000, p. 81).

A scale for assessing each relationship named as responses to all the above items was added. One way to understand the degree of proximity in a relationship between two individuals is to use the Inclusion of Other in the Self Scale (IOS; Aron et al., 1992), which is a single-item, visual measure of perceived interrelatedness between two actors. As shown in Figure 3.6, the IOS Scale is visual measure consisting of seven sets of two circles in different states of overlap. Each of the set depicts how much 'self' overlaps 'other' to describe how close a relationship is. The more overlap, the closer the relationship. A numeric score of one to seven corresponding to increasing overlap to use the visual measure and convert it to a seven-point Likert scale. The respondent is asked how close he/she thinks he/she knows the named person specific to the measure (topic) being investigated.

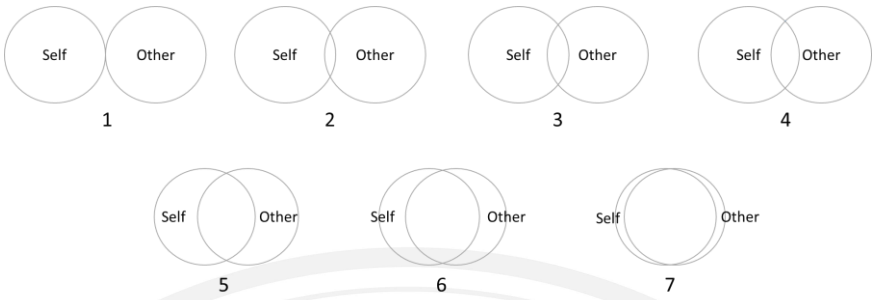


Figure 3.6 The Inclusion of Other in the Self (IOS) Scale (Aron et al., 1992)

Source: Adapted from Aron et al. (1992, p. 597); Aron et al. (2004, p. 107).

Note: Adapted to a seven point Likert scale to measure perceived closeness between two actors

All the described instruments are combined into a name generator (Burt, 1984; Chua et al., 2011; Marsden, 1987), where the respondent is asked to provide a minimum of five names (up to a maximum of 10 names) of whom they relate to in the context of the question. Following the name generator is the name interpreter (Marsden, 2011), which solicits attributes of the actors named to the developing network. The IOS scale was included to determine how close the 'ego' feels towards the 'alter' named (Kogovšek et al., 2002).

The network survey to be deployed as the data collection instrument approved by ECNIDA for this study; attached as Appendix E.

3.3.3.3 Content Validity

As the questionnaire is adapted from existing inventories, it is appropriate to measure content validity (Sireci, 1998). Scholars (e.g., Nunnally & Bernstein, 1994) have suggested setting up a panel of subject matter experts from the field (e.g., Crocker et al., 1989; Osterlind, 1989; Sireci & Geisinger, 1995) and/or lay experts consisting of potential participants (e.g., Rubio et al., 2003). Specifically, the simplified version of the index of item-objective congruence formula proposed by Crocker and Algina (1986). A minimum value of 0.75, as recommended by Turner and Carlson (2003), was used as the criterion to judge if an item was perceived by the rater to be related to the objective as desired by design. The results are summarized in Table 3.7.

Table 3.7 Index of Item-Objective Congruence Calculated from Ratings Obtained from a Panel of Five Lay Experts who were Participants in this Study Using a Simplified Formula

Item	Question	Cohesion	Social Identity	Attachment
1	I have a lot in common with this group.	-0.5	**1.0***	-0.5
2	I often think about the fact that I am part of a group with them.	-0.5	**1.0***	-0.5
3	In general, being part of the group is an important part of my self-image.	-0.6	**0.9***	-0.3
4	Generally, I feel good when I think about myself as part of the group.	-0.5	**1.0***	-0.5
5	I sometimes worry that the group doesn't value me as much as I value them.	-0.4	-0.4	**0.8***
6	I don't worry about being alone or not being accepted by the group.	-0.5	-0.5	**1.0***
7	I prefer not to depend on the group or have them depend on me.	-0.3	-0.6	**0.9***
8	I want to feel completely as one with the group.	-0.5	-0.5	**1.0***
9	I feel that I am a member of a team with the group.	**0.95***	-0.4	-0.55
10	I am excited to be working with the group.	**1.0***	-0.5	-0.5
11	For me, being with the group in a team is one of the most important social groups to which I belong.	**0.9***	-0.3	-0.6
12	I would like to spend more time with the group outside of work.	**0.9***	-0.6	-0.3

Item	Question	Cohesion	Social Identity	Attachment
13	The group and I are united in trying to reach the organization's goals for performance.	**1.0***	-0.5	-0.5

Note: The '*' next to the value indicates the correct concept being measured by the question.

As seen in Table 3.7, all items used in this study were found to be congruent to what they intend to measure based on content validity calculated.

3.3.4 Using UCINET for Social Network Analysis

Huisman and van Duijn (2005) evaluated 27 software packages of which 23 are stand-alone tools (Huisman & van Duijn, 2005, pp. 271-272) and five are utility toolkits (Huisman & van Duijn, 2005, p. 273). They concluded that six software packages sufficed as tools that met the functionality, support and user friendliness criteria investigated (see Table 3.8).

Table 3.8 Summary of Aggregated Scores for Package Evaluation

Software	Functionality	Support	User Friendliness	Total
MultiNet	2	2	1	5
NetMiner	8	2	2	12
Pajek	5	-3	0	2
StOCNET	0	2	1	3
STRUCTURE	0	1	0	1
UCINET	7	2	1	10

Source: Adapted from Huisman and van Duijn (2005, p. 311).

Murphy et al. (2017) recommended UCINET for social network analysis based their evaluation, citing calculations stayed true to the original equations for centrality measures evaluated. UCINET would also be the preferred choice from a cost perspective. Finally, a cursory search for publications using Google Scholar finds more articles social network analysis published with UCINET as the tool. Thus, UCINET (version 6.708) was selected.

3.3.5 Mixed Data Analysis and Inference for Social Network Analysis

Teddlie and Tashakkori's (2009) idea of analysis collects one set of data that is analyzed one way and then converted and analyzed another way. Mixing occurred with the combination of inference from both sets of analysis, which depended on the data analysis done both quantitatively and qualitatively from the same set of data collected based on a single conceptual framework. The mixing was basically a different way of looking at the data collected. Nooraie et al. (2020) reminded of how apt social network analysis is as a mixed methods research design (see also Martínez et al., 2003). They reiterated how social network analysis takes data collected and analyzed quantitatively (Freeman, 2004, 2011) and maps and displays it for a qualitative review, thus providing an instance requiring the interpretation by the researcher, yet itself presenting a view of how the participants 'interpret' each other in the relationship (Coviello, 2005; Crossley, 2010; Crossley & Edwards, 2016; Edwards, 2010; Hogan, 2017).

One such example is the cohesion measure of social networks, which provides insight to team cohesion from a numerical perspective (see Anderson & Warner, 2017; Warner et al., 2012; Wise, 2014) but needs to be casted on the context of the network to make sense.

'Cohesion' (as calculated by network cohesion measures) from the perspective of social network analysis can be visually represented by Figure 3.7. Panel (a) represents a topology with 'low cohesion', panel (b) represents a topology with 'high cohesion', panel (c) represents a topology with 'low cohesion' consisting of two groups, and panel (d) represents a topology with 'high cohesion' consisting of two groups. It can be observed that 'cohesion' measures how each member of the network is connected to another. A 'many-to-many' connected network will measure more

‘cohesive’ than a ‘one-to-many’ connected network in the context of the cohesion measure in social network analysis. Whereas the ‘many-to-many’ connected network may visually be interpreted as well-connected members in a network, the ‘one-to-many’ connected network may visually be interpreted as cohesion within the connected group (e.g., in a work group, a group reporting to a supervisor, etc.).

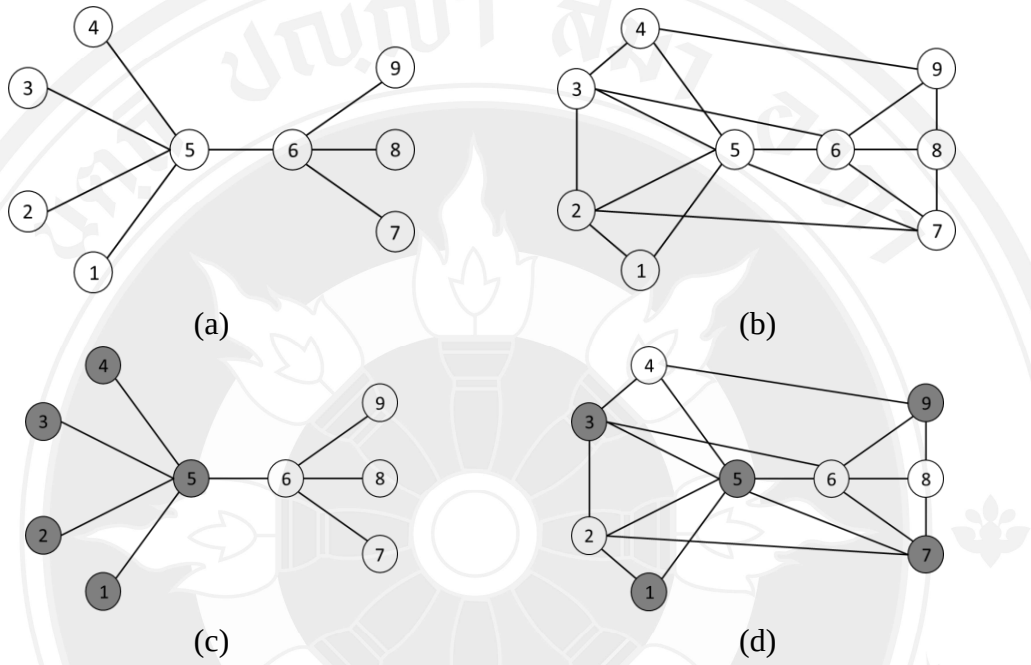


Figure 3.7 Topology of (a) ‘Low Cohesion’ Network, (b) ‘High Cohesion’ Network, ‘Low Cohesion’ Network, and (d) ‘High Cohesion’ Network as Calculated by Network Cohesion Measures

3.3.6 Qualitative Data Collection

Hollstein (2011) reiterated that social reality is socially created, molded by social context and significance, and depends on some outlook and mindset. Qualitative approaches thus bring sense (of action, inter-person interactions, communication, relationship patterns in regards to the contexts) and meaning (e.g., Domínguez & Watkins, 2003; Gluesing et al., 2014; McLean, 2007; Menjívar, 2000; Mische, 2003, 2008) to the numbers and indices calculated of social network graphs; bringing cause (Kolleck & Bormann, 2014) insight and validity to the network itself (Hollstein, 2011).

3.3.6.1 Qualitative Sample: Interviewees

The interviewees were selected based on their centrality in the 13 social network maps resulting from the quantitative stage in a purposeful manner (Froehlich, 2020; Kelman et al., 2016; Kolleck & Bormann, 2014; Murphy et al., 2020); they are actors who play a critical role in maintaining the flow of information and thus could provide insight to reality of the situated.

3.3.6.2 Interview Questions

A semi-structured interview (Creswell & Creswell, 2018; Denzin & Lincoln, 2011; Longhurst, 2016) consisting of three main parts was used to acquire insight to answer the research questions (see Appendix F for full list):

1) The first part, purposed to be soliciting answers for RQ 1 and RQ 2, probed perspective and understanding of the concepts and constructs from the perspective of the interviewee. Interviewees selected from 13 social network graphs generated in the quantitative phase of this study were asked questions based the construct their social network graphs represented.

2) The second part solicited answers for RQ 3, a narrative (e.g., Fehér, 2011) segment where the interviewee will be asked to re-tell the experience of an event in the last three to four years (that is, post-merger integration) that he/she remembered that demonstrated cohesion within the organization. The interviewee were also asked to write down names on post-it slips and to locate those slips on a network map (Antonucci, 1986; Bernardi et al., 2014; Curtis, 1979; Froehlich, 2020; Herz et al., 2015; Hollstein, 2014; Van Waes & Van den Bossche, 2020).

3) The third part solicited a general understanding and interpretation from the perspective of the interviewee and possible insight to answering all three research questions. The interviewee was shown the overall (anonymized) social network graph of the group he/she was part of that resulted in him/her being selected for the interview. The interviewee was asked to comment on the graph (Froehlich, 2020), in particular, the roles that are central, bridge or peripheral; this served to triangulate the information obtained so far (Rice et al., 2014).

The interview closed with a final question, ‘Is there anything else that you would like to tell me that we have not talked about?’

The interviews were conducted primarily in English; Thai language was mixed in whenever necessary to assist in the dialogue or when interviewee appeared ‘stuck’. The interview sessions were recorded with consent from interviewee in order to 1) aid in data analysis process, 2) ensure key elements are being captured correctly, and 3) focus can be put on the field notes / observations (Creswell & Creswell, 2018; Glesne, 2016; Patton, 2015; Silverman, 2017).

3.3.6.3 Quality of Qualitative Study

The interviews surfaced another perspective in this study, allowing for triangulation and better insight to the meaning and purpose of the phenomenon (Glesne, 2016; Wilson, 2006). Key areas of trustworthiness considered are listed in Table 3.9. Thematic analysis was also carried out according to the process outline by Braun and Clarke (2006).

Table 3.9 Considerations for Trustworthiness According to Lincoln and Guba (1985) and Patton (2015)

Consideration	Check	Action
Credibility	Member checking	Checked with participants to ensure paraphrase / meaning / quotes were captured accurately based on field notes.
	Debrief	Checked with participants to ensure accuracy of themes collected.
Subjectivity	Reflexivity	Self reminder of bias and role.

Source: Lincoln & Guba (1985); Patton (2015).

3.3.7 Qualitative Data Analysis and Inference

As Herz et al. (2015) pointed out:

1) The network map created in the interview was analyzed in three ways, namely, (1) focus on structure (cohesion; regions that have a higher number of

ties, presence of sub-groups, connections, gaps between sub-groups (Burt, 1992), alter-alter relations, etc.), (2) focus on actor (embeddedness; which actor connected or isolated sub-groups (Tichy et al., 1979), what characteristics do these actors possess, etc.), and (3) focus on ties (interpretation; type of ties that exist and/or predominate, the direction of the ties, stabilizing / de-stabilizing effects of ties (Burt, 1992; Tichy et al., 1979), etc.).

2) The analysis (both interpretation and questions arising) from the created network maps then informed the analysis of the interview transcript (Froehlich, 2020). The interview transcript was analyzed sequentially; that is, step by with codes (open, axial, selective coding; e.g. Glesne, 2016; Saldaña, 2015) generated progressively (Glaser, 1992; Kolleck & Bormann, 2014; Strauss & Corbin, 1998).

The emergent themes from both the analysis in this qualitative stage were interpreted alongside the theoretical underpinnings to arrive at answers to the research questions (Bradley et al., 2007; Williams & Moser, 2019).

3.3.8 Final Mixed Data Inference

The quantitative and qualitative phases together serve to reduce common method bias (Froehlich, 2020; Podsakoff et al., 2012). The quantitative measures (cohesion measures) of social network analysis provided numerical values that quantifies the relationships between actors in a network and the characteristics of the network. At the same time, the relationships between actors depended on shared values and social conventions, practices and identities that existed in that social grouping and influenced by the same factors, thus influencing (albeit over time) the quantities eventually.

Therefore, the logical process was to take results and interpretations from both the quantitative and qualitative stages, blend and cross-reference them to theoretical underpinnings to derive the over-arching interpretation to answer the research questions (Creswell & Plano Clark, 2018; Crossley, 2009; Froehlich et al., 2020; Tashakkori & Teddlie, 2010; Teddlie & Tashakkori, 2009).

3.3.9 Ethical Considerations for Research Design

The usual ethical considerations (such as, American Psychological Association, 2017) for researches / studies involving human subjects cannot be simply applied to research designs involving social network analysis (Borgatti & Molina, 2005; Borgatti & Molina, 2003; Cross et al., 2002; Cvitanovic et al., 2017; D'Angelo & Ryan, 2019; De Brún & McAuliffe, 2018; Hoppe & Reinelt, 2010; Kadushin, 2005; Périssé & Nery, 2006); the most obvious issue is anonymity as pointed out by researchers. To 'build' the social network view, participants have to name members in the group and therefore, 'exposing' individual information and thus requiring that those named consent to the study as well. Also with new data privacy rules (such as the General Data Protection Regulations, 2018 of European Union and Personal Data Protection Act B. E. 2562 (2019) of Thailand), the way to conduct social network analysis will have to bear more considerations (D'Angelo & Ryan, 2019). To mitigate issues as such, the focus is on 1) getting consent, 2) maintaining confidentiality, and 3) maintaining data privacy. Steps taken in this study included,

1) On consent, (1) developed a detailed informed consent form that explicitly states who will see the data in what form, and what is agreed to be presented to management, (2) ensured respondents get a copy of the informed consent form with the researcher's signature as a form of contract, (3) the respondent had the option to opt-out from the study, and (4) solicited respondents directly rather than depend on peers and management team to 'direct' participation.

2) On confidentiality, (1) appointed a human resource assistant to assist in generating and keeping the codes for linking names to node identities, (2) assigned the node identity codes as soon as the data is received, (3) ensured that identifying information was never presented or shared without approval from the researcher's advisor, (4) stored raw data in secured (two-factor authenticated) cloud platform with encryption that only the researcher can access, (5) ensured that data processing was done behind secured network gateways which require two-factor authentication, and (6) destroyed identifying information once it was no longer needed. The last three points also related to company data privacy policies.

3) On data privacy, (1) informdc the company legal team that the research was undertaken, explaining explicitly the data flow process, (2) ensured strict

adherence to company data privacy policies, and (3) ensured data processes are compliant to both General Data Protection Regulations, 2018 and Personal Data Protection Act B. E. 2562 (2019).

4) On psychological harm, care was taken during the interview process as the interviewee may be (1) embarrassed by the visualization of the network maps, or (2) reminded of an undesired memory during the narrative segment of the interview, or (3) exposed about self-portrayal that may not be the case (D'Angelo & Ryan, 2019). Care was also taken when triangulating information between the quantitative stage and qualitative stage (Borgatti et al., 2006; McGrath & Blythe, 2004), especially when comparing different displays of the network maps (Bender-deMoll, 2008).

3.4 Chapter Summary

In this chapter, steps in executing the research study for this dissertation according to the research design cycle defined by Leedy and Ormrod (2015) were reviewed. Social constructivism as the epistemological posture for this study was briefly discussed. The research design and methodology were described, including 1) case of a single-case case study design, 2) mixed methods to complete the study, 3) quality a research design, and 4) ethical compliance via the institution review board. In the third section, mixed methods involved in the study was discussed, namely, 1) a phase one involving social network analysis, and 2) a phase two involving a qualitative component via semi-structured interviews. The data collection process, instrument and data analysis of the social network analysis phase were also discussed. The blending of the results from both phases and ethical considerations for the inquiry were mentioned. This chapter summary closes the chapter.

CHAPTER 4

RESULTS AND FINDINGS OF INQUIRY

The purpose of this study is to fill a knowledge gap in mergers and acquisitions, 1) regarding organization cohesion or healthy organization post integration, and 2) enabling human resource professionals to better guide mergers and acquisitions to success, with implications to Thailand. This study seeks to answer the following research questions (RQ):

RQ 1: How cohesive is the organization in the context of post-merger integration of a multi-national manufacturing company in Thailand?

RQ 2: How does social identity and attachment contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

RQ 3: How does social ties contribute to organization cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

This study sought to answer the research question via a case study using mixed methods (quantitative and qualitative techniques) and grounded to social constructivism as the epistemological posture. Specifically, the concept of cohesion was investigated through social network analysis, providing insight at the organization, group, and individual levels.

This chapter is arranged as follows:

1) The first section discusses the data obtained from 315 participants, eliciting 21,824 relation pairs (ties) over 13 items. General descriptive statistics will be presented, including (1) observations about the responses to the items, (2) the perceived proximity of the participant to the named individual, and (3) the general behavior of the respondents (e.g., choice of not responding, choice of selection, etc.).

2) Following, the results and findings obtained from the quantitative and qualitative methods used in the study that will answer RQ 1 are presented. Insight

derived from social network analysis about how cohesive the organization is will also be covered.

3) The next section presents the results and findings obtained from the quantitative and qualitative methods used in the study that will answer RQ 2. Similarly, insights derived from social network analysis about how social identity and attachment contribute to organizational cohesion will be covered.

4) Insights on ‘strong ties’ and ‘weak ties’ derived from social network analysis for RQ 1 and RQ 2 to answer RQ 3 will be discussed next, focusing on how social ties contribute to organizational cohesion.

5) Finally, chapter summary closes this chapter.

4.1 Data Obtained

A total of 315 participants responded to the survey conducted in this study, meeting the target (300 participants) of this study. A total of 21,824 pairs of relations could be used to elicit 13 social network graphs to answer the three research questions outlined in this study. Table 4.1 summarizes the number of respondents and corresponding responses from the social network graph and survey data collection. The survey data included the degree of agreement with the item and the closeness of the participant to the named response.

Table 4.1 Summary of Number of Responses Received from Participants for Social Network Graph Construction and in Relation to the Survey Items Used in the Study

Item	Elicited Relation Pairs (Social Network Graphs)		Survey Data Collected	
	Respondents	Responses	Respondents	Responses
Q1	300	1,823	295	1,798
Q2	302	1,933	296	1,893
Q3	296	1,891	290	1,867
Q4	303	1,973	298	1,947

Item	Elicited Relation Pairs (Social Network Graphs)		Survey Data Collected	
	Respondents	**Responses**	**Respondents**	**Responses**
Q5	227	1,246	221	1,211
Q6	194	1,049	187	1,016
Q7	175	938	168	905
Q8	283	1,800	276	1,762
Q9	303	1,978	298	1,948
Q10	292	1,714	287	1,684
Q11	295	1,928	288	1,883
Q12	245	1,510	240	1,486
Q13	301	2,041	295	2,016
Total	**315**	**21,824**	**311**	**21,416**

The rest of this section provides descriptive statistics and visualizations of the data collected for the survey, while the social network graphs will be discussed in detail within each research question.

4.1.1 Descriptive Statistics and Distribution for Degree of Agreement

While the study was focused on collecting named individuals in relation to the item in question, the agreement response (that is, from strongly disagree to strongly agree) was also collected for each of the responses in a six-point Likert scale (see Appendix E). That is, the participant (respondent) provided an agreement response for each of the named individual in his/her response to the item. Table 4.2 summarizes the descriptive statistics of the degree of agreement for all items.

Table 4.2 Descriptive Statistics for Degree of Agreement Responses to Each Item Collected in Study

Item	Mean	Std Dev	Var	Min	Max	Median	Mode	N
Q1	4.79	0.96	0.92	1	6	5	5	1,798
Q2	5.16	0.90	0.81	1	6	5	6	1,893
Q3	5.05	0.95	0.90	1	6	5	5	1,867
Q4	5.23	0.85	0.73	1	6	5	6	1,947
Q5	3.65	1.61	2.59	1	6	4	5	1,211
Q6	4.04	1.60	2.57	1	6	4	6	1,016
Q7	3.65	1.58	2.50	1	6	4	4	905
Q8	5.13	0.96	0.92	1	6	5	6	1,762
Q9	5.27	0.84	0.71	1	6	5	6	1,948
Q10	5.01	1.02	1.04	1	6	5	6	1,684
Q11	5.28	0.89	0.79	1	6	5	6	1,883
Q12	4.89	1.18	1.40	1	6	5	6	1,486
Q13	5.38	0.82	0.66	1	6	6	6	2,016

The histogram plots for the degree of agreement for each item is shown in Figure 4.1 for completeness. The histograms for Q5, Q6, and Q7 shows wider distribution of the degree of agreement; the variance of the histograms for Q5, Q6, and Q7 shown in Table 4.2 (equal to 2.59, 2.57, and 2.50 respectively) confirms the wider distribution.

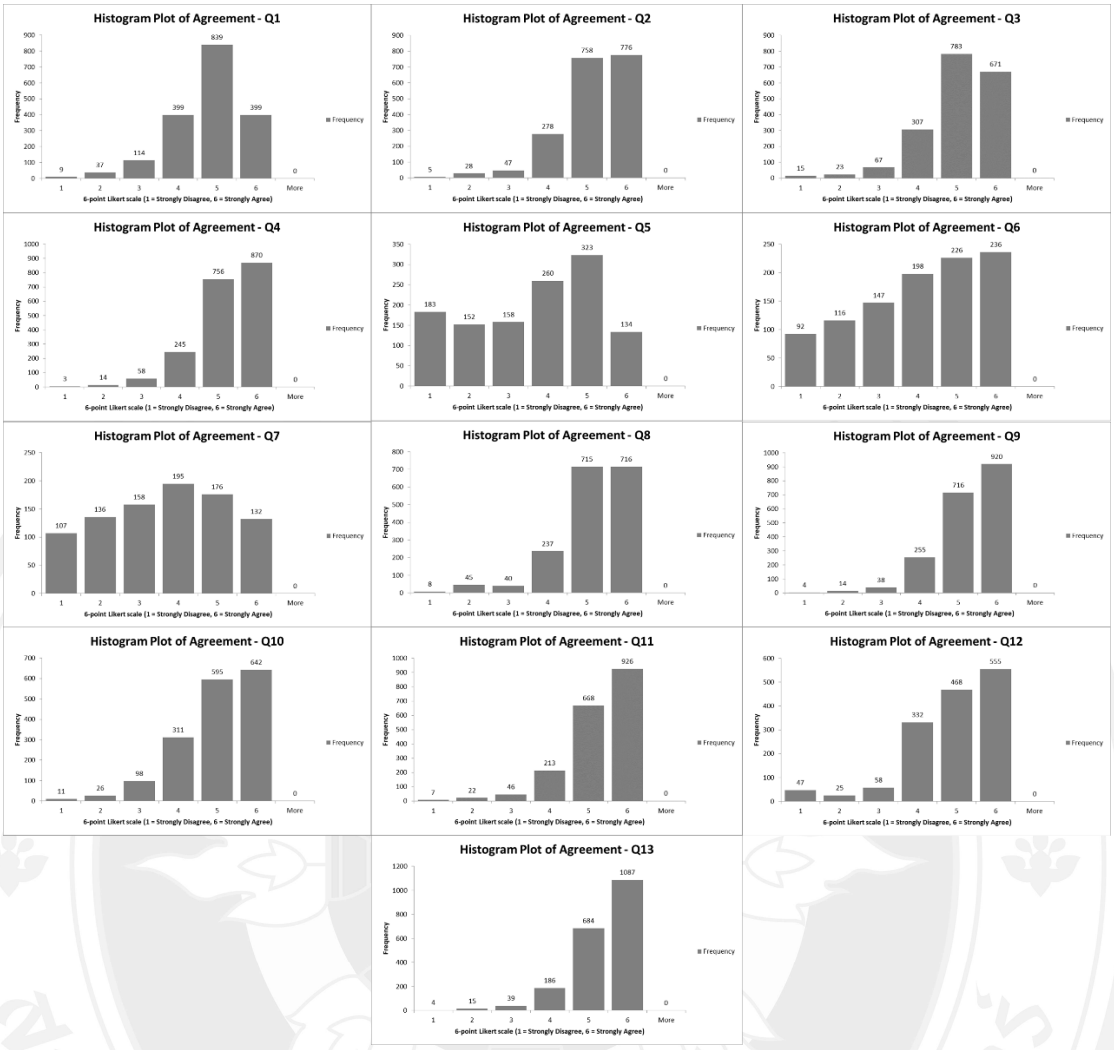


Figure 4.1 Histogram Plots of Degree of Agreement for All Items Collected in the Study

4.1.2 Relationship between a Close Relationship and Degree of Agreement

In this study, the participant was asked to provide a list of named-individual(s) in relation to the item-question and score ‘degree of agreement’ to the item-question (that is, from strongly disagree to strongly agree in six-point Likert scale) and ‘closeness’ as measured by the IOS scale (that is, from isolated to very close in seven-point scale) as described in the two previous sections. The collection of ‘degree of agreement’ and ‘closeness’ scores provided insight to the relationship between the degree of closeness and the degree of agreement for the respondent-named individual pairs. Table 4.3 shows the regression results obtained between degree of closeness

and degree of agreement for each respondent-named individual pair recorded for each item-question in this study. Figure 4.2 shows the scatter plots of degree of closeness versus degree of agreement for each item-question recorded in this study.

Noteworthy from Table 4.3 that adjusted R-squared values are lower than the 0.50 threshold that most scholars would look for but may not be indicative of a good fit as pointed out by some scholar; low R-squared or adjusted R-squared values may not indicate a poor model (e.g., see Achen, 1977; Filho et al., 2011; Hamilton et al., 2015; McGuirk & Driscoll, 1995). This is rather well known in social science investigations relating to behavior as behavior is contextual, socially constructed, and non-episodic, hence contributing to lower variances and correlation coefficients (Abelson, 1985; Epstein, 1979); as in this study.

Table 4.3 Summary of Regression Statistics between Degree of Closeness as Measured by the IOS Scale and the Degree of Agreement to the Item from Data Collected in Study

Item	Multiple R	R-Squared	Adj. R-Squared	N
Q1	0.56	0.32	0.32	1,798
Q2	0.51	0.26	0.26	1,893
Q3	0.48	0.23	0.23	1,867
Q4	0.53	0.28	0.28	1,947
Q5	0.12	0.01	0.01	1,211
Q6	0.24	0.06	0.06	1,016
Q7	0.10	0.01	0.01	905
Q8	0.48	0.23	0.23	1,762
Q9	0.49	0.24	0.24	1,948
Q10	0.43	0.18	0.18	1,684
Q11	0.54	0.29	0.29	1,883
Q12	0.40	0.16	0.16	1,486
Q13	0.45	0.20	0.20	2,016

It is also noteworthy that R-squared values are the same as adjusted R-squared values as regression was used to review the relationship between closeness (proximity of relationship) as the independent variable versus agreement (to each item-question) as the dependent variable. The single independent variable ‘forces’ the R-squared and adjusted R-squared values to be the same.Regression statistics describe how the data collected are gathered or clustered around each other at best (Malinvaud, 1980, as cited by Achen, 1977), as shown in Figure 4.2. Figure 4.2 shows how the data relating agreement to closeness for each of the item-question surveyed in the study. As can be observed from all 13 panels, there data points are not gathered or clustered around any trend linearly, quadratically, or otherwise. This collaborates with the R-squared and adjusted R-squared values and perspective presented in the discussion about Table 4.3.

Figure 4.2 Scatter Plots of Closeness as Measured by the IOS Scale and Degree of Agreement for Each Respondent-Named Individual Pair Recorded in Each Item

This brings the discussion to the next sub-section about how participants responded in this study.

4.1.3 General behavior of Participants towards Responding in this Study

Participants who consented to respond in this study were allowed to skip over item-questions if they felt uncomfortable answering or providing a named-individual. Therefore, there are eight possible data combination outcomes (types #1 through #8) recorded for every item question in this study, as shown in Table 4.4. The type of

analysis that can be performed is also listed alongside each of the possible data combination outcomes. From the data collected, each item-question received a multitude of the possible data combination; none of the item-questions had only a single outcome.

Referring to Table 4.1 prior, the number of responses (to item-question) recorded is different than the number of elicited relation pairs. Participants may provide named individuals but might not score the named individual against the item-question. Where scores (both agreement to item-question and proximity of relationship) were provided for each named individutal, data combination type #1 (see Table 4.4) occurs. Where named individuals were provided without scores, data combination types #2, #3 and #4 (see Table 4.4) occur. Where there were no named individuals or scores provided, data combination type #8 (see Table 4.4) occurs. The delta between the number of elicited relation pairs and number of responses in Table 4.1 prior is due to the existence of data combination types #1, #2, #3, #4, and #8 (Table 4.4).

It is noted here that data combination types #5, #6, and #7, though legitimate, were not found in the data set obtained in this study. There were no cases where scores were provided without any named individual provided. Hence documented as ‘not applicable’ in Table 4.4.

Table 4.4 Summary of Possible Data Combination Outcomes Recorded in the Data Collection Process for each Item-Question in this Study

Type	**Named Individual**	**Agreement Score**	**Closeness Score**	**Statistics**	**Analysis**
#1	YES	YES	YES	Descriptive Regression	Social network analysis
#2	YES	NO	YES	Omitted	Social network analysis
#3	YES	YES	NO	Omitted	Social network analysis
#4	YES	NO	NO	Omitted	Social network

Type	Named Individual	Agreement Score	Closeness Score	Statistics	Analysis
					analysis
#5	NO	YES	YES	Not applicable	Not applicable
#6	NO	YES	NO	Not applicable	Not applicable
#7	NO	NO	YES	Not applicable	Not applicable
#8	NO	NO	NO	Omitted	Omitted

In a conventional item-question, the respondent selects only a single response to the item. However, in this study, as the respondent was asked to provide named individual(s) and to respond to the item-question in relation to the named individual(s), the resultant response could be a myriad of scores, as discussed above.

4.1.3.1 Choice of not responding to item(s)

Participants were allowed to skip over questions if they were not comfortable answering; some of the item-questions may evoke discomfort (e.g., 'I don't worry about being alone or not being accepted by …"). This was also to comply to ethical standards as required by ECNIDA. Indeed, some participants who skipped questions offered reasons, such as,

1) "I don't have [a list] because I have never thought about it."
2) "I have no worries."
3) "I don't think I want to feel this way."
4) "I prefer not to depend [on anyone] and like to help all people."
5) "I prefer to skip this question."
6) "I don't think in truth I'm part of my group."

The participant who skipped an item-question (that is, did not provide any named-individual) was not included in the social network graph for that item-question.

4.1.3.2 Choice of naming different individuals between items

It is also noteworthy that some participants provided a list of different named-individuals for different item-questions. The participants were asked to provide a list of named-individuals based on the item-question being considered. As

each of the item-questions were considered separately, the participant provided different lists of named-individuals across item-questions in the study.

4.1.4 A Closer Look at the Data

The participant is afforded flexibility in responding in this study to preserve good ethical practice. Such a data set may include conditions that might create challenges for analysis. Thus, a first step is to extract a stable data subset to perform analysis. One consideration is the participant and named individual pair. A data subset is extracted where the same participant and named individual pair appears in all 13 item-question responses received in the study.

The participant responded using a six-point Likert scale (1 = 'strongly disagree' to 6 = 'strongly agree') to each of the item-questions surveyed in the study. Each participant provided the score for each of the named individual listed in their response. For example, if participant A listed five named individuals to an item-question, then there should be five scores using the six-point Likert scale to that item-question.

A data subset consisting of N=371 samples was extracted for analysis. Table 4.5 summarizes the descriptive statistics for each item-question. Items Q5 and Q7 shows a mean (2.55 and 3.30 respectively) that is tending lower than the other items. Items Q5, Q6, Q7, and Q12 have higher variance (2.16, 2.35, 2.32, and 2.03 respectively) than the other items (between 0.32 to 1.33), indicating a wider distribution of the responses.

Table 4.5 Descriptive Statistics for Degree of Agreement as Measured in Each Item Obtained from N=371 Participant and Named Individual Pairs Present in All Items

Item	Mean	Std Dev	Var	Min	Max	Median	Mode	N
Q1	4.47	1.06	1.12	1	6	5	5	371
Q2	5.21	0.89	0.79	2	6	5	6	371
Q3	4.95	1.07	1.15	1	6	5	5	371

Item	Mean	Std Dev	Var	Min	Max	Median	Mode	N
Q4	5.31	0.89	0.80	2	6	6	6	371
Q5	2.55	1.47	2.16	1	6	2	1	371
Q6	4.00	1.53	2.35	1	6	4	6	371
Q7	3.30	1.52	2.32	1	6	3	2	371
Q8	4.99	1.15	1.33	1	6	5	6	371
Q9	5.37	0.87	0.76	2	6	6	6	371
Q10	4.78	1.14	1.30	2	6	5	6	371
Q11	5.43	0.88	0.78	3	6	6	6	371
Q12	4.24	1.42	2.03	1	6	4	4	371
Q13	5.73	0.57	0.32	3	6	6	6	371

Figure 4.3 shows the histogram plots of scores for each of the 13 item-questions. The following can be observed from the histogram plots,

1) Panels Q5 and Q7 show concentration at the lower end of the scale.

2) Panel Q6 shows a wide ‘normal’ distribution, which corresponds to the higher variance = 2.35.

3) Panel Q12 does not show a shape corresponding to a ‘normal’ distribution.

4) Panels Q1, Q2, Q3, Q4, Q8, Q9, Q10, Q11, and Q13 all appear to correspond to a ‘normal’ distribution tending to the higher end of the scale (corresponding higher mean values).

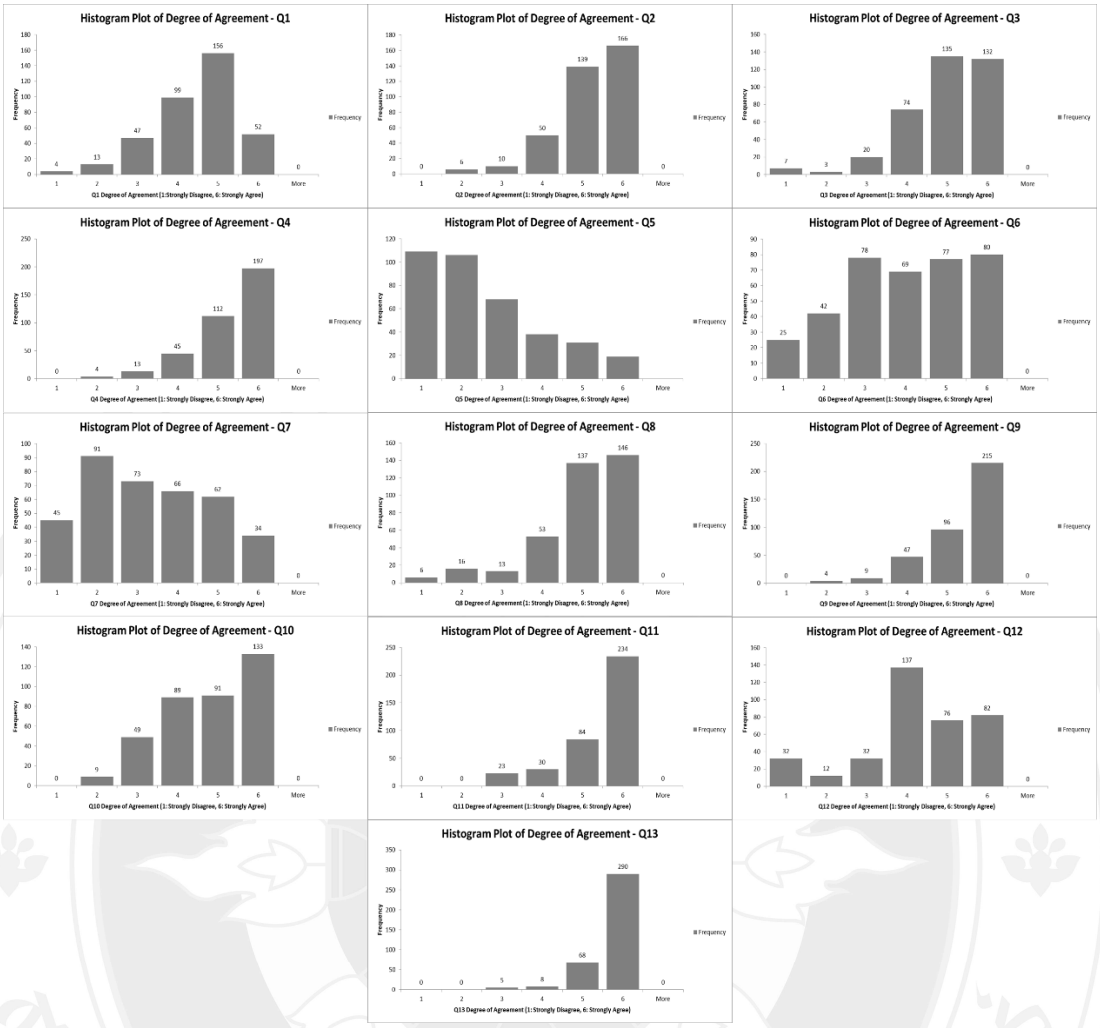


Figure 4.3 Histogram Plot of Degree of Agreement as Measured in Each Item Obtained from N=371 Respondent-Named Individual Pairs Present in All Items

Insights and observations about the data collection provide a perspective to further analyses to answer the research questions set in this study. The next sections will present results framed to answer those research questions. Table 4.6 shows the node shape and color scheme used in all social network graphs in this chapter.

Table 4.6 Legend for Node Shapes Used in All Social Network Graphs Presented in this Chapter Constructed from Data Collected in this Study

Item	Shape / Color	Description
1	Circle	Represents 'management' team; S1 and S2 in Table 3.1
2	Square	Represents 'professional' staff; S3 in Table 3.1
3	Triangle	Represents 'support' staff; unidentified in Table 3.1 and not in scope for study as 'seed' in snowball process
4	Black	Member works at manufacturing site A
5	Gray	Member work at manufacturing site B
6	White	Member work at other countries

The following sections will investigate each research question in detail.

4.2 Investigating Research Question 1

This study surveyed five items related to the construct 'cohesion' to determine how cohesive the organization is in the context of post-merger integration of a multi-national manufacturing company in Thailand. The result from the survey was used to construct social networks, from which network cohesion statistics were extracted for study. The thesis is that network cohesion statistics for the five items survey can better describe the overall organization cohesiveness compared to convention survey scores.

This section begins with a brief look at the network cohesion statistics of interest in this study.

4.2.1 Network Statistics for RQ 1: 'Cohesion'

The network statistics of the five social networks constructed from the data collected using the five items representing the construct 'cohesion' is reviewed. Table 4.7 summarizes key network cohesion statistics for the five networks constructed from the participant and named individual pairs (ties) obtained in this study.

Table 4.7 Network Cohesion Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct 'Cohesion' in RQ 1

Statistic	Q9	Q10	Q11	Q12	Q13
Number of nodes	1,100	1,018	1,090	975	1,108
Number of ties	1,922	1,657	1,859	1,453	1,965
Average Degree	1.747	1.657	1.706	1.490	1.773
Degree Centralization	0.020	0.022	0.012	0.017	0.019
Density	0.002	0.002	0.002	0.002	0.002
Components	955	932	951	885	976
Component Ratio	0.860	0.915	0.872	0.908	0.881
Size of Largest Component	77	57	95	53	71
Average Distance	7.398	7.331	7.469	6.257	5.841
Std Dev Distance	3.710	3.873	3.387	3.185	2.675
Diameter	21	18	19	18	15
Compactness	0.008	0.007	0.009	0.006	0.007

Table 4.8 Summary of Results for Key Network Cohesion Statistics and Corresponding Interpretation and Conclusion

Statistic	Min Value	Max Value	Interpretation
Number of components	885	976	High, ranging from .49 to .60 of number of ties; low cohesion
Size of largest component	53	95	Low, ranging from .03 to .05 of number of ties; low cohesion
Component ratio	0.860	0.915	Near 1.0, indicating isolation; low cohesion
Average degree	1.490	1.773	Low, less than two connections per actor; low cohesion
Density	0.002	0.002	Near 0.0, indicating isolation; low

Statistic	Min Value	Max Value	Interpretation
			cohesion
Diameter	15	21	Low, indicating isolation of groups; low cohesion
Average distance	5.841	7.469	Low, indicating smaller groups; low cohesion
Compactness	0.006	0.009	Near 0.0, indicating small cliques; low cohesion

The summary of results for key network cohesion statistics and corresponding interpretation is shown in Table 4.8. Results of all listed key network cohesion statistics indicate low cohesion. Therefore, it can be concluded that the networks constructed describe the organization as having low cohesiveness from the perspective of social network analysis, based on the thesis that network cohesion statistics could describe the cohesiveness of the organization.

Though network cohesion statistics indicated low cohesion across all five items representing the construct ‘cohesion’, three other important network statistics at the node level werereviewed, namely 1) betweenness centrality, 2) closeness centrality, and 3) degree centrality. In particular, the following results were desired,

1) A high betweenness centrality would indicate an actor has connections that would provide access or pathways to other groups within the network.

2) A high closeness centrality would indicate an actor is close to other actors in the network, which could be interpreted as having influence.

3) A high degree of centrality would indicate an actor having many connections to other actors in the network.

Table 4.9, Table 4.10, and Table 4.11 shows a summary of betweenness centrality, closeness centrality, and degree centrality respective for the five items representing the construct ‘cohesion’ in RQ 1 in this study.

Table 4.9 Network Normalized Betweenness Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct ‘Cohesion’ in RQ 1

Statistic	Q9	Q10	Q11	Q12	Q13
Number of nodes	1,100	1,018	1,090	975	1,108
Min Betweenness	0	0	0	0	0
Max Betweenness	1.751	1.749	1.970	1.212	1.277
Average Betweenness	0.023	0.020	0.026	0.014	0.013
Std Dev Betweenness	0.118	0.118	0.129	0.079	0.074

Table 4.10 Network Closeness Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct ‘Cohesion’ in RQ 1

Statistic	Q9	Q10	Q11	Q12	Q13
Number of nodes	1,100	1,018	1,090	975	1,108
Min Out Closeness	17.146	15.513	15.201	15.335	12.767
Min In Closeness	19.385	16.361	17.671	17.255	14.140
Max Out Closeness	22	19	20	19	16
Max In Closeness	22	19	20	19	16
Average Out Closeness	21.416	18.627	19.442	18.678	15.689
Average In Closeness	21.416	18.627	19.442	18.678	15.689
Std Dev Out Closeness	1.382	0.808	1.331	0.845	0.722
Std Dev In Closeness	0.889	0.717	0.800	0.552	0.561

Table 4.11 Network Degree Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct ‘Cohesion’ in RQ 1

Statistic	Q9	Q10	Q11	Q12	Q13
Number of nodes	1,100	1,018	1,090	975	1,108
Min Out Degree	0	0	0	0	0

Statistic	Q9	Q10	Q11	Q12	Q13
Min In Degree	0	0	0	0	0
Max Out Degree	16	28	16	19	28
Max In Degree	16	18	14	10	17
Average Out Degree	1.749	1.639	1.712	1.490	1.783
Average In Degree	1.749	1.639	1.712	1.490	1.783
Std Dev Out Degree	3.164	3.048	3.123	2.854	3.335
Std Dev In Degree	1.582	1.849	1.564	1.199	1.739
Number of Cliques	24	10	23	11	24

The betweenness centrality, closeness centrality, and degree centrality presented in Table 4.9, Table 4.10, and Table 4.11 respectively show low values, indicating that connections within the network were contained within small groups of individuals with very few actors playing the role of connecting groups across the network. This further substantiates the low cohesion (thus, low cohesiveness) in the networks being studied.

The next sections will present qualitative interpretations of the social network graphs for each item-question constructed from the participant and named individual pairs obtained in the study.

4.2.2 Item-Question Q9: 'Belonging'

The first item under the construct 'cohesion' was 'belonging'; the item-question looking at if the participant felt if they are 'a member of a team with (named individual)'. The social network graph elicited from 1,100 nodes (actors) consisting of 1,922 ties (connections) recorded as responses to item-question Q9 is shown in Figure 4.4. Immediately, black- and gray-colored shapes form separate groupings, indicating a lack of mixing between the two broad groups of nodes (actors). Incidentally, the black and gray-colored shapes indicated work locations A and B respective. If cohesiveness meant a good mixing between members of both work locations, then the social network graph did not indicate so in the context of 'belonging'. In other words, the social network graph suggested that 'belonging' (that is, feeling as a member of a team with others) is largely confined to groups or members at either work location A

or B. Table 4.12 lists key participants based on top five scores in betweenness, closeness, degree, reach, fragmenting, and distancing parameters.

Table 4.12 List of Key Nodes (Actors) Based on betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q9 in this Study

Network parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-2922	EE-4798	EE-4034	EE-4260
Closeness centrality	EE-3454	EE-3890	EE-2047	EE-6320	
Degree centrality	EE-4808	EE-3023	EE-2337	EE-136	EE-5460
Reach	EE-1917	EE-4129	EE-4808	EE-5544	EE-6567
Fragmenting	EE-1546	EE-2522	EE-4870	EE-5544	EE-5849
Distancing	EE-1546	EE-2665	EE-4870	EE-5966	

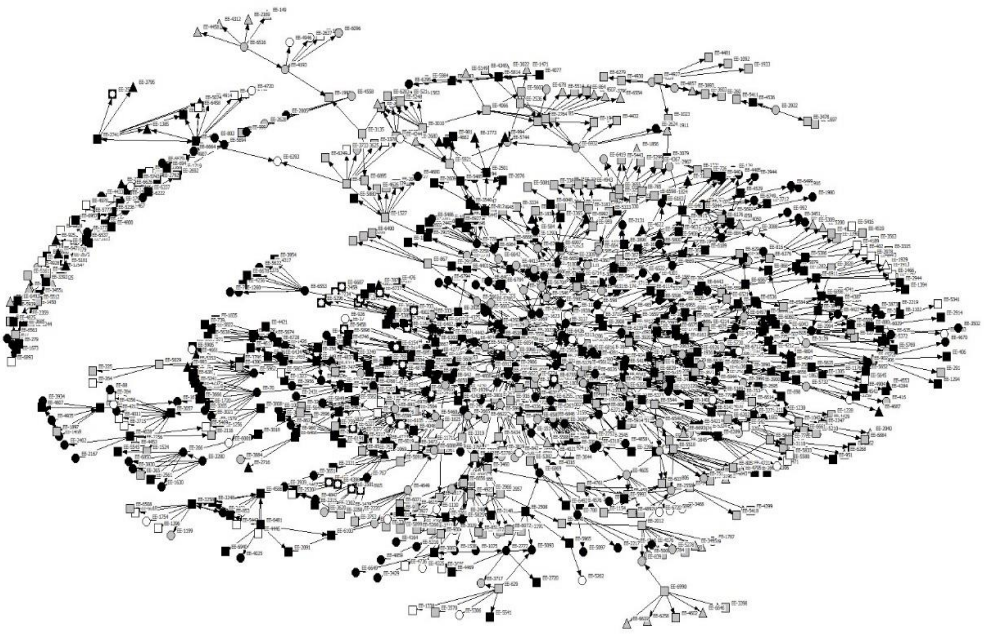


Figure 4.4 Social Network Graph Elicited from Participants and Named-Individual Pairs Recorded as a Response to Item-Question Q9

In the ‘reach’ parameter, the five listed actors have a combined reach of 271 nodes or 24.6% of the network. In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would have resulted in disconnected groups. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would have resulted in increased distance between groups and actors.

4.2.2.1 Item-question Q9: ‘belonging’ betweenness centrality

Figure 4.5 shows Figure 4.4 with added emphasis for actors with top betweenness centrality scores. As the network is large with 1,100 nodes and 1,922 ties, the positions may not be easily visible. The key participants (listed in Table 4.12) and their related named individual pairs are extracted, and a social network graph constructed with emphasis on betweenness centrality as shown in Figure 4.6 and Figure 4.7.

It is observed that key participants with higher betweenness centrality scores form connections for other participants of the network to reach otherwise unreachable groups in the network. Actors (EE-4034, EE-3192, EE-4870, EE-4808, EE-1917, EE-1546, EE-485, EE-2063, EE-1893, and EE-3454 in Figure 4.6) form a chain and act as ‘in-betweens’ that enabled members at different parts of the network to connect via them. Likewise, there are actors (EE-136, EE-3558, EE-2922, EE-2337, EE-4798, EE-3013, and EE-3203) in Figure 4.7 who form a chain and act as ‘in-betweens’ for others.

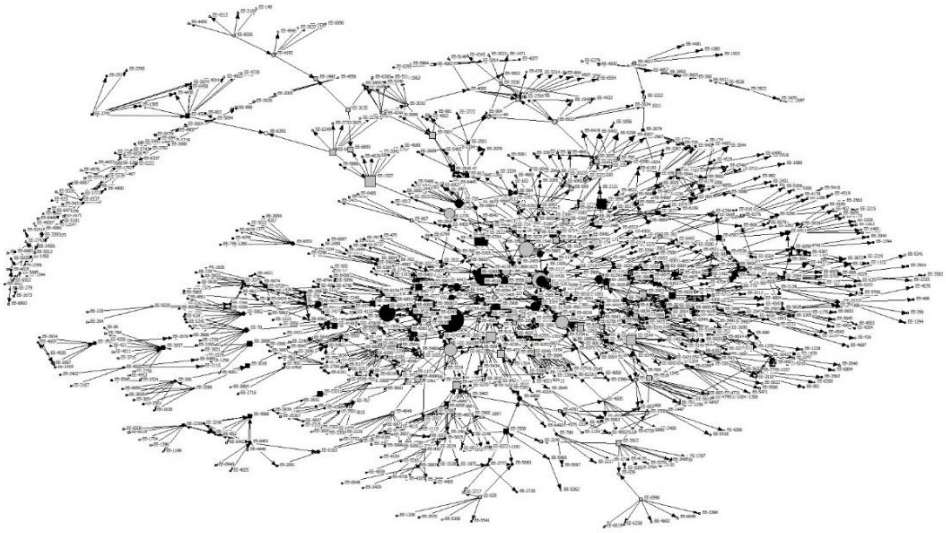


Figure 4.5 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q9 with Emphasis on betweenness Centrality Measure

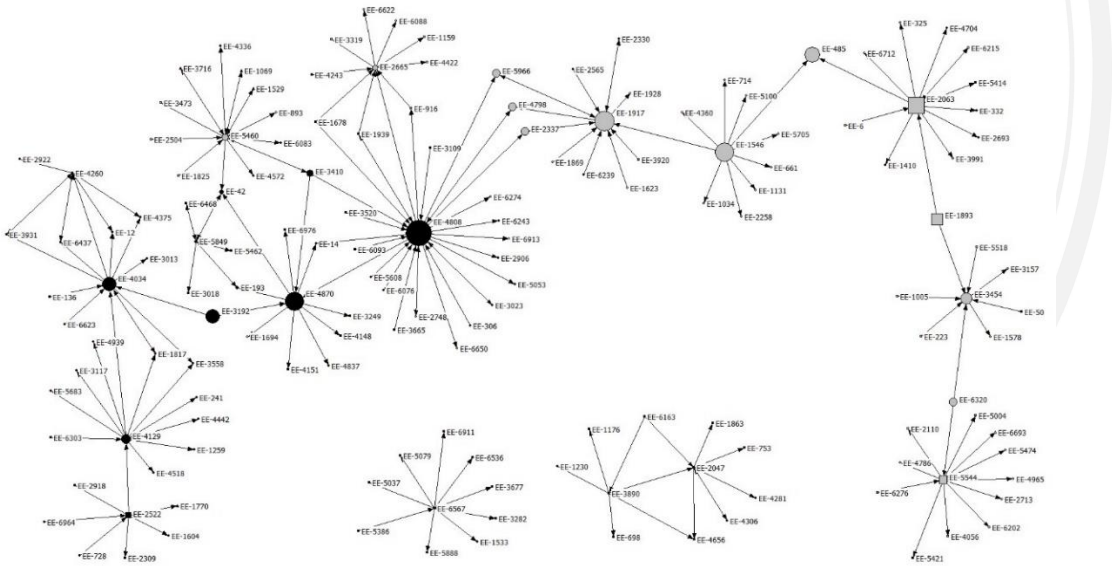


Figure 4.6 Social Network Graph Elicited for Identified key Participants and Named Individual Pairs from Table 4.12 with Emphasis on betweenness Centrality Measure

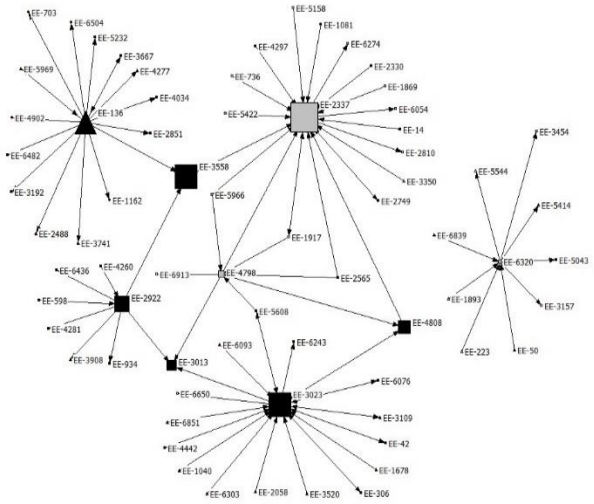


Figure 4.7 Social Network Graph for Identified Key Participants and Named Individual Pairs from Table 4.12 with Emphasis on betweenness Centrality Measure

However, it is also observed that black-colored shapes and gray-colored shapes are not well-mixed in this network, indicating weak cohesiveness (from the perspective of 'belonging') between the two work locations involved in the integration. This supports the network cohesion statistics presented in an earlier section showing low cohesion in the overall network.

4.2.2.2 Item-question Q9: 'belonging' closeness centrality

Similarly, Figure 4.8 shows Figure 4.4 with added emphasis for actors with top closeness centrality scores. The key actors and their groups resided at the peripheral area of the main network. The key participants (listed in Table 4.12) and their related named individual pairs were extracted, and a social network graph constructed with emphasis on closeness centrality as shown in Figure 4.9 and Figure 4.10.

Figure 4.9 shows two clusters, both from work location A (black-colored shapes) as participants with top closeness centrality scores while Figure 4.10 shows one cluster with members from both work location A (black-colored shapes) and B (gray-colored shapes). Though the cluster in Figure 4.10 exemplified 'belonging' (that is, feeling as a member of a team with others) across both work locations, thus a desired state relating to cohesion in this study, it was one of few

across the whole network. The common theme observed from the social network graphs continued to be that participants from work location A and B were not well-mixed from a closeness centrality measure perspective. In other words, closeness centrality revealed groups may exemplify the desired state at the group level but not sufficient to affect cohesion statistics at the organization level.

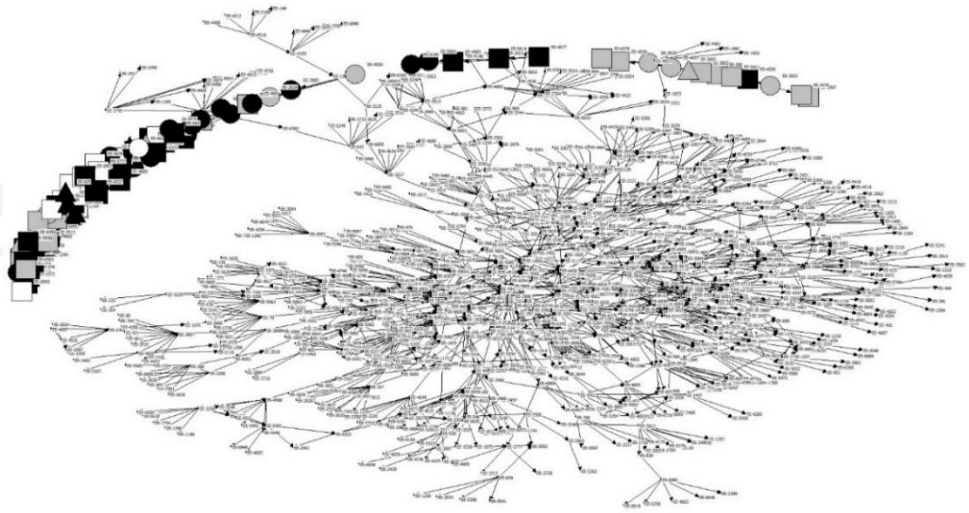


Figure 4.8 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q9 with Emphasis on Closeness Centrality Measure

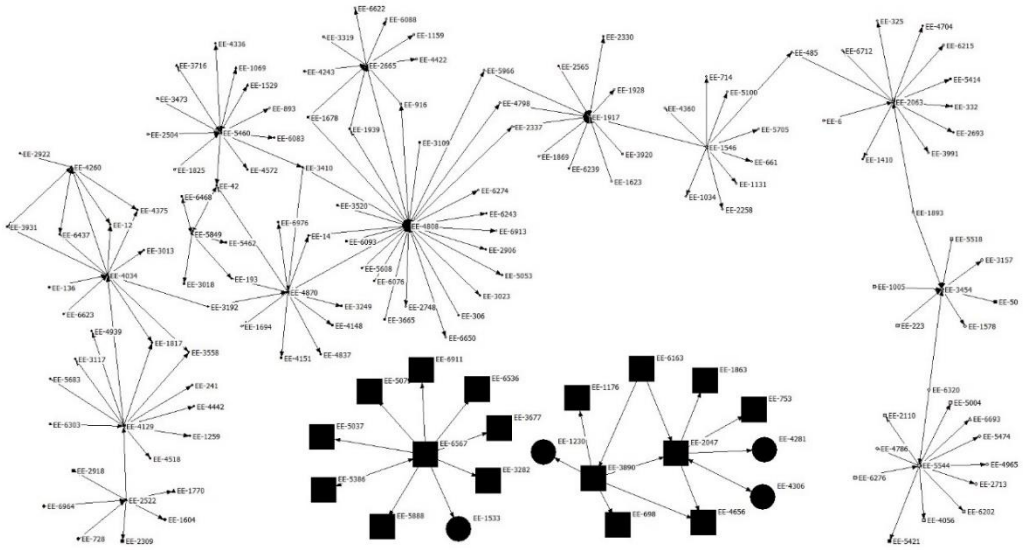


Figure 4.9 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.12 with Emphasis on Closeness Centrality Measure

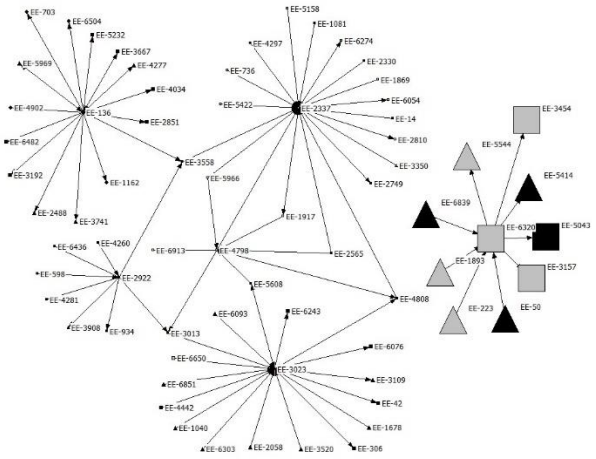


Figure 4.10 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.12 with Emphasis on Closeness Centrality Measure

4.2.2.3 Item-question Q9: ‘belonging’ degree centrality

Similarly, Figure 4.11 shows Figure 4.4 with added emphasis for actors with top degree centrality scores. The key actors and their groups resided at the central area of the network. The key participants (listed in Table 4.12) and their related named individual pairs were extracted, and a social network graph constructed with emphasis on degree centrality as shown in Figure 4.12 and Figure 4.13.

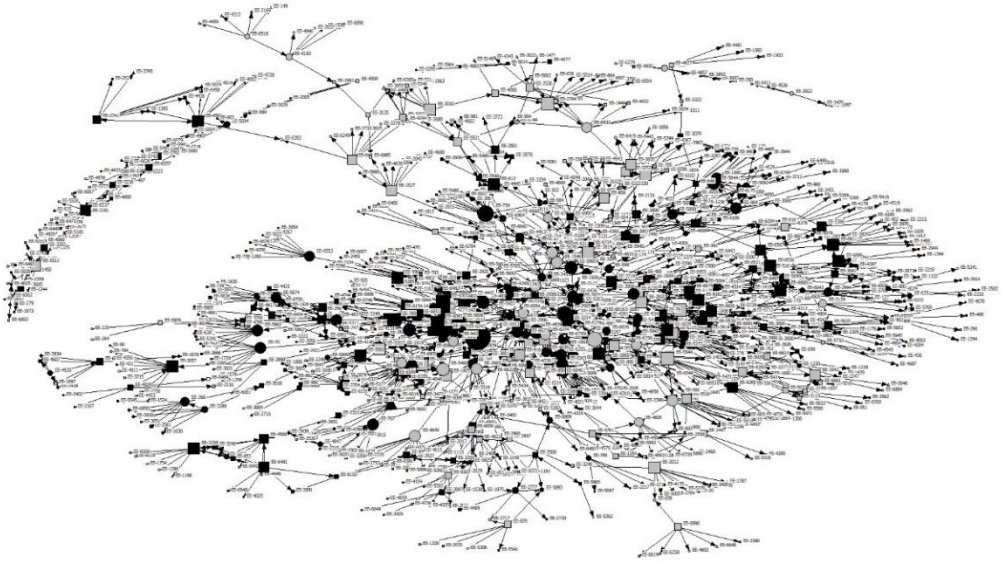


Figure 4.11 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q9 with Emphasis on Degree Centrality Measure

Comparing Figure 4.12 to Figure 4.6, it is observed that some of top degree centrality participants were also top betweenness participants, similarly when comparing Figure 4.13 to Figure 4.7. The participants happened to have more connections (degree centrality) and situated in positions that lie in-between other actors in the network. These key actors played a dual role in holding their group together, as well as connecting (or influencing) others in the network from a ‘belonging’ perspective.

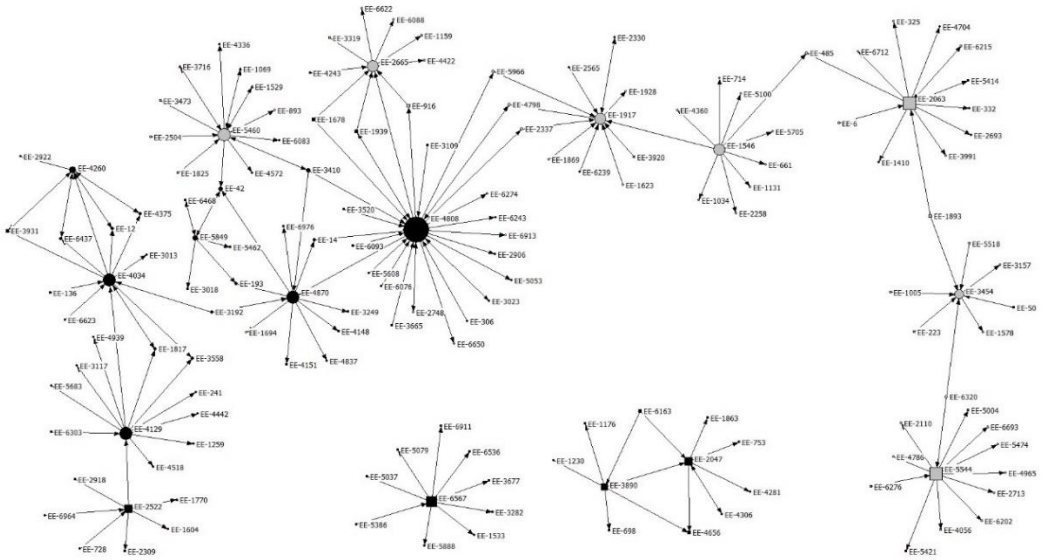


Figure 4.12 Social Network Graph Elicited for Identified Key Participants and Named-Individual Pairs from Table 4.12 with Emphasis on Degree Centrality Measure

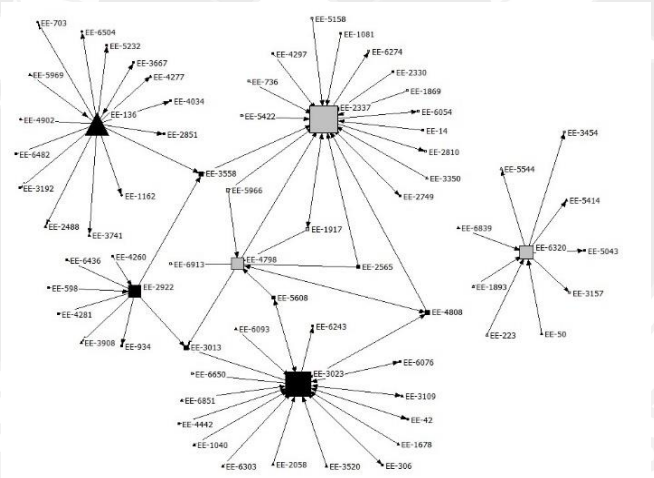


Figure 4.13 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.12 with Emphasis on Degree Centrality Measure

Results obtained for item-question relating to ‘morale’ under ‘cohesion’ construct is discussed next.

4.2.3 Item-Question Q10: 'Morale'

The second item under the construct 'cohesion' is 'morale'; the item-question looking at if the participant is 'excited to be working with (named individual)'. The social network graph elicited from 1,018 nodes (actors) consisting of 1,657 ties (connections) recorded as responses to item-question Q10 is shown in Figure 4.14. Immediately, it is observed that there were more black-colored than gray-colored shapes. Black- and gray-colored shapes also form separate groupings, indicating a lack of mixing between the two broad groups of nodes (actors). If cohesiveness meant a good mixing between members of both work locations, then the social network graph did not indicate so in the context of 'morale'. In other words, the social network graph suggested that 'morale' was largely confined to groups or members at either work location A (black-colored shapes) or B (gray-colored shapes).

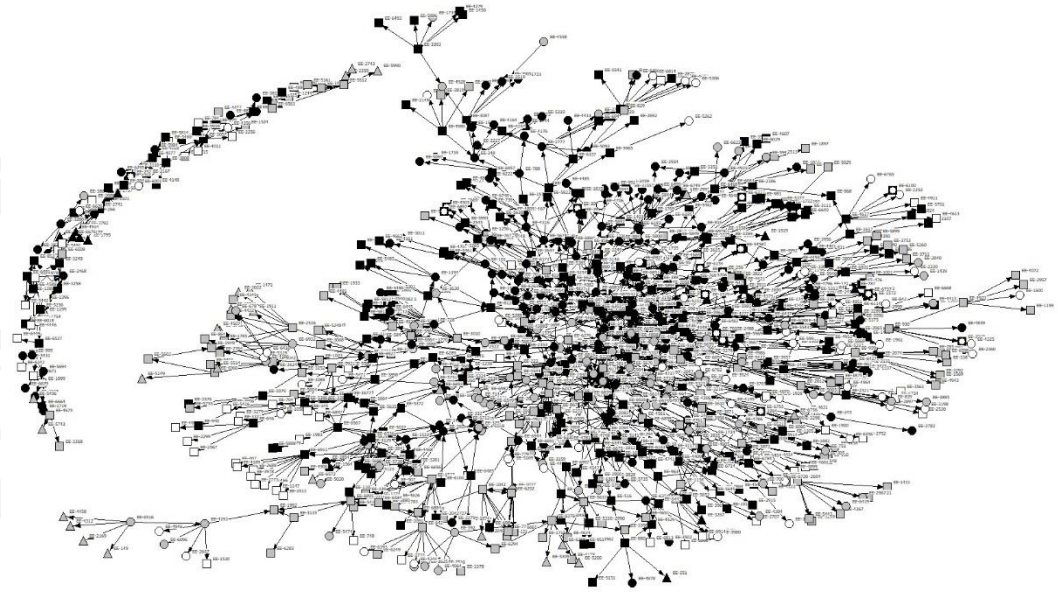


Figure 4.14 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q10

Table 4.13 lists key participants based on top five scores in betweenness, closeness, degree, reach, fragmenting, and distancing. In the 'reach' parameter, the five listed actors have a combined reach of 312 nodes or 30.6% of the network. In the 'fragmenting' parameter (based on betweenness centrality scores), the five listed actors, if removed, would have resulted in disconnected groups. In the 'distancing'

parameter (based on closeness centrality scores), the three listed actors, if removed, would have resulted in increased distance between groups and actors.

Table 4.13 List of Key Nodes (Actors) Based on betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q10 in this Study.

Network parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-3023	EE-4808	EE-2749	EE-4034	EE-1817
Closeness centrality	EE-79	EE-2047	EE-2094	EE-4306	EE-220
Degree centrality	EE-136	EE-4808	EE-6183	EE-1917	EE-2337
Reach	EE-1917	EE-4808	EE-5744	EE-6567	EE-812
Fragmenting	EE1546	EE-239	EE-5460	EE-6215	EE-6869
Distancing	EE-239	EE-5460	EE-6869		

4.2.3.1 Item-question Q10: ‘morale’ betweenness centrality

Figure 4.15 shows Figure 4.14 with added emphasis for actors with top betweenness centrality scores. As the network is large with 1,018 nodes and 1,657 ties, the positions may not be easily visible. The key participants (listed in Table 4.13) and their related named individual pairs were extracted, and a social network graph constructed with emphasis on betweenness centrality as shown in Figure 4.16 and Figure 4.17.

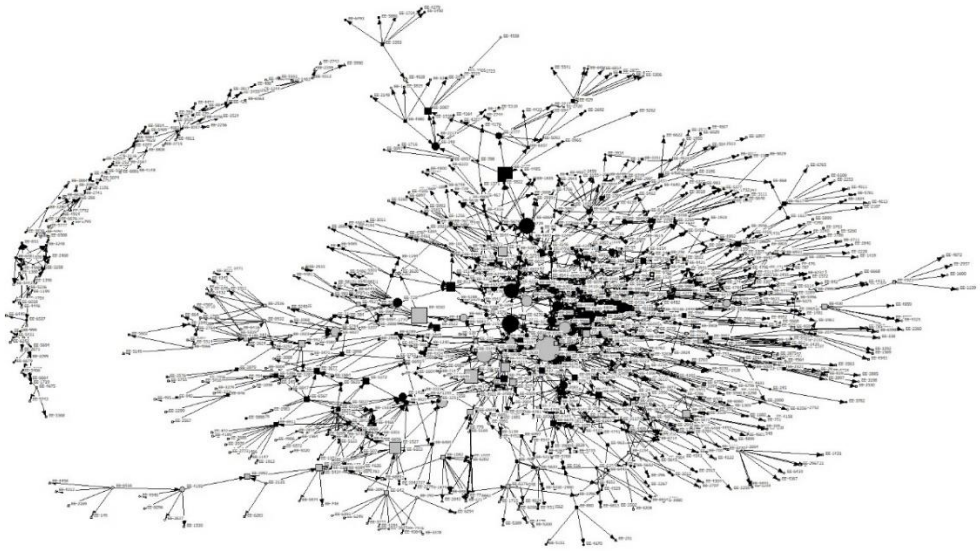


Figure 4.15 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q10 with Emphasis on betweenness Centrality Measure

Actors (such as EE-2337, EE-1917, EE-136, EE-4808) have a relatively high number of connections to others but also form bridges (note EE-136 is linked to EE-4808, EE-2337 is linked to EE-4808, etc.) between groups, acting as in-betweens to enable access of resources within the larger organization.

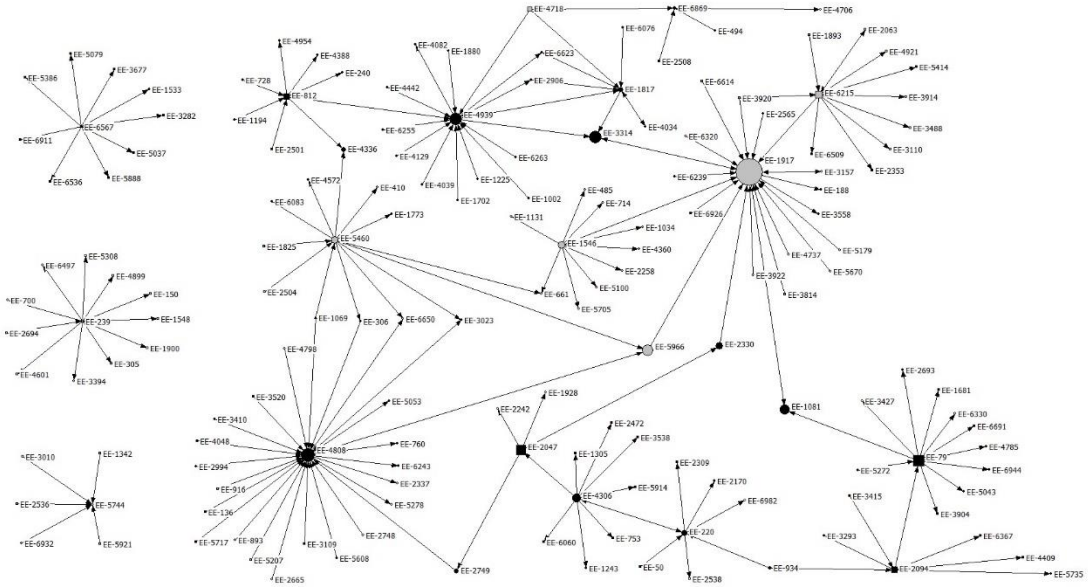


Figure 4.16 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.13 with Emphasis on betweenness Centrality Measure

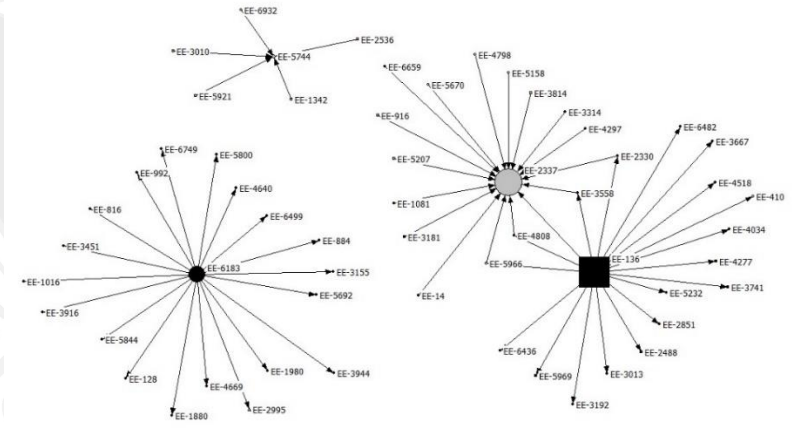


Figure 4.17 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.13 with Emphasis on betweenness Centrality Measure

4.2.3.2 Item-question Q10: ‘morale’ closeness centrality

Similarly, Figure 4.18 shows Figure 4.14 with added emphasis for actors with top closeness centrality scores. The key actors and their groups resided at the peripheral area of the main network. The key participants (listed in Table 4.13) and their related named individual pairs were extracted, and a social network graph constructed with emphasis on closeness centrality as shown in Figure 4.19 and Figure 4.20.

The extracted social network graphs (Figure 4.19 and Figure 4.20) shows closeness centrality top scorers as clusters at the peripheral of the main clusters. These did not connect to any other groups in the main network (see emphasized shapes in Figure 4.18, Figure 4.19, and Figure 4.20 versus other nodes in the network graph). They may be closely knit, excited to be working together, but oblivious or not excited to be working with the rest of the network. This could create sub-cultures within the organization. There was also a question of whether the participants were ‘close’ with members of their own work-function or with others in the context of Q10 (that is ‘morale’ or excitement to work with others).

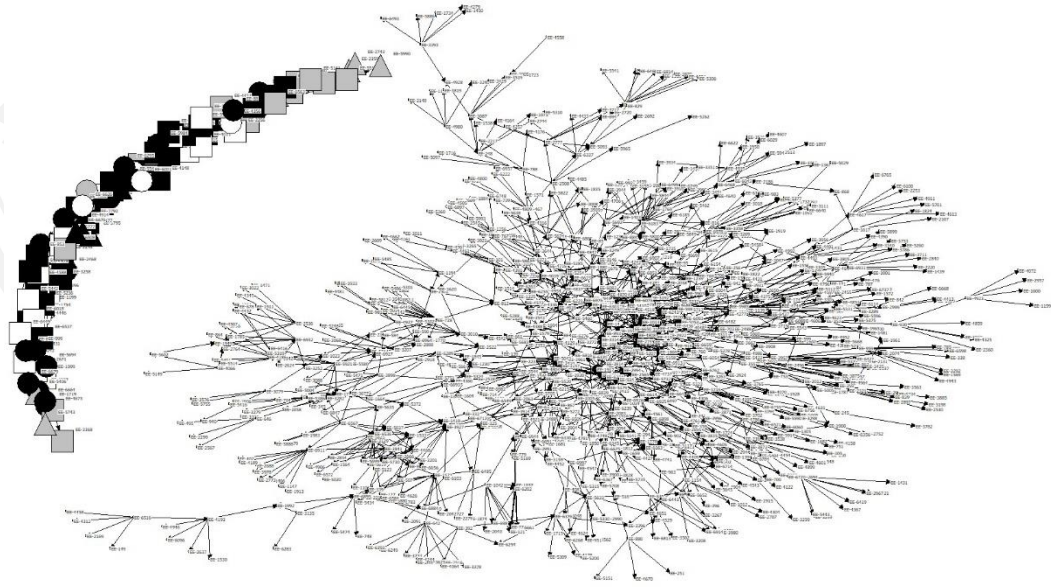


Figure 4.18 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q10 with Emphasis on Closeness Centrality Measure

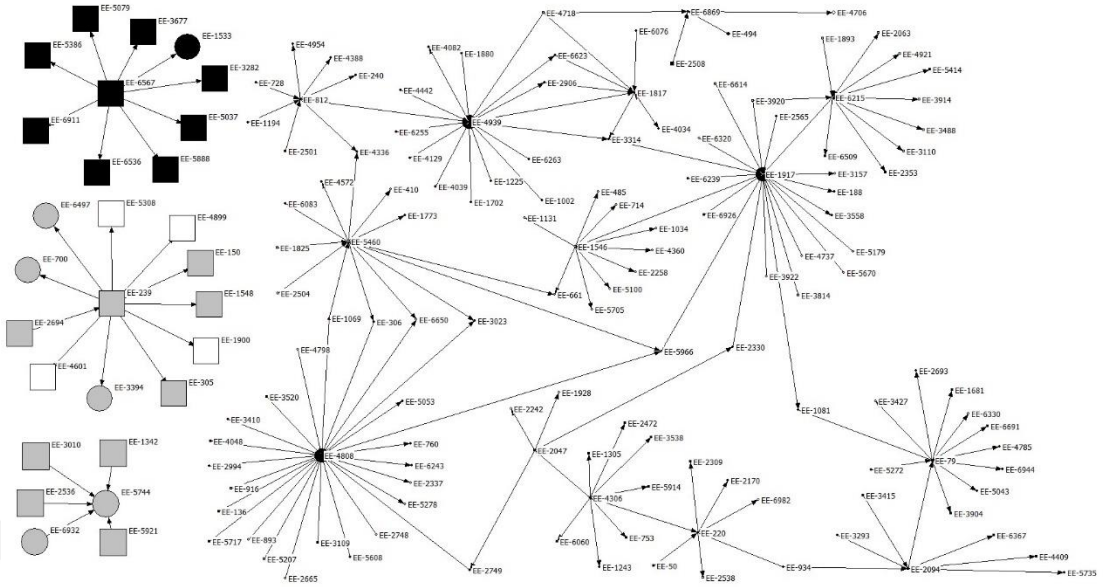


Figure 4.19 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.13 with Emphasis on Closeness Centrality Measure

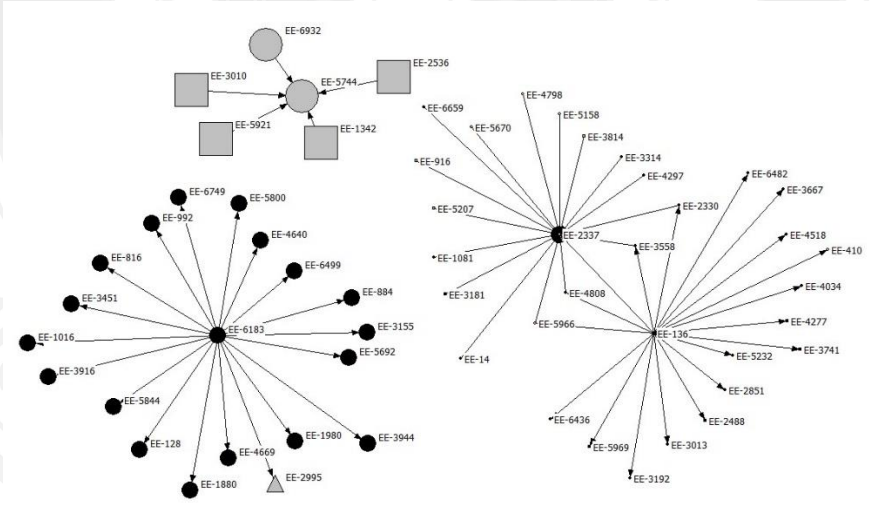


Figure 4.20 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.13 with Emphasis on Closeness Centrality Measure

4.2.3.3 Item-question Q10: ‘morale’ degree centrality

Similarly, Figure 4.21 shows Figure 4.14 with added emphasis for actors with top degree centrality scores. These actors were concentrated in the central region of the network (see bigger shape sizes). The key participants (listed in Table 4.13) and their related named individual pairs were extracted, and a social network graph constructed with emphasis on closeness centrality as shown in Figure 4.22 and Figure 4.23.

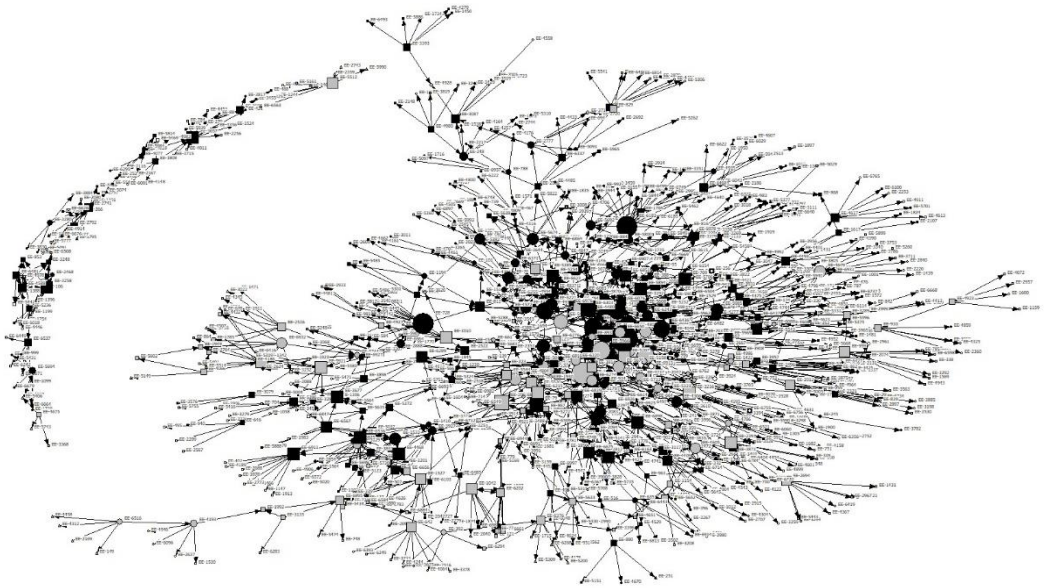


Figure 4.21 Social Network Graph Elicited from Participants and Named-Individual Pairs Recorded as a Response to Item-Question Q10 with Emphasis on Degree Measure

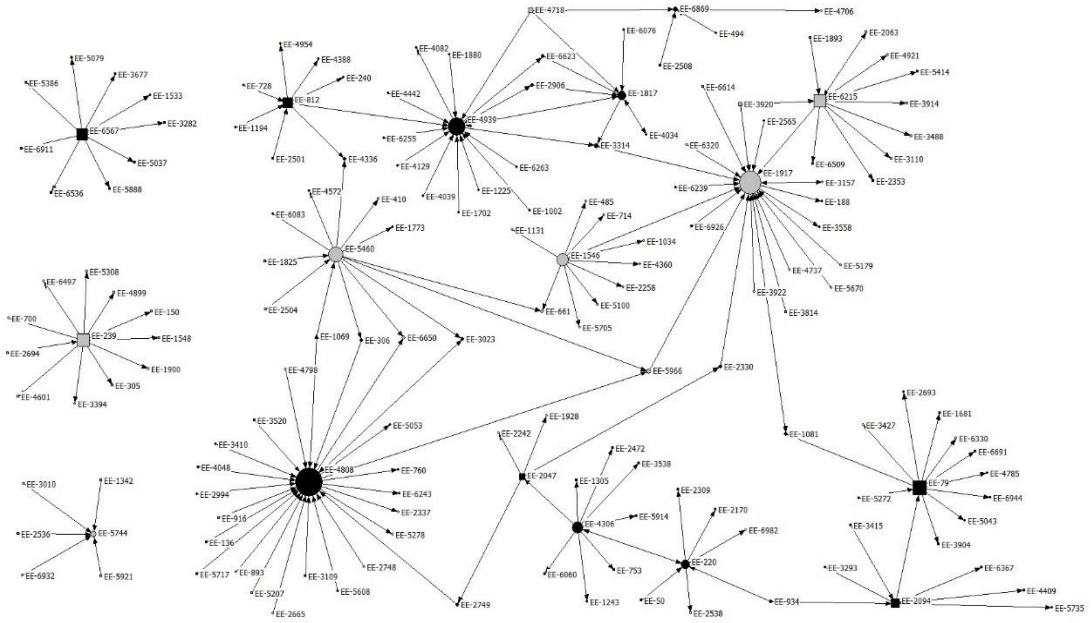


Figure 4.22 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Table 4.13 with Emphasis on Degree Centrality Measure

Comparing Figure 4.22 to Figure 4.16 and Figure 4.23 to Figure 4.17, it is observed that some of top degree centrality actors were also top betweenness actors. These actors happened to have more connections (thus, higher degree centrality) and were in positions that lie in-between other actors (thus, higher betweenness) in the network. These key actors played a dual role in holding their group together, as well as connecting (or influencing) others in the network from a 'morale' (that is, excitement to work with others) perspective.

It is noteworthy that EE-2337 and EE-136 in Figure 4.23 (also Figure 4.20, Figure 4.17) connect to EE-4808 in Figure 4.22 (also Figure 4.19, Figure 4.16) as part of a larger connected network in this context of 'morale'.

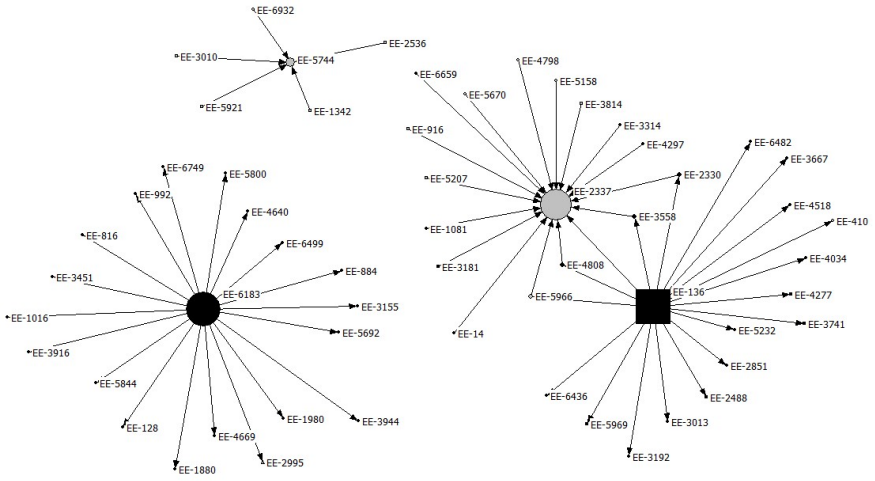


Figure 4.23 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Table 4.13 with Emphasis on Degree Centrality Measure

The third item under the construct ‘cohesion’ is discussed next.

4.2.4 Item-Question Q11: ‘Individual Attraction’

The third item under the construct ‘cohesion’ is ‘individual attraction’; the item-question looking at if the participant ‘being with (named individual) in a team is one of the most important social groups to which’ they belong. The social network graph elicited from 1,090 nodes (actors) consisting of 1,859 ties (connections) recorded as responses to item-question Q11 is shown in Figure 4.24. Immediately, there were more black-colored than gray-colored shapes. Black- and gray-colored shapes also formed separate groupings, indicating a lack of mixing between the two broad groups of nodes (actors). If cohesiveness meant a good mixing between members of both work locations, then the social network graph did not indicate so in the context of ‘individual attraction’ (that is, desire to be with others belonging in the same social group). In other words, the social network graph suggested that ‘individual attraction’ is largely confined to groups or members at either work location A (black-colored shapes) or B (gray-colored shapes).

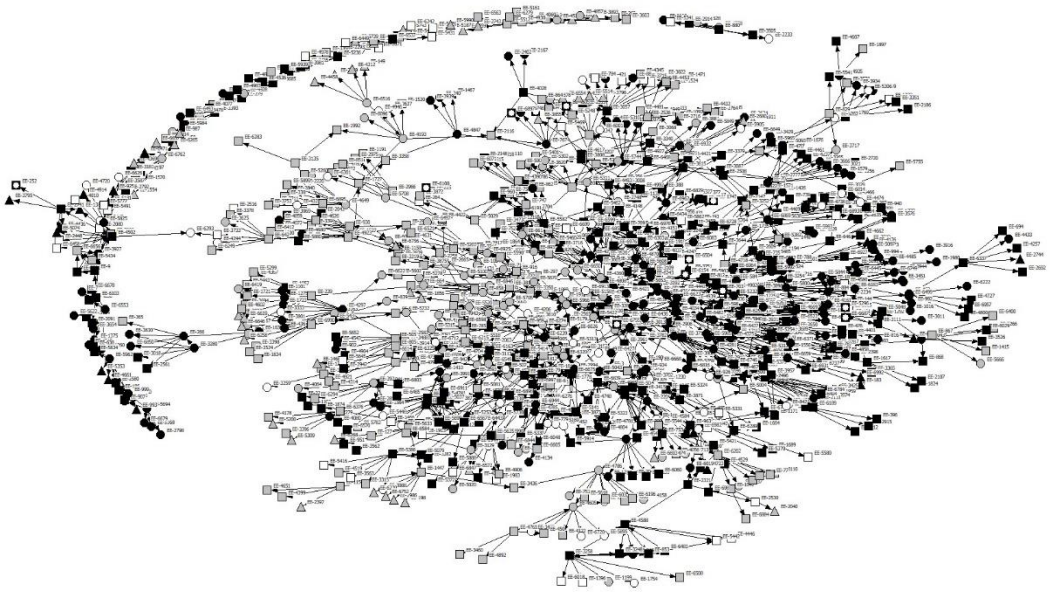


Figure 4.24 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q11

Table 4.14 List of Key Nodes (Actors) Based on betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q11 in this Study

Network parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-3023	EE-3314	EE-3109	EE-42
Closeness centrality	EE-1778	EE-1812	EE-1659	EE-6675	EE-6239
Degree centrality	EE-4808	EE-2337	EE-2330		
Reach	EE-1917	EE-3192	EE-4129	EE-4986	EE-5043
Fragmenting	EE-1546	EE-2063	EE-4243	EE-4870	EE-5544
Distancing	EE-1546	EE-4870	EE-5544		

In the ‘reach’ parameter, the five listed actors have a combined reach of 253 nodes or 23.2% of the network. In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would have resulted in disconnected groups. In the ‘distancing’ parameter (based on closeness centrality

scores), the three listed actors, if removed, would have resulted in increased distance between groups and actors.

If the integration effort was to create an organization inclusive of both locations, the data so far continues to suggest that cohesiveness (or cohesion) happened locally at each work location and did not suggest cohesiveness (cohesion) across site. Item-question Q11 related to 'individual attraction' (that is, desire to be with others belonging in the same social group) and if the data collected suggest only social groupings within the same work location, then cohesion in the broader organization has not been achieved.

4.2.4.1 Item-question Q11: 'individual attraction' betweenness centrality

Figure 4.25 re-displays Figure 4.24 with emphasis for actors with top betweenness centrality scores respectively. As the network is large with 1,090 nodes and 1,859 ties, the positions (with larger shapes) may not be easily visible in Figure 4.25, except for a few larger, black-colored shapes. The key participants (listed in Table 4.14) and their related named individual pairs were extracted, and two social graphs constructed with emphasis on betweenness centrality are shown as Figure 4.26 and Figure 4.27.

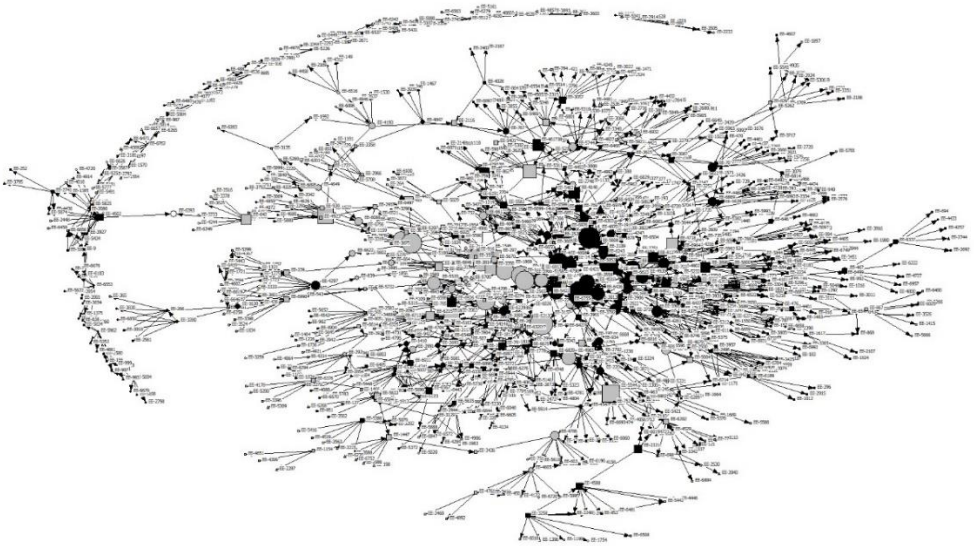


Figure 4.25 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q11 with Emphasis on betweenness Centrality Measure

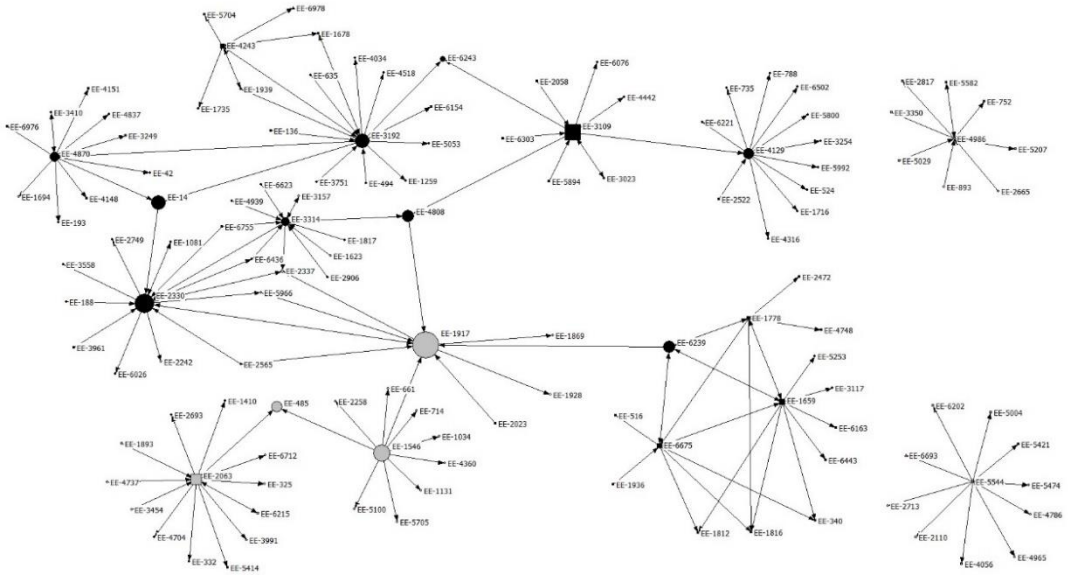


Figure 4.26 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.14 with Emphasis on betweenness Centrality Measure

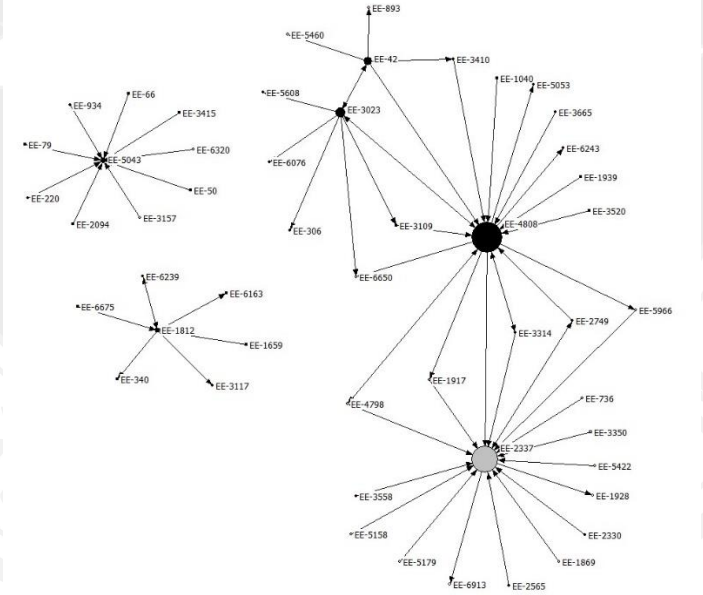


Figure 4.27 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.14 with Emphasis on betweenness Centrality Measure

Actors like EE-14, EE-2330, EE-1917, EE-3109, EE-3192 (in Figure 4.26), and EE-4808 and EE-2337 (in Figure 4.27) have a relatively higher number of

connections than others but also formed bridges between groups, acting as in-betweens to enable access across the network. Hence qualified as nodes with high betweenness centrality scores.

4.2.4.2 Item-question Q11: ‘individual attraction’ closeness centrality

Similarly, Figure 4.28 re-displays Figure 4.24 with an emphasis for actors with top closeness centrality scores based on Table 4.14. Like previous social network graphs with emphasis on closeness centrality, the actors (with top closeness centrality scores) were situated at the peripheral of the main network, connected to the main network via several actors but otherwise in stand-alone clusters. The black-colored and gray-colored shapes did not seem to be well-mixed, suggesting cohesiveness within the sub-group but not at the broader organization; see enlarged shapes in Figure 4.29 and Figure 4.30 for clearer picture.

Q11 investigated if the participant felt that ‘being with (named individual) in a team is one of the most important social groups to which he/she belongs’. Figure 4.29 and Figure 4.30 suggest more positive response with members within the same work location than with members from the other work location.

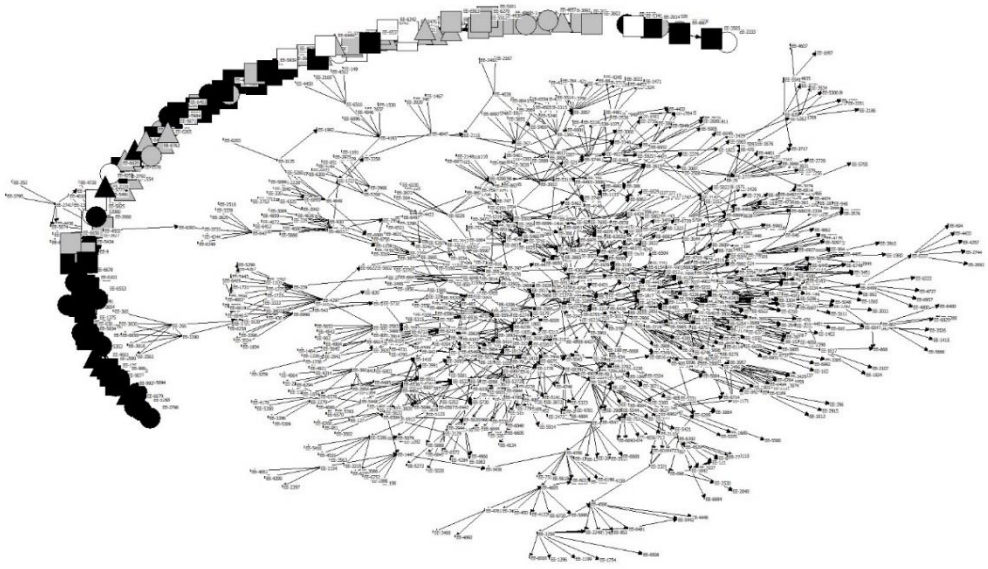


Figure 4.28 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q11 with Emphasis on Closeness Centrality Measure

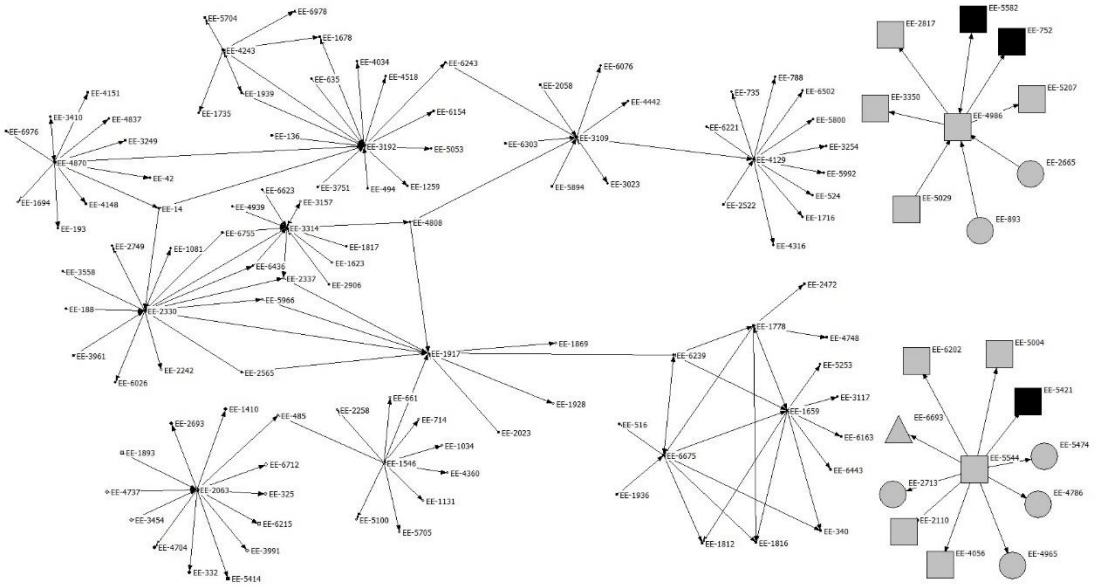


Figure 4.29 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Table 4.14 with Emphasis on Closeness Centrality Measure

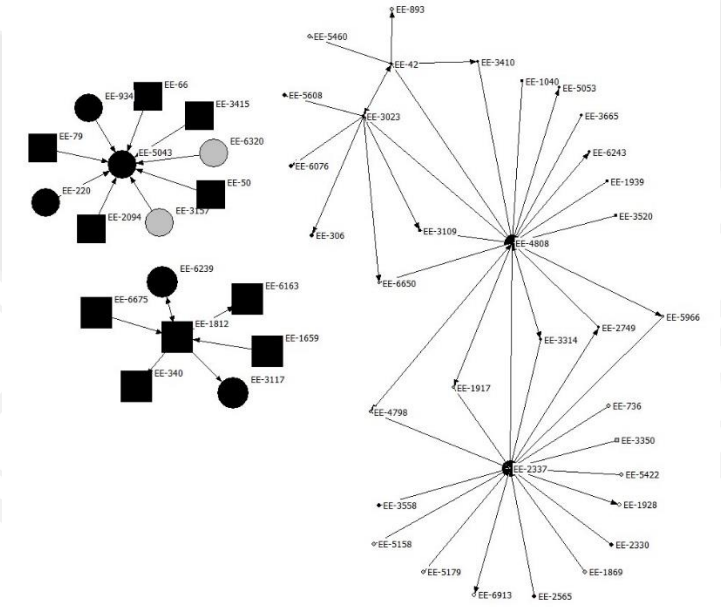


Figure 4.30 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Table 4.14 with Emphasis on Closeness Centrality Measure

4.2.4.3 Item-question Q11: ‘individual attraction’ degree centrality

Similarly, Figure 4.31 re-displays Figure 4.24 with an emphasis for actors with top degree centrality scores. The enlarged black-colored and gray-colored shapes shown in Figure 4.31 identify actors with top degree centrality scores. These laid mostly in the center of the network as each was a center of a connected group. Figure 4.32 and Figure 4.33 shows an enlarged view of the key actors (listed in Table 4.14) with their connected networks. Like previous cases, there is an overlap between the actors with top degree centrality scores and top betweenness scores.

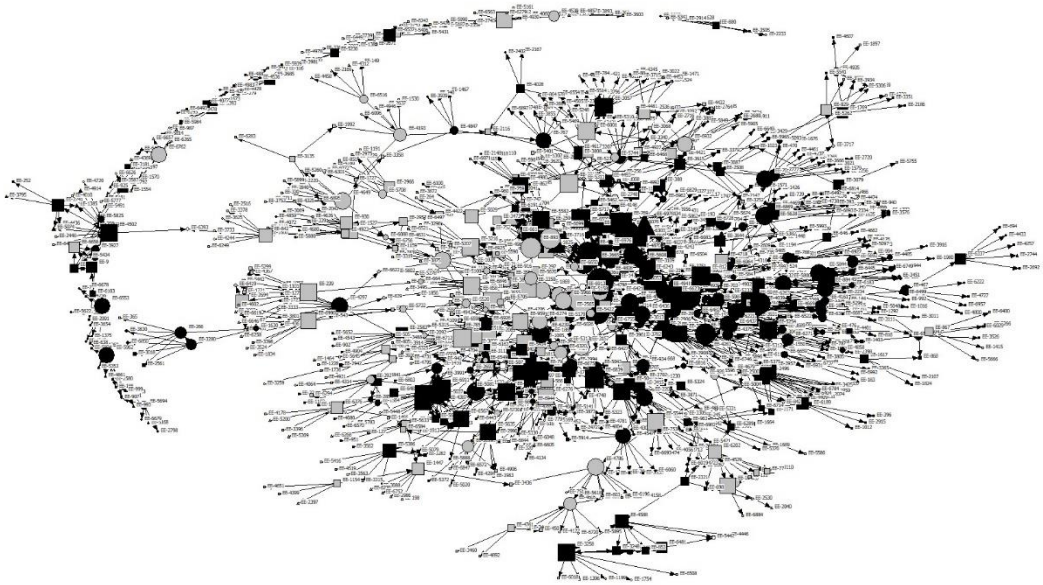


Figure 4.31 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q11 with Emphasis on Degree Centrality Measure

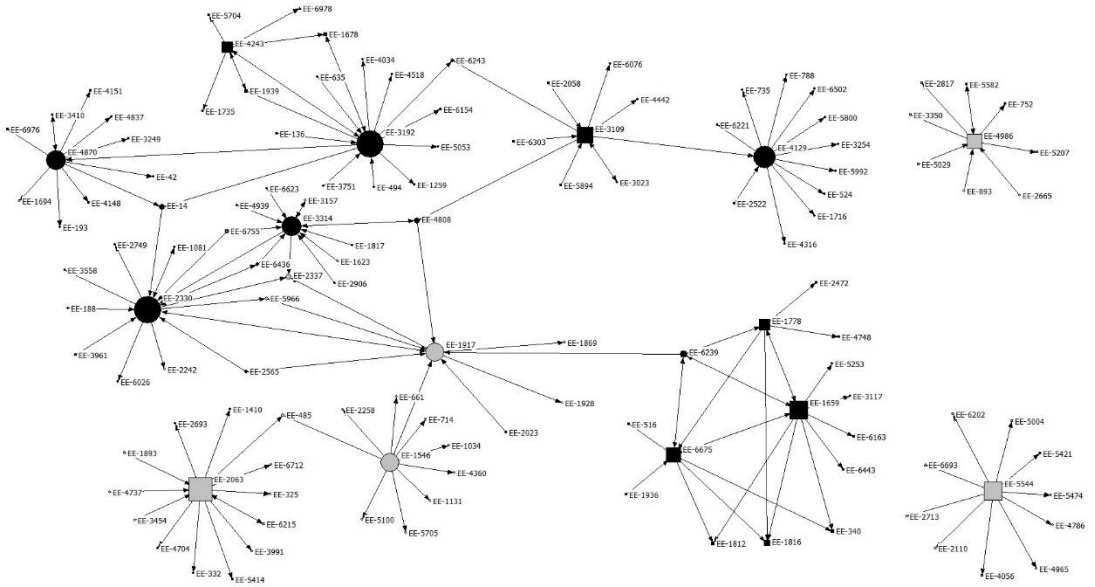


Figure 4.32 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.14 with Emphasis on Degree Centrality Measure

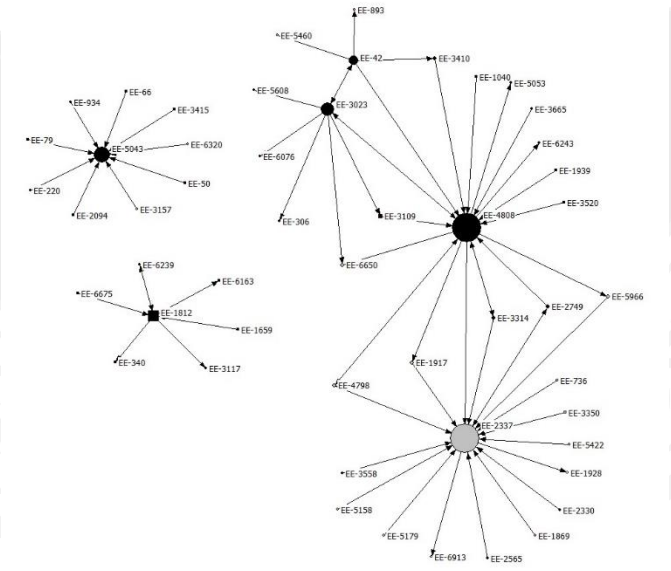


Figure 4.33 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.14 with Emphasis on Degree Centrality Measure

It is observed (see Figure 4.32) that key actors played a dual role of center of a group and a bridge or connector between groups, hence the same actors scoring high on degree centrality and betweenness centrality.

The fourth item under the construct ‘cohesion’ is discussed next.

4.2.5 Item-Question Q12: ‘Social Cohesion’

The fourth item under the construct ‘cohesion’ being investigated in RQ 1 is ‘social cohesion’; the item-question looking at if the participant ‘would like to spend time together with (named individual) outside of work’. It is important to note that context ‘outside of work’. The social network graph elicited from 975 nodes with 1,453 ties recorded as responses to item-question Q12 is shown in Figure 4.34. It is noted that this response is about 5% to 10% lower than other item-questions representing the construct ‘cohesion’.

As can be seen from Figure 4.34, the social network graph does not show a well-mixed (that is, more random) arrangement of black-colored and gray-colored shapes. This item-question was included in the study to understand if there was an effort to increase interpersonal relationship through social activities. The data collected did not strongly suggest a strong effort invested in social activities outside of work. However, given that the study was conducted during the COVID-19 pandemic where gatherings or social activities were banned, results could have been influenced.

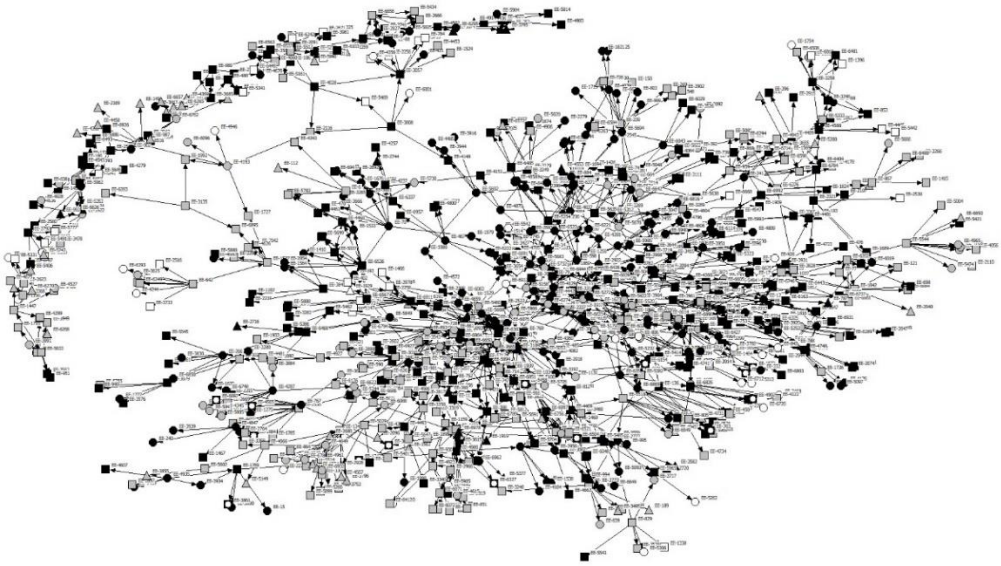


Figure 4.34 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q12

Table 4.15 lists key participants based on the top five scores in betweenness, closeness, degree, reach, fragmenting, and distancing scores.

Table 4.15 List of Key Nodes (Actors) Based on betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q12 in this Study

Network parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-4798	EE-1081	EE-3023	EE-3314
Closeness centrality	EE-6898	EE-2083	EE-4243	EE-6276	EE-1678
Degree centrality	EE-3314	EE-728	EE-3109	EE-4808	EE-2565
Reach	EE-2994	EE-306	EE-5744	EE-6436	EE-6567
Fragmenting	EE-1546	EE-3010	EE-3314	EE-4718	EE-6215
Distancing	EE-3010	EE-6215	EE-79		

In the ‘reach’ parameter, the five listed actors have a combined reach of 226 nodes or 23.6% of the network. In the ‘fragmenting’ parameter (based on betweenness

centrality scores), the five listed actors, if removed, would have resulted in disconnected groups. Similarly, the three listed actors in the ‘distancing’ parameter (based on closeness centrality scores), if removed, would result in increased distance between groups and actors.

4.2.5.1 Item-question Q12: ‘social cohesion’ betweenness centrality

Figure 4.35 re-displays Figure 4.34 with added emphasis for actors with top betweenness centrality scores. These actors played a key role as in-betweens of groups to extend the boundaries of the group within the network. The enlarged shapes may not show well in Figure 4.35 as the main network is large with 975 nodes and 1,453 ties. Figure 4.36 and Figure 4.37 may illustrate salient points better.

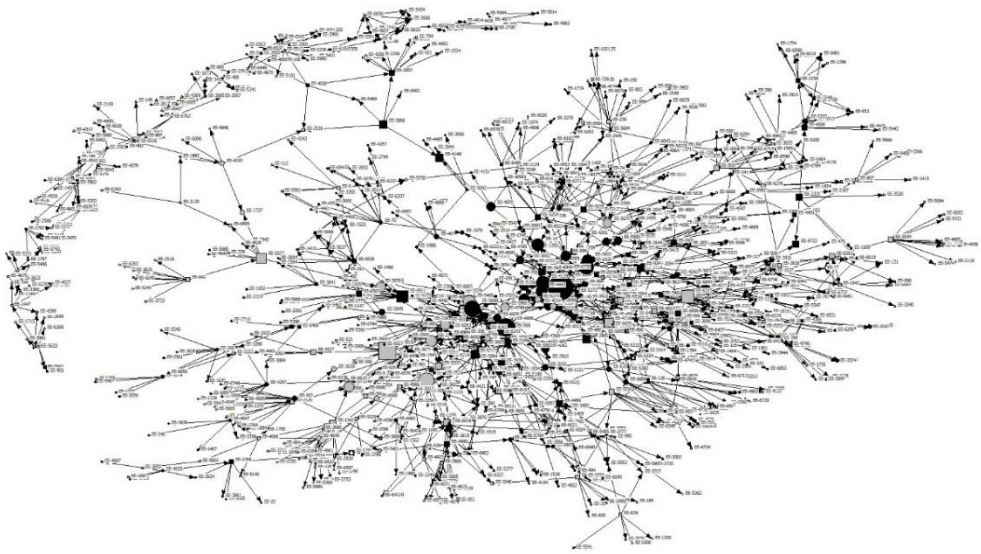


Figure 4.35 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q12 with Emphasis on betweenness Centrality Measure

Actors EE-2565, EE-5520, EE-6215, EE-2083, EE-3314, EE-1917, EE-1546, EE-661, EE-301, EE-2748, EE-306, and EE-3109 in Figure 4.36, and EE-1678 and EE-4808 in Figure 4.37 were identified as actors with higher scores in betweenness centrality. It should be noted that not of these actors were listed in Table 4.15 as only the top five are listed. As the measure indicated, these actors played key bridging roles between groups within the network. Members, through these actors, could reach other more distant players in the network. It is noted that EE-306 (in

Figure 4.36) connects to EE-4808 (in Figure 4.37). Also, EE-2337 connected to EE-4798 in Figure 4.37 is connected back to EE-2565 and EE-3314 in Figure 4.36, forming another network loop, evidence supporting their role as ‘in-betweens’ within the network.

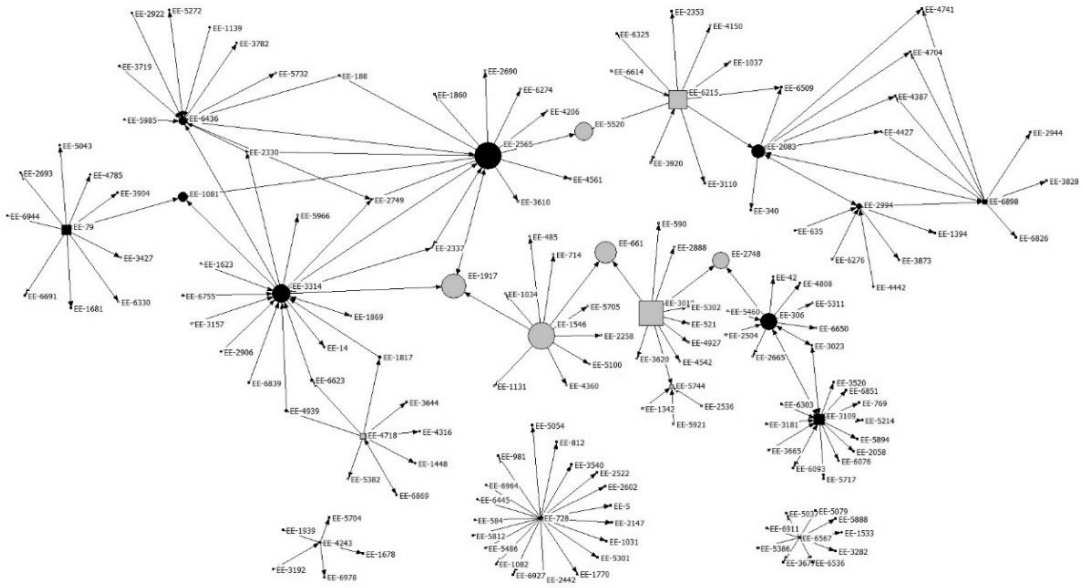


Figure 4.36 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.15 with Emphasis on betweenness Centrality Measure

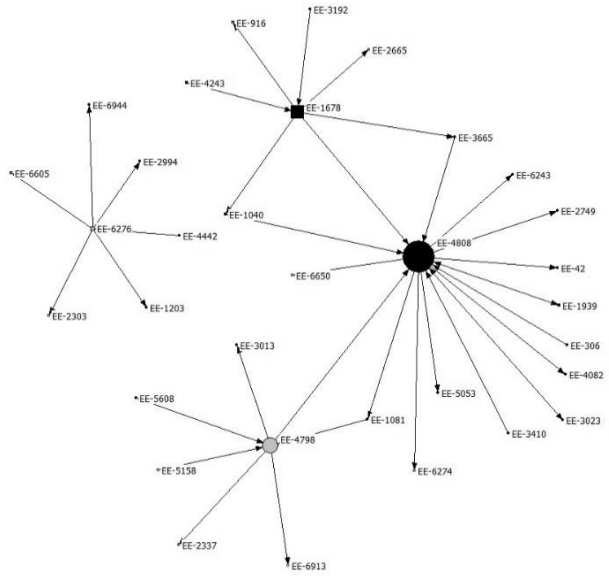


Figure 4.37 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.15 with Emphasis on betweenness Centrality Measure

4.2.5.2 Item-question Q12: ‘social cohesion’ closeness centrality

Similarly, Figure 4.38 re-displays Figure 4.34 with added emphasis for actors with top closeness centrality scores. These actors were identified as being ‘close’ to other actors, suggesting that they could be influential (that is, an influencer) in the network. As with previous observation, the actors with higher closeness centrality situated at the peripheral of the main network. The enharged shapes may not show well in Figure 4.38; Figure 4.39 and Figure 4.40 may illustrate salient points better. The actors and their related groups were not connected to other parts of the network. That is, they were ‘close’ within their own groups.

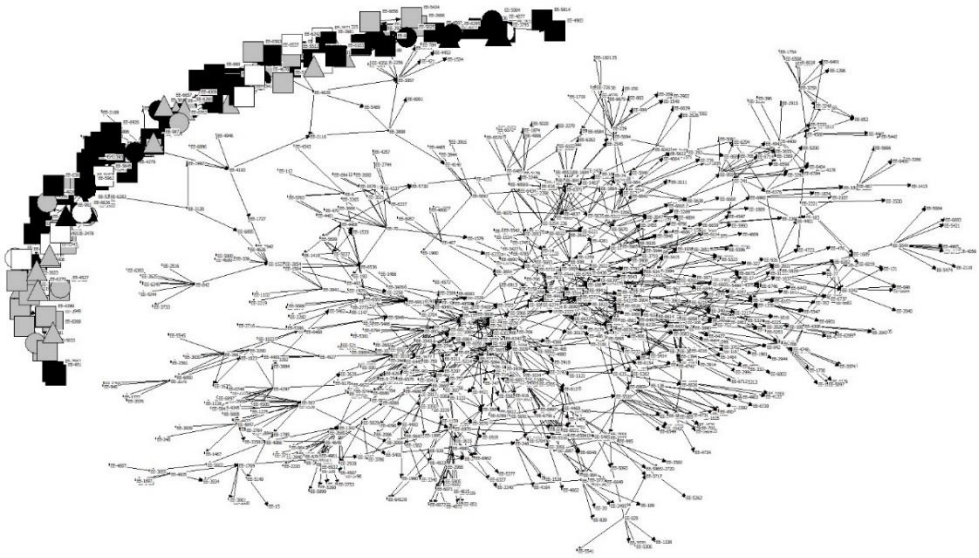


Figure 4.38 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q12 with Emphasis on Closeness Centrality Measure

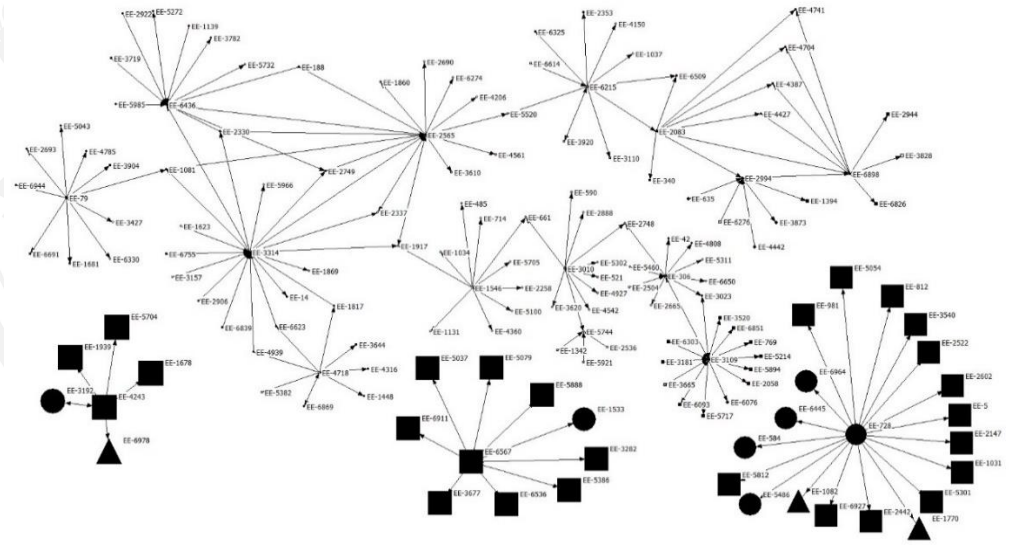


Figure 4.39 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.15 with Emphasis on Closeness Centrality Measure

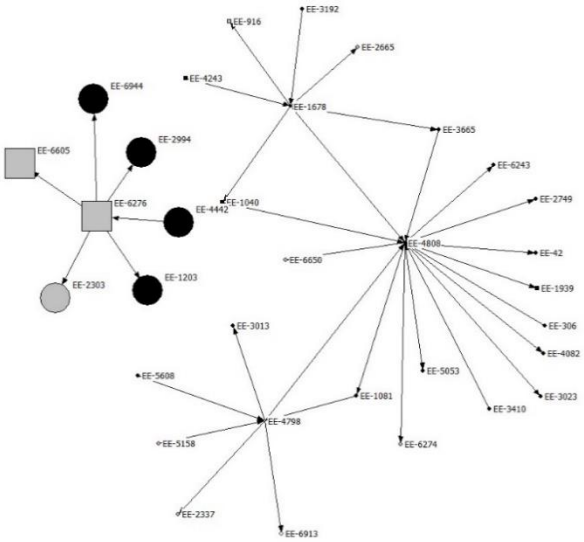


Figure 4.40 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.15 with Emphasis on Closeness Centrality Measure

4.2.5.3 Item-question Q12: ‘social cohesion’ degree centrality

Figure 4.41 re-displays Figure 4.34 with added emphasis for actors with top degree centrality scores. Degree measures the number of ties to an actor. Thus, an actor with a higher degree centrality score can be an influencer in the network.

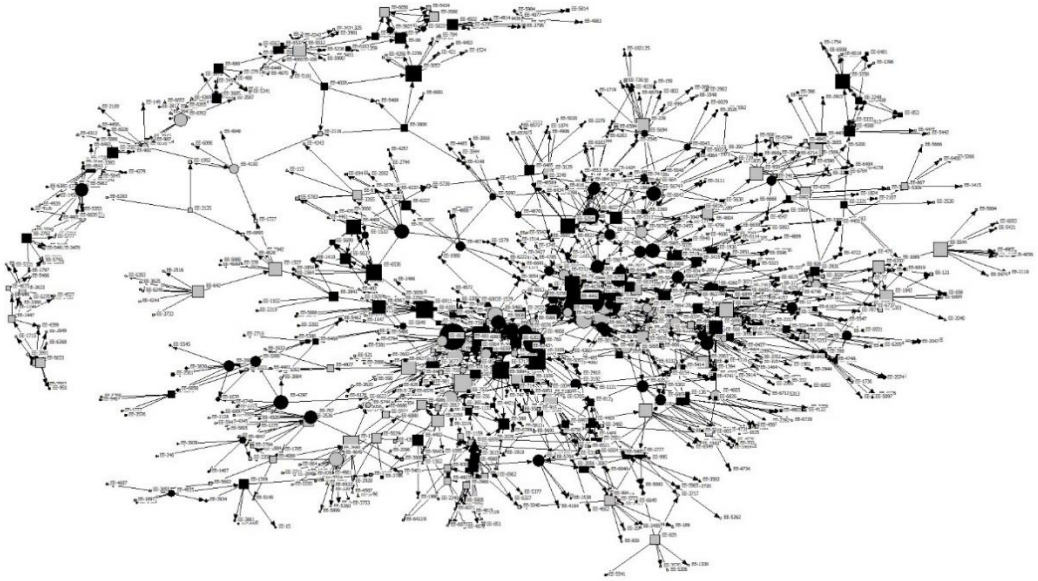


Figure 4.41 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q12 with Emphasis on Degree Centality Measure

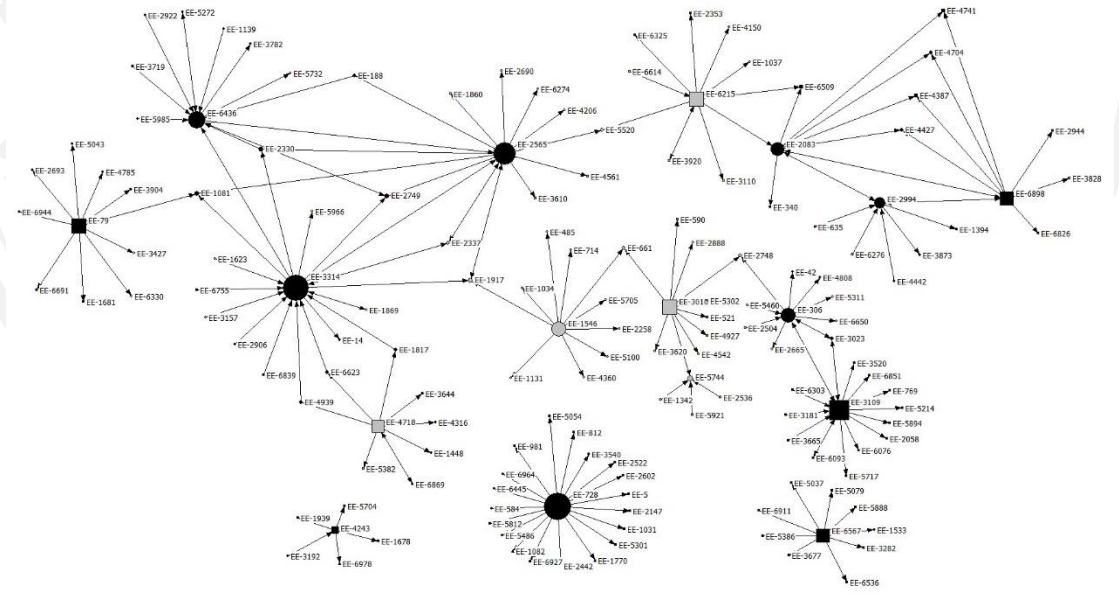


Figure 4.42 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.15 with Emphasis on Degree Centrality Measure

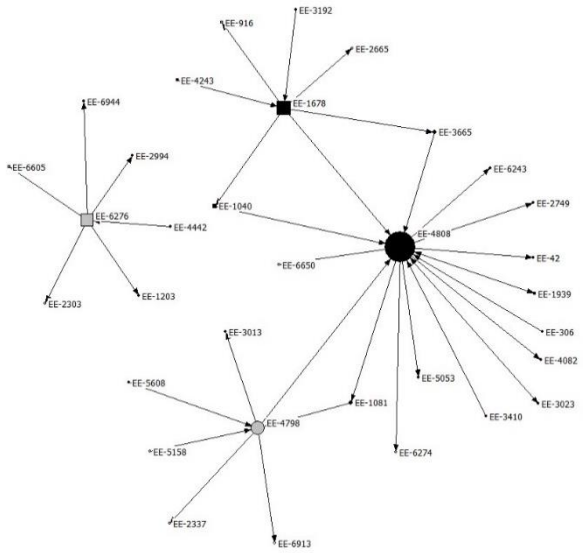


Figure 4.43 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.15 with Emphasis on Degree Centrality Measure

The enlarged shapes may not show well in Figure 4.41; Figure 4.42 and Figure 4.43 may illustrate salient points better. In this study, the actors with many connections also acted as bridges between groups (‘in-betweens’). These actors also linked groups at different work locations together.

The fifth and final item under the construct ‘cohesion’ is discussed next.

4.2.6 Item-Question Q13: ‘Task Cohesion’

The fifth (final) item under the construct ‘cohesion’ is ‘task cohesion’ (Q13); the item-question is looking at the named individual and the participant ‘trying to reach the organization’s goals for performance’. It is important to note the context ‘organization’s goals’; this is not the participants’ groups’ goals or the participants’ individual goals. It is assumed that there exists an organization goal that is not the accumulation of different group goals or individual goals; that is, there is a clear organization goal that is cascaded down to each individual member of the organization. The expectation then is that members should be connected in some way regardless of location. If the organization goal is cascaded as a collection of goals,

then this situation does not follow the context of ‘task cohesion’. Then the expection that members would be connected in some way regardless of location may not hold.

In the case of a single organization goal, it is expected that black-colored shapes and gray-colored shpares group randomly together in a well mixed manner. Otherwise, black-colored shapes and gray-colored shapes could group together and not in a well mixed manner. The same situation was observed prior, that black-colored shapes and gray-colored shapes seem to group together in smaller groups versus randomly mixed or well mixed in a bigger group, can be seen in Figure 4.44.

This could indicate that the participants and named individuals work on some form of (cascaded) goals together and thought those goals as being the organization’s goals. Another possibility is that the organization’s goals were well-defined and cascaded in teams (which then becomes a team’s goals or was interpreted by the team as such) and losing the overarching purpose. What is observed as the overall social network graph shown in Figure 4.44 is separate clustering of black-colored shapes and gray-colored shapes. ‘Cohesion’ from the perspective of ‘task cohesion’ is not well indicated from the social network graph elicited from the data collected in this study. Therefore, it cannot be concluded that ‘cohesion’ from the perspective of the overall group surveyed is well established from the perspective of social network behavior demonstrated of ‘task cohesion’. ‘Task cohesion’ may not be easily interpreted using sochat is ial network approach.

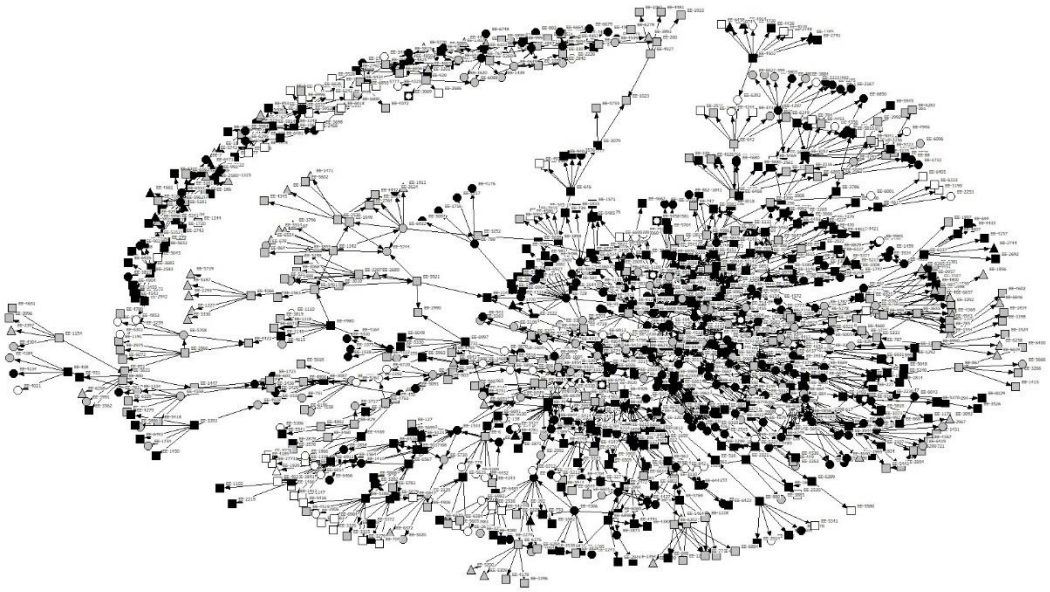


Figure 4.44 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q13

Table 4.16 List of Key Nodes (Actors) Based on betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q13 in this Study

Network parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4798	EE-3314	EE-6436	EE-3023	EE-2906
Closeness centrality	EE-5674	EE-6437	EE-3931	EE-12	EE-4375
Degree centrality	EE-136	EE-4808	EE-6183	EE-2337	EE-728
Reach	EE-3314	EE-4808	EE-6567	EE-6675	EE-812
Fragmenting	EE-1342	EE-1546	EE-4605	EE-4870	EE-6869
Distancing	EE-1546	EE-4605	EE-4870		

It is difficult to decipher Figure 4.44 as the social network graph consists of 1,108 nodes with 1,965 ties. Table 4.16 lists key participants based on top five scores in betweenness, closeness, degree, reach, fragmenting, and distancing.

In the ‘reach’ parameter, the five listed actors have a combined reach of 276 modes or 24.9% of the network. In the ‘fragmenting’ parameter (based on

betweenness scores), the five listed actors, if removed, would result in disconnected groups and isolation. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would increase distance between groups and actors. It should be mentioned that Table 4.16 lists key actors based on the entire social network graph elicited for Q13 in this study while betweenness centrality, closeness centrality, and degree centrality graphs presented later focus only on the key actors identified in Table 4.16. It should also be noted that actors listed in ‘fragmenting’ and ‘distancing’ will also be highlighted in betweenness centrality and closeness centrality graphs respectively.

4.2.6.1 Item-question Q13: ‘task cohesion’ betweenness centrality

Figure 4.45 re-displays Figure 4.44 with an emphasis for actors with top betweenness centrality scores. It may not be clear in Figure 4.45, and thus, key actors listed in Table 4.16 and their associated networks are extracted and shown as Figure 4.46 and Figure 4.47.

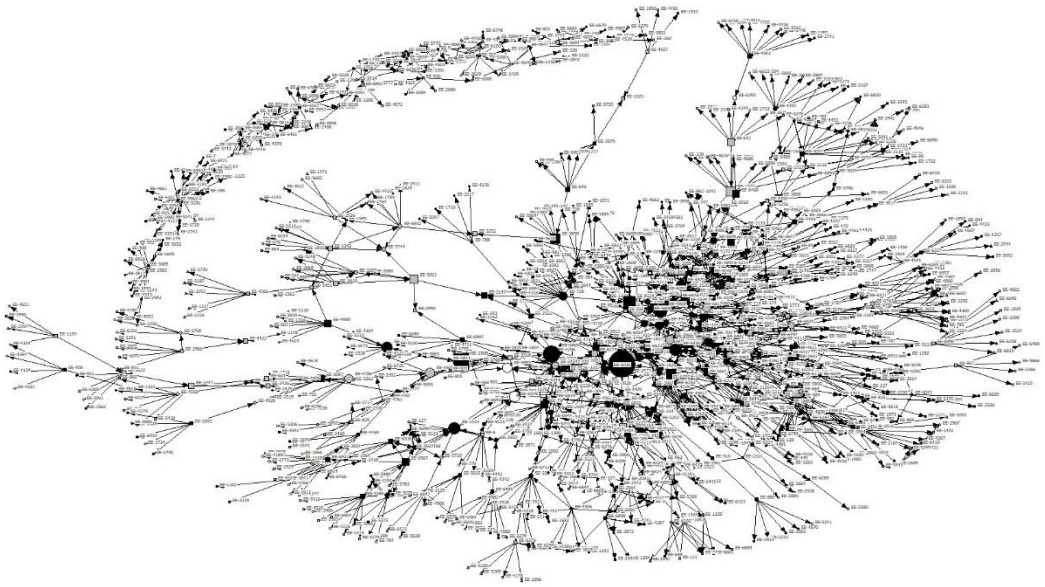


Figure 4.45 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q13 with Emphasis on betweenness Centrality Measure

Actors EE-4808, EE-3314 (Figure 4.46), EE-136, and EE 3023 (Figure 4.47 were identified as the key actors with higher betweenness scores. These actors acted

as ‘in-betweens’, enabling other actors connected to them to connect to each other. As the number of actors connected to them were relatively larger, their betweenness scores increased.

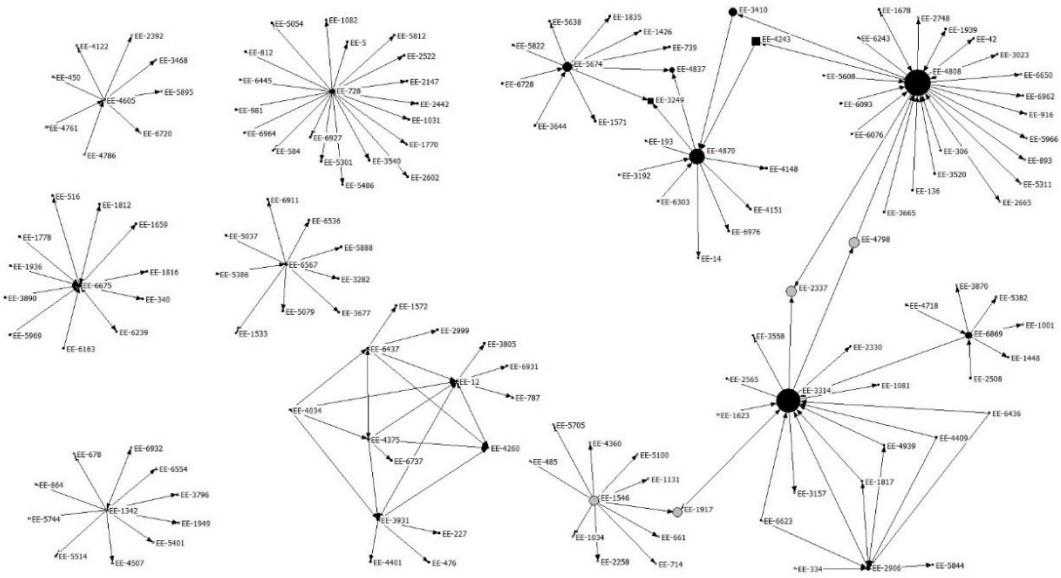


Figure 4.46 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.16 with Emphasis on Betweenness Centrality Measure

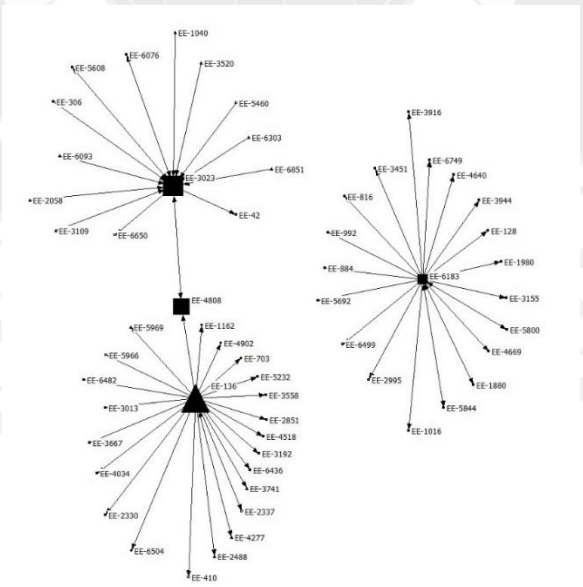


Figure 4.47 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.16 with Emphasis on Betweenness Centrality Measure

4.2.6.2 Item-question Q13: ‘task cohesion’ closeness centrality

Similarly, Figure 4.48 are re-displays of Figure 4.44 with an emphasis for actors with top closeness centrality scores. Like previous closeness centrality social network graphs analyzed, the identified key actors (see enlarged shapes in Figure 4.48) laid at the peripheral of the network graph. It is also clear that the key actors and associated networks were not well mixed in terms of work location (see black-colored shapes versus gray colored shapes in Figure 4.49 and Figure 4.50 for better clarity). This analysis ignored white-colored shapes as these indicate work locations outside of A and B and are out of scope. Closeness centrality scores indicated how closely connected members of a network are. As Figure 4.49 and Figure 4.50 shows, closeness centrality was high for groups at the same work location (either A or B; see black-colored shapes and gray-colored shapes respectively) and thus did not indicate or support the thesis of ‘task cohesion’ across work locations. Hence, this item did not support the overall construct ‘cohesion’ at the organization level in the context of ‘task cohesion’ as measured by closeness centrality.

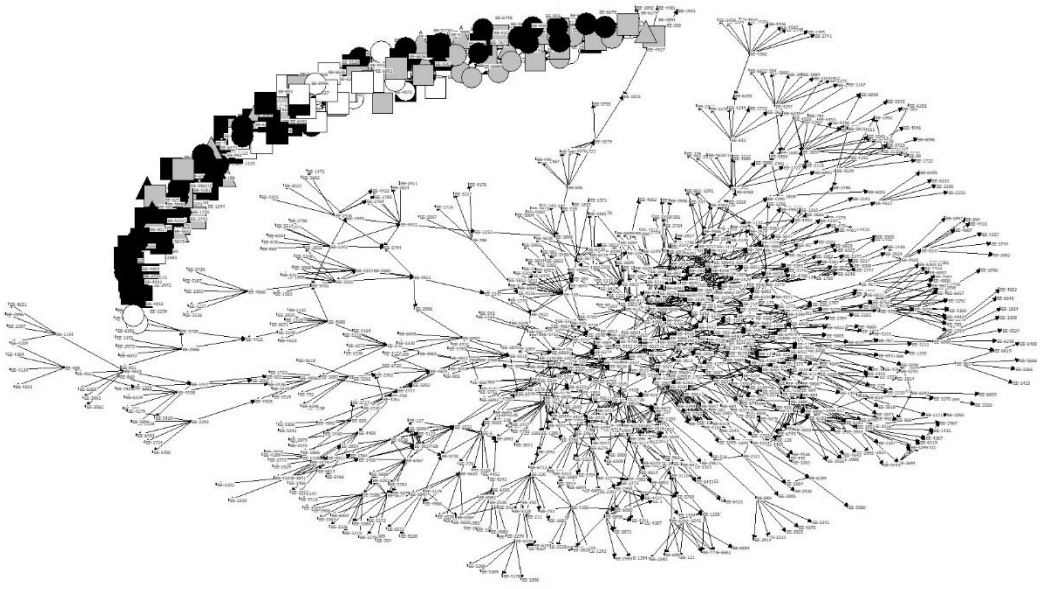


Figure 4.48 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q13 with Emphasis on Closeness Centrality Measure

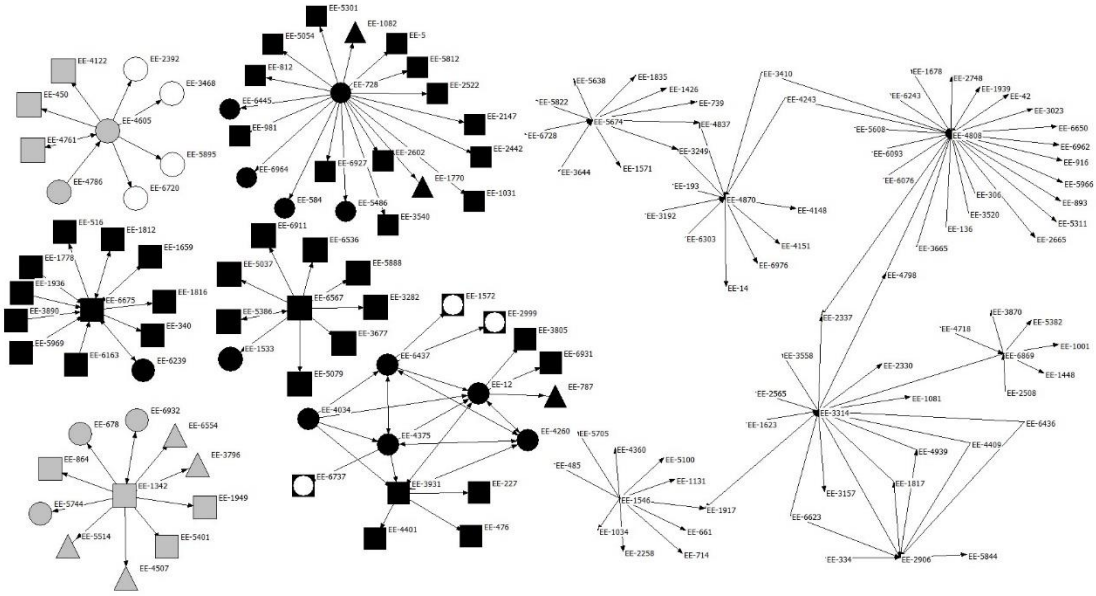


Figure 4.49 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.16 with Emphasis on Closeness Centrality Measure

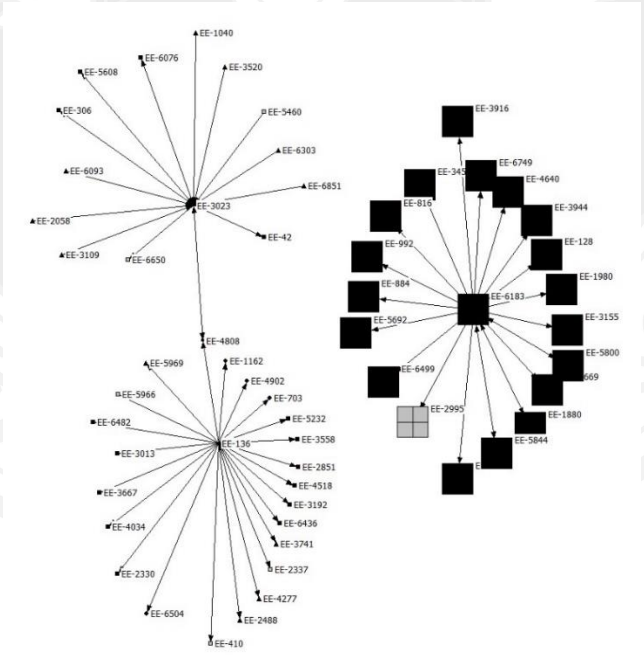


Figure 4.50 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.16 with Emphasis on Closeness Centrality Measure

4.2.6.3 Item-question Q13: ‘task cohesion’ degree centrality

Similarly, Figure 4.51 re-displays Figure 4.44 with an emphasis for actors with top degree centrality scores. The enlarged shapes situated at the center of the social network graph may not show well in Figure 4.51; Figure 4.52 and Figure 4.53 may illustrate salient points better.

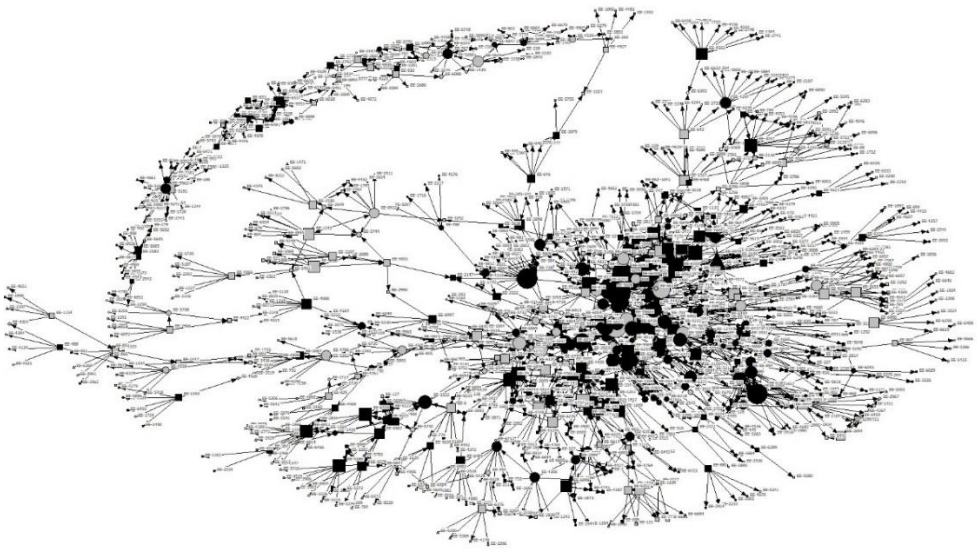


Figure 4.51 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q13 with Emphasis on Degree Centrality Measure

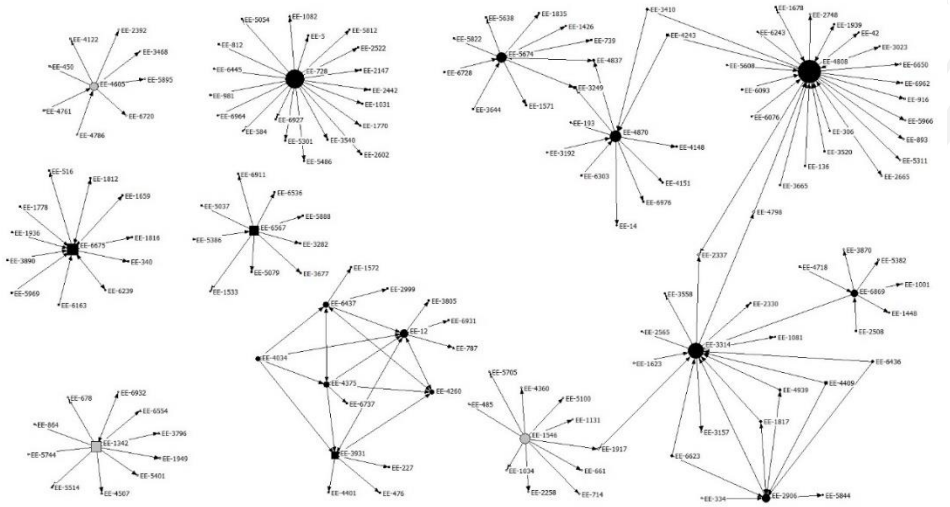


Figure 4.52 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.16 with Emphasis on Degree Centrality Measure

As mentioned earlier, some identified key actors with higher degree centrality scores were also identified key actors with higher betweenness centrality scores, with the addition of EE-728, EE-6675, EE-6567, EE-1342 (Figure 4.52) and EE-6183 (Figure 4.53). These are actors with a relatively higher number of ties to other actors in a grouping or cluster.

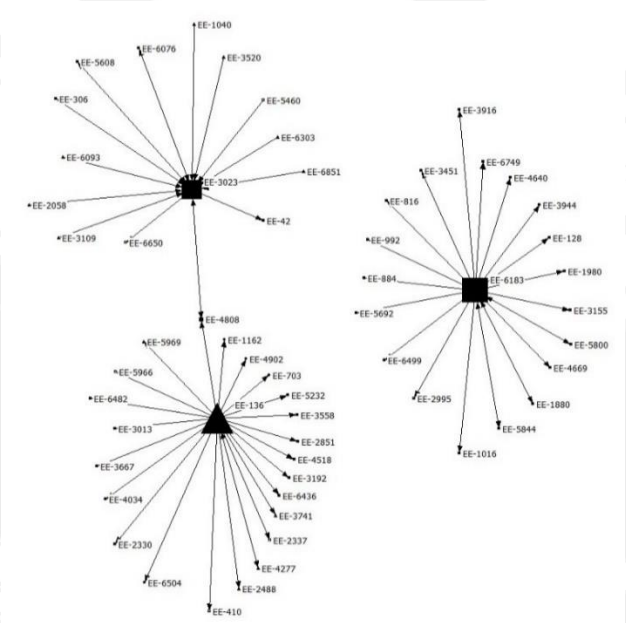


Figure 4.53 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Table 4.16 with Emphasis on Degree Centrality Measure

All five items under the construct ‘cohesion’ have been reviewed using social network analysis. The summary of the findings leading to the conclusion for RQ 1 is presented next.

4.2.7 Summary of Quantitative Findings and Social Network Analysis

There were five items related to the construct ‘cohesion’ that were used to survey participants of this study. An extensive review of the data collected has been presented in prior sections:

Section 4.3.1 discussed social network statistics for RQ 1 ‘cohesion’. In particular, network cohesion statistics (see Table 4.7 and Table 4.8) and network centrality statistics (betweenness, closeness, degree centrality; see Table 4.9, Table 4.10, and Table 4.11 respectively) were discussed.

1) Section 4.2.2 discussed item-question Q9 ‘belonging’.
2) Section 4.2.3 discussed item-question Q10 ‘morale’.
3) Section 4.2.4 discussed item-question Q11 ‘individual attraction’.
4) Section 4.2.5 discussed item-question Q12 ‘social cohesion’.
5) Section 4.2.6 discussed item-question Q13 ‘task cohesion’.

This study surveys the same items but solicits a social network from the participants to determine ‘cohesion’ in a post-integration organization of a multi-national manufacturing company in Thailand. The construct ‘cohesion’ is understood from the perspective of social network measures (e.g., cohesion measures). A visual interpretation of the social network graphs also provides another perspective.

In conclusion, quantitative findings and social network analysis revealed low levels of cohesiveness in the organization in the context of post-merger integration of a multi-national manufacturing company in Thailand. While there were some groups that were cohesive (as evidenced by betweenness centrality, closeness centrality, and degree centrality), it was primarily limited to 1) groups from the same work location, and 2) groups from the same work function.

4.2.8 Qualitative Findings: The Interviews

Key actors identified through social network analysis measures (such as betweenness centrality, closeness centrality, degree centrality, reach, etc.) were listed in Table 4.12, Table 4.13, Table 4.14, Table 4.15, and Table 4.16. It reflected the relationship these actors have with others in the organization socially or for work purpose. Hence, they formed good candidates to sample to interview for the qualitative part of this study. A total of 16 participants (actors) were identified as potential interviewees. A total of 11 agreed to be interviewed and the final list of participants interviewed is shown in Table 4.17.

The interviews were conducted according to the interview questions outlined in Appendix F. Each interview was between 30 to 45 minutes long. Participants were allowed to decline responding to any question(s) that made them feel uncomfortable.

Table 4.17 List of Participants Interviewed with Demographic Information

Item	Candidate	Measure	Gender	Locale	Level	Function	YOS
Q9	EE-2063	reach	Male	Gray	P109	Planning	18
Q9	EE-4034	defrag	Male	Black	M109	Planning	18
Q9	EE-485	defrag	Male	Gray	M109	PCE	23
Q10	EE-2047	closeness	Female	Black	P109	Quality	16
Q10	EE-4939	reach	Female	Black	M108	Mfg	20
Q10	EE-79	closeness	Male	Black	P109	PDE	18
Q11	EE-1659	degree	Male	Black	P107	Quality	10
Q11	EE-6239	defrag	Female	Black	M109	Quality	16
Q12	EE-3010	defrag	Male	Gray	P107	Test	7
Q12	EE-728	degree	Male	Black	M108	Test	19
Q13	EE-1342	defrag	Male	Gray	P107	Mfg	19

Participants were asked questions about their perception of 1) cohesiveness, 2) sense of belonging, 3) morale and energy, 4) goals, 5) spending time outside of work, and 6) importance of team within their teams. Common themes gathtered are presented as follows.

4.2.8.1 Cohesiveness: common ground in group activities

Participants were asked to describe what ‘cohesiveness’ in their team looked like. Group activities (e.g., learning events, gatherings, quarterly meetings, etc.) signify ‘cohesiveness’ from the perspectives of the participants. The following salient points surfaced across the interviews conducted, namely, (a) relationships were work-based, (b) ‘cohesiveness’ meant regular meetings and work interactions particularly solving problems together, (c) ‘cohesiveness’ meant having a group goal or target to work towards, and (d) there was never mention of the overall organization ‘cohesiveness’ or organizational goals as the focus (of the participants) was their immediate work partners. This substantiates the observations made of the social network graphs gathered in this study. The following are excerpts from which key sub-themes were extracted.

"Two to three years ago, the quarterly events where we get together to learn and develop together made us feel cohesive. When the activities stopped, we felt something was lost although we still feel as part of a team" (participant EE-4034). "We feel cohesive when we work on issues together and we support each other round the clock to find the answer" (participant EE-2047). "When we work with others, we may not have the same target. If we don't have the same target, there is less relationship or interest. If there is same target, then there will be interest in building relationship. Having the same target will speed up the work" (participant EE-485).

4.2.8.2 Cohesiveness: focus on relationship

Participants were asked about their perception of 'sense of belonging' and 'energey and morale' within the team. The participants spoke of work relations as being the focus to belonging, morale and energy. The participants have reflected that maintaining and building relationships was key to getting work completed and maintaining working relations within the group. Similarly, focus was at the working group level or work function level rather than the broader organization. This also substantiates what is observed from the social graphs for item-question Q9 and Q10 (discussed in prior sections 4.2.2 and 4.2.3). The following are excerpts from which key sub-themes were extracted.

"Because we are a team, therefore we feel as part of the team. We can talk about anything, share ideas, get agreement or alignment if we go together as a team" (participant EE-4034). "We can discuss anything in the team. We share experiences both work and life" (participant EE-2047). "I resigned and came back because of the work and friends. When I cam back, I oversaw a different group. I must build relationships. I must know them to work with them. It is very similar to family. As a leader, we try to help others when we see a situation" (participant EE-3010). "In cross-functional collaboration, quite a few diverse functions ask for help, advise, etc. Understanding issues and how things work helps to improve work relations. Things are directed at issues instead of people. Work is the reason to improve understanding between people when there are issues" (participant EE-485). "We need to learn and

understand the behavior of others. It requires give and take to build the relationship so that everyone is comfortable to support" (participant EE-1342).

4.2.8.3 Cohesiveness: goal clarity

Participants were asked about their perception of 'goals' within the team. Salient points about focussing on clarify of goals that surfaced during the interviews included, 1) enabling work to be done in a seamless manner, 2) reducing conflicts, and 3) maintaining team relationships. It is again observed from the interviews that participants espoused the idea that 'team' equals 'organization'. This is consistent with the social network analysis performed for item-question Q13 discussed in section 4.2.6 prior. The following are excerpts from which key sub-themes were extracted.

"We had to bring a product to another site. There was common target and goals. We needed to understand the objectives clearly and to make sure a good understanding versus wrong concerns. Part of seeing the bigger picture was to alleviate concerns or uncertainties. There is an increase in discussions and alignment of goals. There was reduction of competition. The sharing allowed us to move forward together versus compete" (participant EE-485). "My scope of work is to support and so we must know what support means. If we know the objectives, then work will be easier for the team" (participant EE-1342). "There is not much opportunity to talk about goals when there is a lot of work. Short term is to let work progress smoothly and complete the work as soon as possible. We wish to have longer term goals and we talk about it when having meals together" (participant EE-2047).

4.2.8.4 Cohesiveness: time outside work

Participants were asked about their view of 'spending time together outside of work' with the team. Salient points revolved around building and maintaining good relationships within the team to facilitate work relations. The view presented by participants relayed a desire to spend time outside of work. Keeping in mind the participants were chosen for their higher scores in centrality, their points of view would tend towards wanting to spend time together outside of work. Whereas

the general analysis of the social network graph for item-question Q12 discussed in section 4.2.5 prior showed less willingness to connect outside of work. The following are excerpts from which key sub-themes were extracted.

> "We spend time together outside of work very often. We want to find out what is happening with each team member. Like family, we want to know their situation. We have meals together and feel good that there is a chance to have open-heart talk to get to know each other better" (participant EE-3010). "It is good to spend time together outside of work. It helps to relax and de-stress and helps team to connect. It is an opportunity to talk and know what they are capable of. It is an opportunity to learn from them" (participant EE-485). "We connect mostly with those whom we don't connect well yet or are working on the relationship with them. If we know them well, then we will spend less time with them outside of work. We want to connect beyond work and not just talk because of work" (participant EE-1342). "It is mostly lunch that we spend time outside of work. Everyday. We share and talk about problems at work or home. We support each other in this way" (participant EE-2047).

4.2.8.5 Cohesiveness: importance of team

Participants were asked about their view of 'how important team is to them' and 'how important they are to team'. The participants stressed the need for 1) diversity of knowledge, 2) functioning as a team, and 3) the leader playing the role of interpreter, translator, and messenger. However, the context is within the team or work group itself, which substantiates the social network graph analysis for tiem-question Q11 discused in section 4.2.4 prior. The following are excerpts from which key sub-themes were extracted.

> "It really depends on the situation, especially when emotions are involved. There isn't a good way to answer this" (participant EE-4034). "In a crisis, we all need encouragement. It is then we feel that we are not just colleagues but family" (participant EE-2047). "Everyone is important. We cannot work alone. Everything is team effort so everyone is equally important. We don't know everything. Each of us know something different so we learn from each other" (participant EE-1342).

4.2.8.6 Cohesiveness: impact of COVID-19

This study was conducted when initial waves of COVID-19 subsided and some level of group activity was permitted under tight controls (see Mak & Pruetipibultham, 2022 for a comprehensive review). Participants were asked if 'COVID-19 would have influenced relationships depicted in the sociograms'. The participants generally felt that COVID-19 impacted sustaining work relationships negatively but also brought some groups closer together. The following are excerpts from which key sub-themes were extracted.

> "When group activities were stopped, we felt that something was lost. We felt that something was missing, and the environment was lost although we still felt that we were part of the team. There was impact as we could not join activities together" (participant EE-4034). "COVID-19 really prevented connecting with others. Important events like birthday celebrations could not be done. This prevented building relationships with others" (participant EE-485). "COVID-19 slowed down work as we could not meet" (participant EE-3010). "COVID-19 brought the group closer because we cared about each other more than just colleagues" (participant EE-2047).

4.2.8.7 Cohesiveness: culture or not

Participants were asked about their view if the relationships shown in the social network graphs had anything to do with 'Thai culture' or with 'history of the organization'. Examples raised during the interviews similarly pointed to separation of work between the two sites. Participants attributed the observations from the social network graphs to different products and customer segment separating the teams from each other as the work was unrelated and experience and skills required were quite different. The following are excerpts from which key sub-themes were extracted.

> "We take care of different products that serve different customer segments. Production is also unique to the location. There is little opportunity to work together unless the products are moved from one site to another" (participant EE-79). "The product quality concepts are very different between the two product families. They have their own team to handle issues there and we have

our own team to handle issues here. We do not work together because the issues are different" (participant EE-6239).

4.2.8.8 Cohesiveness: relationships from participants' view

Participants were also asked to recount a recent event that he/she remembered to demonstrate cohesion within the organization and illustrate relationships on a template provided. Only three participants were willing to share; see Figure 4.54.

(a)

(b)

(c)

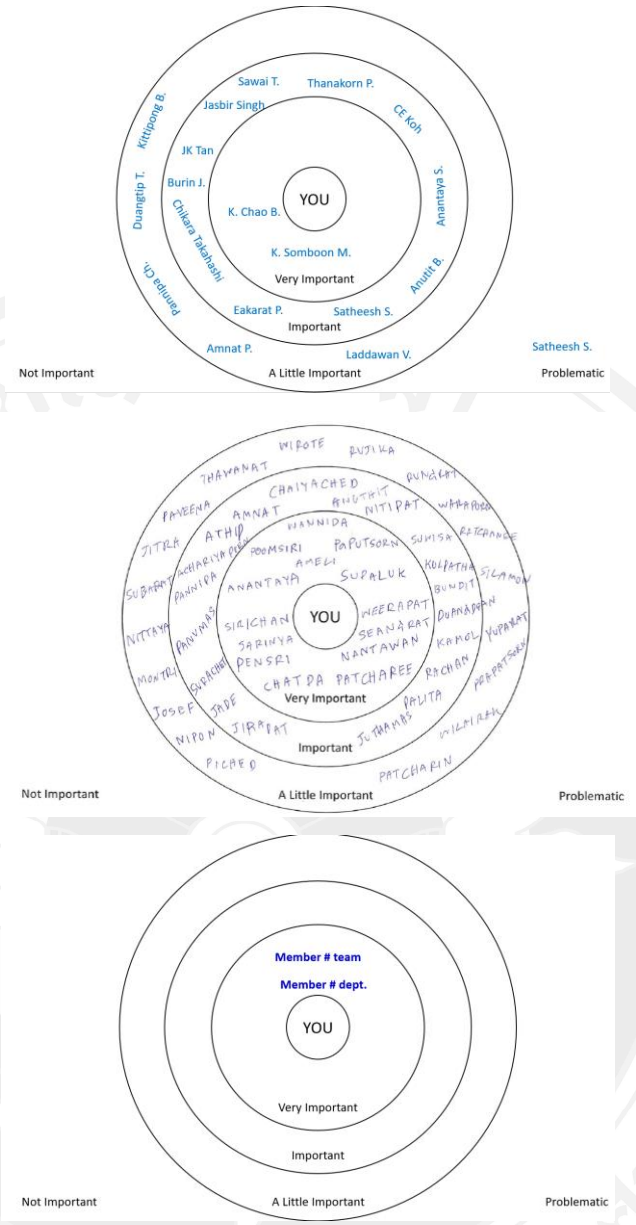


Figure 4.54 Group Member Relations According to Importance from the Point of View of Participants

Note: Panels (a) shows the view from EE-2047, (b) shows the view from EE-1659, and (c) shows the view from EE-1342

Participant EE-2047 (see Figure 4.54 (a)) recounted a time when the team worked together to qualify a new supplier for a component used in a product shipping to a critical customer. According to participant EE-2047, the qualification

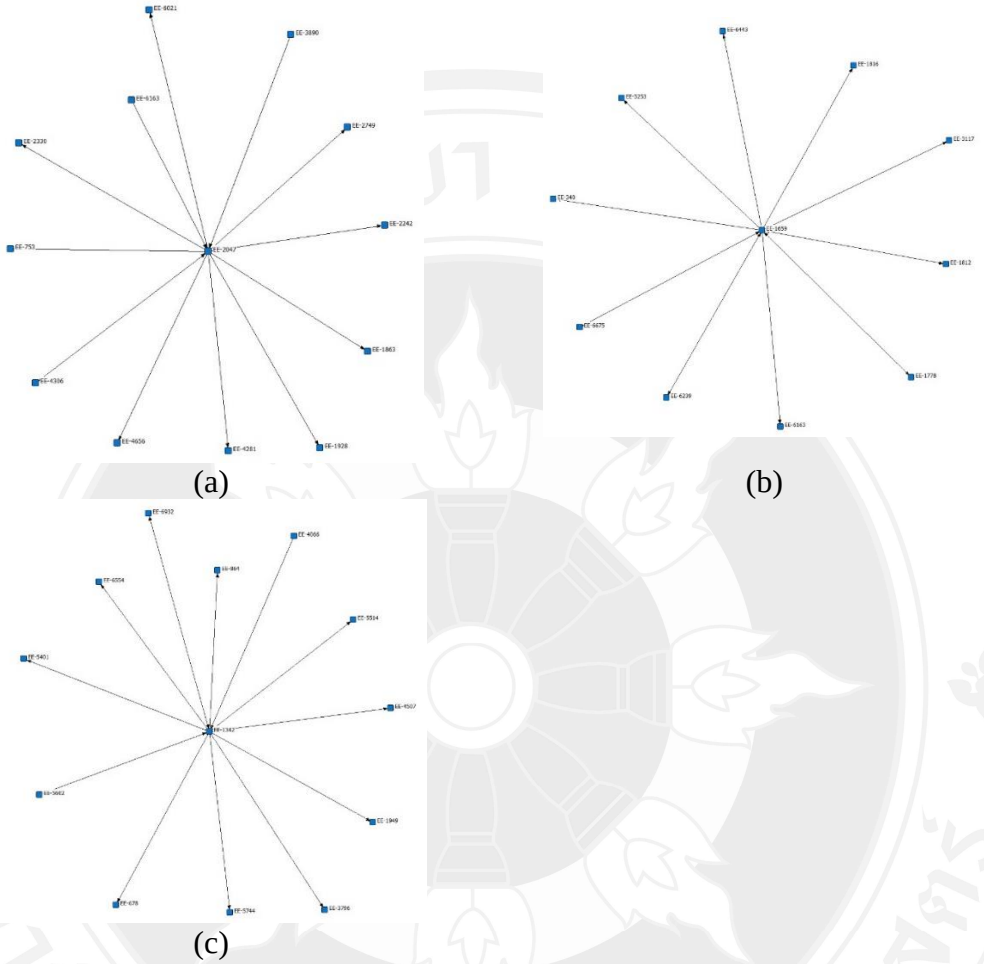
was extremely challenging as the field application of the product required the most stringent product testing. The team had to worked through a long qualification process patiently. Participant EE-2047 also recounted how the team leaders (refer to inner-most circle in Figure 4.54 (a)) created an environment where team members were excited to be working together on the qualification. This demonstrated cohesiveness, according to participant EE-2047. This recount aligned to to 'task cohesion' (being united in trying to reach the organization's goals for performance) and 'morale' (being excited to be working together).

Participant EE-1659 (see Figure 4.54 (b)) recounted a time when the team had to manage a serious product quality issue that involved many functions within the factory. According to participant EE-1659, many came forth to help even though they were not responsible for the product line. As participant EE-1659 remembered, everyone worked on a common goal of finding and fixing the cause of the quality issue quickly to minimize the impact to the business. Team members putting the quality issue as priority over functional deliverables was a demonstration of cohesiveness according to participant EE-1659. This recount aligned to 'task cohesion' (being united in trying to reach the organization's goals for performance).

Participant EE-1342 (see Figure 4.54(c)) recounted the COVID-19 experience within the organization where team members risked their health to come to work at the office when working from home was a measure to mitigate transmission of COVID-19; see Mak and Pruetipibultham (2022). According to participant EE-1342, team members rotated to help support each other when they were understaffed due to infections and quarantines of team members. Team members putting team priority over self was a demonstration of cohesiveness in team relationships, as recounted by participant EE-1342. This recount aligned to 'task cohesion' (being united in trying to reach the organization's goals for performance) and 'individual attraction' (the team being the most important social group) under the construct 'cohesion'.

The three recounts supported items investigated in relation to 'cohesion' to answer research question RQ 1 of this study. The recounts also pointed to the salient point of 'task cohesion' being functionally or task driven at the team level rather than at the higher organization order or level.

The social network graphs constructed from the named individual pairs submitted by the three participants (see Figure 4.55) were compared to the reflection submitted.



(a) (b)

(c)

Figure 4.55 Participants' Social Network Graphs Obtained in this Study

Note: Panels (a) shows the sociogram for EE-2047, (b) shows the sociogram for EE-1659, and (c) shows the sociogram for EE-1342.

Comparing Figure 4.55 (a) to Figure 4.54(a), Figure 4.55 (b) to Figure 4.54 (b), and Figure 4.55(c) to Figure 4.54 (c), the common observation is that the list provided by the participants in the story recount was larger. This could indicate an important consideration for data collection in the social network analysis approach. Specifically, a story recount setting could induce more details than a generic form of a item-question as used in this study. However, the time required for data collection

would be longer as the recount setting would be closer to an interview (qualitative) setting.

4.2.9 Summary of Qualitative Findings and Themes

The themes discovered in the interviews are aligned with the items investigated under the construct 'cohesion' to answer research question RQ 1 in this study; the alignment is shown in Table 4.18. The interviews did not surface any themes or concepts that significantly deviated from those chosen for this study. This also indicated that the theoretical framework guiding the study was robust.

Table 4.18 Summary of Themes Extracted from Interviews with Selected Participants in the Study

No.	Theme	Item / Item-Question	Exploration
1.	Common ground in group activities	'Belonging' / Q9	Feeling as a member of a team together.
2.	Focus on relationships	'Morale' / Q10	Feeling excited to be working together.
3.	Goal clarity	'Task cohesion' / Q13	United in trying to reach goals for performance.
4.	Time outside work	'Social cohesion' / Q12	Spending time together outside of work.
5.	Importance of team	'Individual attraction' / Q11	Being together in team is an important social group membership.

4.2.10 Summary For Research Question RQ 1

The sections above discussed results and findings of quantitative (that is, social network analysis) and qualitative (that is, interviews of selected participants based on network parater scores) for research question RQ 1. Research question RQ 1, set forth to understand how cohesive the post-merger integration multi-national company in Thailand was, was answered summarily,

1) Low cohesion at the organization level was demonstrated through social network analysis (that is, network parameters and visual interpretation) quantitatively. Though some cohesion was detected at groups demonstrated higher network parameter scores, it was limited in scale.

2) Cohesion was demonstrated at the work/function level and/or group level as reflected by the participants qualitatively.

The findings for research question RQ 2 will be discussed next.

4.3 Investigating Research Question 2

This study also surveyed four items related to the construct ‘social identity’ and four items related to the construct ‘attachment’ to determine how these constructs contribute to organizational cohesion in the post-merger integration of the multi-national manufacturing company in Thailand. A similar method was deployed to survey the eight items (that is, four items each for constructs ‘social identity’ and ‘attachment’) to solicit a list named individuals from each participant to construct social networks. Network cohesion statistics are then extracted for study. The thesis was that network cohesion statistics and social network visual interpretation for the eight items surveyed could describe the overall organization cohesiveness. So long as network cohesion statistics or visual interpretations suggested cohesiveness, it could then be concluded that ‘social identity’ and/or ‘attachment’ contributed to organizational cohesiveness within the scope of this study.

This section begins with a brief look at the network cohesion statistics of interest in this study.

4.3.1 Network Statistics for RQ 2: ‘Social Identity’ and ‘Attachment’

As outlined in the previous chapter of this volume, the following were chosen, 1) ties (‘I have a lot in common with …’), 2) two items of centrality (‘I often think about the fact that I am part of a group with …’ and ‘In general, being part of the group with … is an important part of my self-image’), and 3) ingroup affect (‘Generally, I feel good when I think about myself as being part of the group with …’) as items representing the construct ‘social identity’. In addition, two items of

attachment anxiety (‘I sometimes worry that … doesn’t value me as much as I value him/her’ and ‘I don’t worry about being alone or not being accepted by …’), and two items of attachment avoidance (‘I prefer not to depend on … or to have him/her depend on me’ and ‘I want to feel completely as one with …’) were also chosen as items representing the construct ‘attachment’.

The network statistics of the eight social networks constructed from the data collected using the four items representing ‘social identity’ and four items representing ‘attachment’ were reviewed. The next sub-section presents key network statistics obtained from the results in this study.

4.3.1.1 Network statistics discussion for RQ 2

Table 4.19 and Table 4.20 summarizes key network cohesion statistics for the eight networks (that is, four networks Q1, Q2, Q3 and Q4 for ‘social identity’ and four networks Q5, Q6, Q7, and Q8 for ‘attachment’) constructed from the participant and named individual pairs (ties) obtained in this study. The results are interpreted and presented in Table 4.21 and Table 4.22. The network cohesion statistics are not pooled together for evaluation as they represent networks for two different constructs, each to be considered separately.

Table 4.19 Network Cohesion Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct ‘Social Identity’ in RQ 2

Statistic	Q1	Q2	Q3	Q4
Number of nodes	1,063	1,090	1,059	1,089
Number of ties	1,776	1,877	1,832	1,910
Average Degree	1.671	1.722	1.730	1.754
Degree Centralization	0.016	0.015	0.021	0.015
Density	0.002	0.002	0.002	0.002
Components	922	953	946	954
Component Ratio	0.867	0.874	0.893	0.876
Size of Largest Component	92	82	39	86
Average Distance	7.525	7.236	5.188	7.176

Statistic	Q1	Q2	Q3	Q4
Std Dev Distance	3.324	3.178	2.504	3.453
Diameter	19	16	14	19
Compactness	0.009	0.008	0.006	0.008

Table 4.20 Network Cohesion Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct 'Attachment' in RQ 2

Statistic	Q5	Q6	Q7	Q8
Number of nodes	825	779	721	1,059
Number of ties	1,217	1,026	929	1,749
Average Degree	1.475	1.317	1.288	1.652
Degree Centralization	0.021	0.015	0.013	0.018
Density	0.002	0.002	0.002	0.002
Components	761	741	683	948
Component Ratio	0.922	0.951	0.947	0.895
Size of Largest Component	26	16	19	63
Average Distance	4.635	3.823	5.044	6.117
Std Dev Distance	3.233	2.533	3.063	2.599
Diameter	16	12	17	14
Compactness	0.004	0.003	0.004	0.007

Table 4.21 Summary of Results for Key Network Cohesion Statistics and Corresponding Interpretation and Conclusion for the Construct 'Social Identity' in RQ 2.

Statistic	Min Value	Max Value	Interpretation
Number of components	922	954	High, ranging from .50 to .52 of number of ties; low cohesion
Size of largest component	39	92	Low, ranging from .04 to .05 of

Statistic	Min Value	Max Value	Interpretation
			number of ties; low cohesion
Component ratio	0.867	0.893	Near 1.0, indicating isolation; low cohesion
Average degree	1.671	1.754	Low, less than two connections per actor; low cohesion
Density	0.002	0.002	Near 0.0, indicating isolation; low cohesion
Diameter	14	19	Low, indicating isolation of groups; low cohesion
Average distance	5.188	7.525	Low, indicating smaller groups; low cohesion
Compactness	0.006	0.009	Near 0.0, indicating small cliques; low cohesion

Table 4.22 Summary of Results for Key Network Cohesion Statistics and Corresponding Interpretation and Conclusion for the Construct 'Attachment' in RQ 2

Statistic	Min Value	Max Value	Interpretation
Number of components	683	948	High, ranging from .54 to .73 of number of ties; low cohesion
Size of largest component	16	63	Low, ranging from .01 to .03 of number of ties; low cohesion
Component ratio	0.895	0.951	Near 1.0, indicating isolation; low cohesion
Average degree	1.288	1.652	Low, less than two connections per actor; low cohesion
Density	0.002	0.002	Near 0.0, indicating isolation; low cohesion

Statistic	Min Value	Max Value	Interpretation
Diameter	12	17	Low, indicating isolation of groups; low cohesion
Average distance	3.823	6.117	Low, indicating smaller groups; low cohesion
Compactness	0.003	0.007	Near 0.0, indicating small cliques; low cohesion

The summary of results for key network cohesion statistics and corresponding interpretation for constructs ‘social identity’ and ‘attachment’ are shown in Table 4.21 and Table 4.22 respectively. Results of all listed key network cohesion statistics for both constructs ‘social identity’ and ‘attachment’ indicated low cohesion. Therefore, it can be concluded that the networks constructed from the participant and named individual pairs from all eight item-questions representing the constructs ‘social identity’ and ‘attachment’ quantitatively describe the organization as having low cohesiveness from the perspective of social network analysis, based on the thesis that network cohesion statistics could describe cohesiveness of the organization. Hence, the constructs ‘social identity’ and ‘attachment’ either contributed poorly (due to low cohesion) or did not contribute to the cohesion in the post-merger integration of the multi-national manufacturing company in Thailand.

Although network cohesion statistics indicated low cohesion across all eight items representing the constructs ‘social identity’ and ‘attachment’, three other important network statistics at the node (actor) level will be reviewed, namely 1) betweenness centrality, 2) closeness centrality, and 3) degree centrality. In particular, the following results are desirable,

1) A high betweenness centrality would indicate an actor has connections that would provide access or pathways to other groups within the network (that is, act as ‘in-between’ for others).

2) A high closeness centrality would indicate an actor is close to other actors in the network, which could be interpreted as having influence (or power) over others related to the actor.

3) A high degree centrality would indicate an actor having many connections to other actors in the network.

Table 4.23, Table 4.25, and Table 4.27 shows a summary of betweenness centrality, closeness centrality, and degree centrality respectively for the four items (that is, Q1, Q2, Q3, and Q4) representing the construct ‘social identity’ in RQ 2 in this study. Table 4.24, Table 4.26, and Table 4.28 shows a summary of betweenness centrality, closeness centrality, and degree centrality respectively for the four items (that is, Q5, Q6, Q7, and Q8) representing the construct ‘attachment’ in RQ 2 in this study.

Table 4.23 Network Normalized Betweenness Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct ‘Social Identity’ in RQ 2

Statistic	**Q1**	**Q2**	**Q3**	**Q4**
Number of nodes	1,063	1,090	1,059	1,089
Min Betweenness	0	0	0	0
Max Betweenness	2.082	1.557	0.548	2.189
Sum Betweenness	31.903	26.387	9.577	25.168
Average Betweenness	0.030	0.024	0.009	0.023
Std Dev Betweenness	0.133	0.112	0.042	0.122
Var Betweenness	0.018	0.012	0.002	0.015

Table 4.24 Network Normalized Betweenness Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct ‘Attachment’ in RQ 2.

Statistic	**Q5**	**Q6**	**Q7**	**Q8**
Number of nodes	825	779	721	1,059
Min Betweenness	0	0	0	0
Max Betweenness	0.417	0.138	0.353	1.638
Sum Betweenness	3.828	2.164	4.972	15.470

Statistic	Q5	Q6	Q7	Q8
Average Betweenness	0.005	0.003	0.007	0.015
Std Dev Betweenness	0.028	0.014	0.035	0.080
Var Betweenness	0.001	0.000	0.001	0.006

Table 4.25 Network Closeness Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct 'Social Identity' in RQ 2

Statistic	Q1	Q2	Q3	Q4
Number of nodes	1,063	1,090	1,059	1,089
Min Out Closeness	14.962	13.145	11.327	15.596
Min In Closeness	17.798	15.307	13.311	17.511
Max Out Closeness	20	17	15	20
Max In Closeness	20	17	15	20
Average Out Closeness	19.391	16.588	14.776	19.478
Average In Closeness	19.391	16.588	14.776	19.478
Std Dev Out Closeness	1.453	1.023	0.652	1.197
Std Dev In Closeness	0.795	0.565	0.337	0.815

Table 4.26 Network Closeness Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct 'Attachment' in RQ 2.

Statistic	Q5	Q6	Q7	Q8
Number of nodes	825	779	721	1,059
Min Out Closeness	15.468	11.918	15.892	12.625
Min In Closeness	15.862	12.339	16.853	13.473
Max Out Closeness	17	13	18	15
Max In Closeness	17	13	18	15
Average Out Closeness	16.870	12.930	17.841	14.732
Average In Closeness	16.870	12.930	17.841	14.732

Statistic	Q5	Q6	Q7	Q8
Std Dev Out Closeness	0.335	0.185	0.460	0.653
Std Dev In Closeness	0.260	0.132	0.289	0.456

Table 4.27 Network Degree Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct ‘Social Identity’ in RQ 2.

Statistic	Q1	Q2	Q3	Q4
Number of nodes	1,063	1,090	1,059	1,089
Min Out Degree	0	0	0	0
Min In Degree	0	0	0	0
Max Out Degree	19	19	20	23
Max In Degree	11	12	20	12
Average Out Degree	1.672	1.725	1.732	1.758
Average In Degree	1.672	1.725	1.732	1.758
Std Dev Out Degree	2.950	3.113	3.111	3.174
Std Dev In Degree	1.359	1.483	1.632	1.603
Number of Cliques	26	20	23	25

Table 4.28 Network Degree Centrality Statistics Describing How Nodes (Actors) are Connected to Each Other in Each Item-Question Context for the Construct ‘Attachment’ in RQ 2.

Statistic	Q5	Q6	Q7	Q8
Number of nodes	825	779	721	1,059
Min Out Degree	0	0	0	0
Min In Degree	0	0	0	0
Max Out Degree	25	0	10	23
Max In Degree	14	9	8	15
Average Out Degree	1.481	1.318	1.288	1.658
Average In Degree	1.481	1.318	1.288	1.658

Statistic	Q5	Q6	Q7	Q8
Std Dev Out Degree	2.812	2.543	2.574	3.101
Std Dev In Degree	1.317	0.985	0.944	1.544
Number of Cliques	11	4	4	23

The betweenness centrality, closeness centrality, and degree centrality statistics presented in Table 4.23, Table 4.25, and Table 4.27 respectively for construct ‘social identity’ and Table 4.24, Table 4.26, and Table 4.28 respectively for construct ‘attachment’ showed low values (in relation to the number of nodes present in each network graph). Specifically, minimum betweenness (Table 4.23, Table 4.24) and minimum out degree and minimum in degree (Table 4.27, Table 4.28) equating zero indicate isolation of actors and/or clusters. Low values indicate connections within the network being contained within small groups of individuals with very few actors playing the role of connecting groups across the network. Low values also indicate the lack of a dominant influencer within the network. This further substantiates the low or no contribution of constructs ‘social identity’ and ‘attachment’ to the cohesion of the organization. However, it could indicate a localized cohesion within the work or social group.

The next sections will present qualitative interpretations of the social network graphs for each item-question constructed from the participant and named individual pairs obtained in this study. This first four items to be discussed underpin the construct 'social identity’ while the latter four items to be discussed underpin the construct ‘attachment’.

4.3.2 Item-Question Q1: ‘Ingroup Ties’

The first item under the construct ‘social identity’ was ‘ingroup ties’; the item-question looked at if the participant ‘had a lot in common with’ the named individual. The social network group elicited from 1,063 nodes (actors) consisting of 1,776 ties (connections) recorded as responses to item-question Q1 is shown in Figure 4.56. At first glance, the black- and gray-colored (ignoring the white-colored as these are not within the scope of the work locations in this study) form separate groupings or clusters with some interconnection. As the item-questions sought to understand

‘ingroup ties,’ the groupings reflect how participants understood his/her ‘ingroup’ was at the time of survey. If the ‘ingroup’ included organization wide members across both work locations, it will be indicative of cohesiveness from the perspective of one element in the construct of ‘social identity’. The social network graph (Figure 4.56) suggests that ‘ingroup ties’ is largely confined to groups or members at either work location A (black-colored shapes) or B (gray-colored shapes), and most likely within a work or social group context.

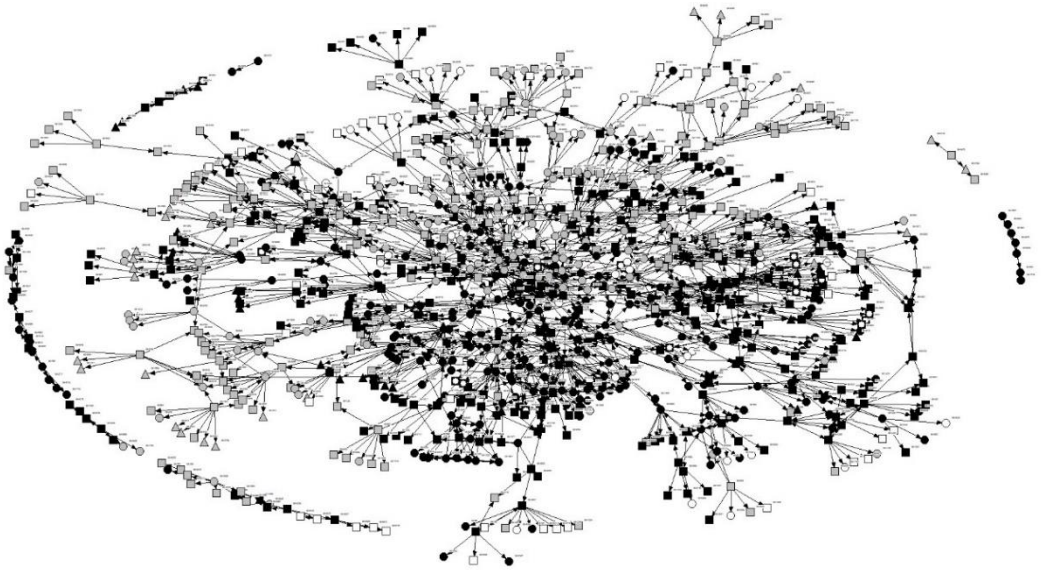


Figure 4.56 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q1

Table 4.29 List of Key Nodes (Actors) Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q1 (‘Social Identity’ Construct) in this Study

Network Parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-1939	EE-2749	EE-3157	EE-6436
Closeness centrality	EE-3890	EE-635	EE-2994	EE-2777	EE-1527
Degree centrality	EE-1880	EE-4808	EE-3023	EE-6436	
Reach	EE-2504	EE-2994	EE-3454	EE-4034	EE-6436

Network Parameter	Top	Second	Third	Fourth	Fifth
Fragmenting	EE-1527	EE-2665	EE-3898	EE-4870	EE-812
Distancing	EE-1527	EE-4870	EE-584		

Table 4.29 lists key participants based on top scores in betweenness, closeness, degree, reach, fragmenting, and distancing. The corresponding social network graphs containing these participants and their corresponding named individual pairs are shown in Figure 4.57.

In the ‘reach’ parameter, the five listed actors had a combined reach of 254 nodes or 23.9% of the network. In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would have resulted in disconnected groups and isolation. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would have resulted in increased distance between groups and actors.

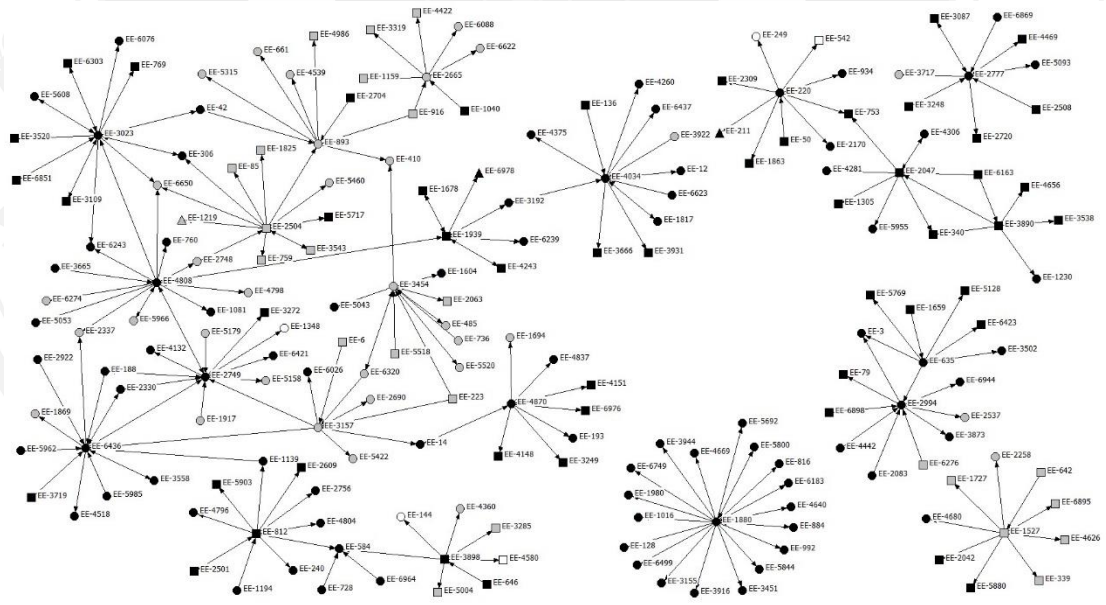


Figure 4.57 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Measures; Extracted from Figure 4.56.

Remarkable observations from Figure 4.57 include,

1) Majority of the groupings were actors from the same work location (either work location A / black-colored shapes, or work location B / gray-colored shapes). There were a few exceptions (that is mix of locations, including other locations / white-colored shapes, e.g., groupings of EE-4870, EE-2777, EE-1527, EE-4808, EE-220, EE-6436, and EE-3898).

2) Some actors played the role of bridging between groups from different work locations. An example was EE-6650 (gray) bridging EE-2504 (gray) to EE-4808 (black), and EE-2504 (gray) to EE-3023 (black). Another example was EE-14 (black) bridging EE-3157 (gray) to EE-4870 (black). A third example was EE-42 (black) bridging EE-3023 (black) to EE-893 (gray).

3) Some actors connected groups from the same work location but themselves were from different work location. An example was EE-2337 (gray) bridging EE-6436 (black) to EE-4808 (black).

4) Some actors connected groups from the same work locations. Examples include EE-916 (gray) bridging EE-893 (gray) to EE-2665 (gray), EE-3192 (black) bridging EE-4034 (black) to EE-1939 (black), and EE-584 (black) bridging EE-812 (black) to EE-3898 (black).

5) Groupings reflected strong ‘ingroup ties’ within the group largely from the same work location, suggesting cohesion at the group level but not across the larger organization.

In the next three sub-sections, the social network graphs show in Figure 4.56 and Figure 4.57 are re-displayed with emphasis (that is, shapes sized accordingly) on the actors with top scores in betweenness centrality, closeness centrality, and degree centrality.

4.3.2.1 Item-question Q1: ‘ingroup ties’ betweenness centrality

Figure 4.58 and Figure 4.59 re-displays Figure 4.56 and Figure 4.57 respectively with added emphasis for actors with top betweenness centrality scores. The actors with higher betweenness centrality scores are clustered around the center of the network graph. To get a better idea, key actors listed in Table 4.29 and their related named individual pairs are shown in Figure 4.59.

As betweenness centrality identifies players who act as ‘in-betweens’ in a network for different groups, the actors highlighted (with larger shapes) in the context of Figure 4.59 included EE-4808 (black), EE-2749 (black), EE-6436 (black), EE-3157 (gray), EE-812 (black), EE-1139 (black), EE-2504 (gray), EE-3023 (black), EE-893 (gray), EE-3454 (gray), EE-1939 (black), EE-4034 (black), EE-584 (black), EE-916 (gray), and EE-3192 (black). These actors exemplified the item ‘ingroup ties’ as they bridged others to their network. This list is longer than that shown in Table 4.29. It is important to note that Netdraw (Borgatti, 2002), the visualization tool used in this study, sizes the shape with a calculated betweenness centrality that is slightly different than using the traditional method by (Freeman, 1977).

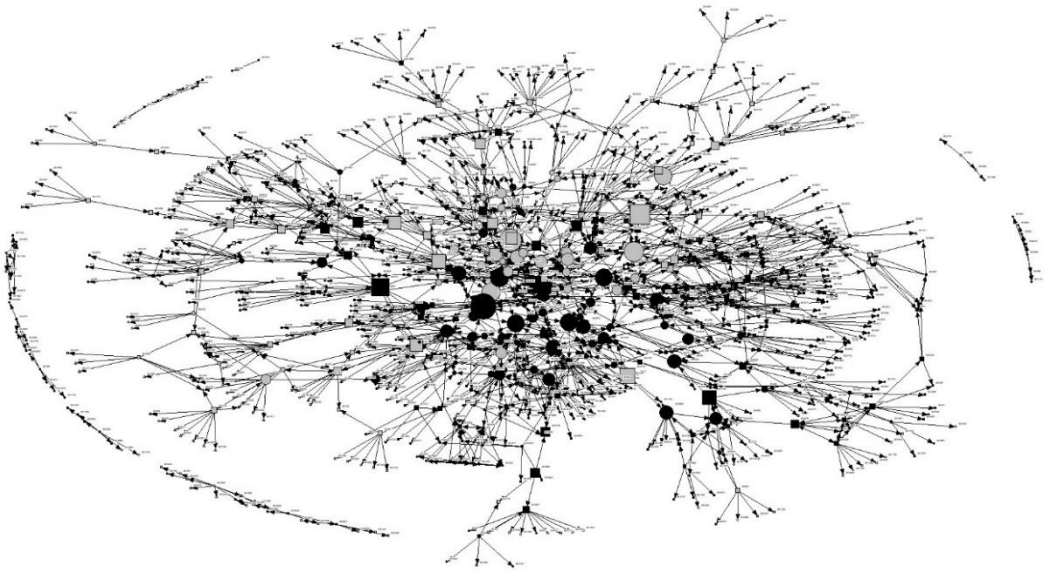


Figure 4.58 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q1 with Emphasis on Betweenness Centrality Measure

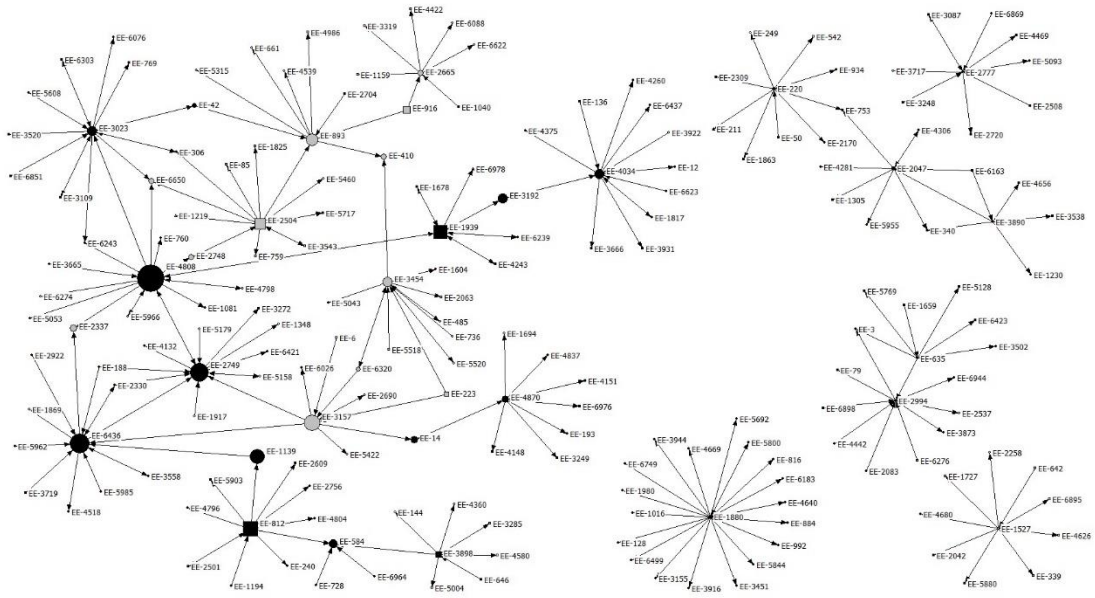


Figure 4.59 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.57 with Emphasis on Betweenness Centrality Measure

As the betweenness centrality measure indicates, these actors played key bridging roles between members within the network. Members, through these actors, could reach other more distant players (resources) in the network. For example,

1) EE-6088 (gray) could reach EE-4837 (black) through EE-2665 (gray) to EE-916 (gray) to EE-893 (gray) to EE2504 (gray) to EE-2748 (gray) to EE-4808 (black) to EE-2769 (black) to EE-3157 (gray) to EE-14 (black) to EE4870 (black).

2) EE06303 (black) could reach EE-5422 (gray) through EE-3023 (black) to EE-4808 (black) to EE-2749 (black) to EE-3157 (gray).

That is, it was possible for members of a work location to reach resources at another location through ‘bridging’ actors. This solicited social network graph represented participants who affirmed named indiviudals who ‘have a lot of common’ with them and thus contributed to group cohesion through ‘ingroup ties’ connections.

4.3.2.2 Item-question Q1: ‘ingroup ties’ closeness centrality

Similarly, Figure 4.60 and Figure 4.61 re-displays Figure 4.56 and Figure 4.57 respectively with added emphasis for actors with higher closeness centrality scores. As with similar social graphs shown in previous sections, the key actors identified resided at the peripheral area of the main network (see Figure 4.60). At first glance, it was obvious that the identified key actors and their network members come primarily from the same work location (differentiated by shape color).

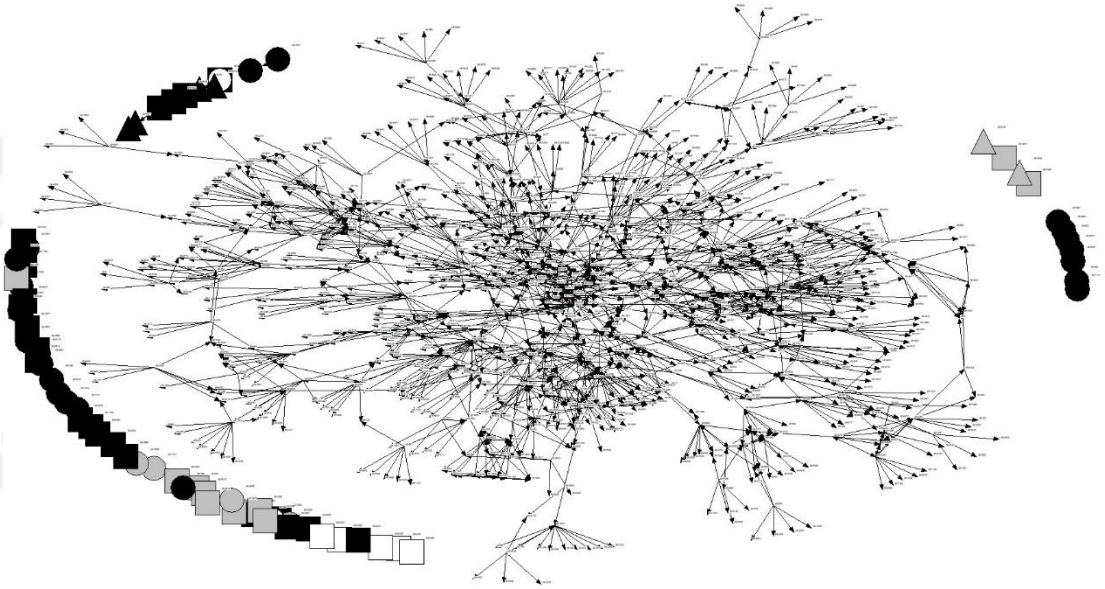


Figure 4.60 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q1 with Emphasis on Closeness Cenrality Measure

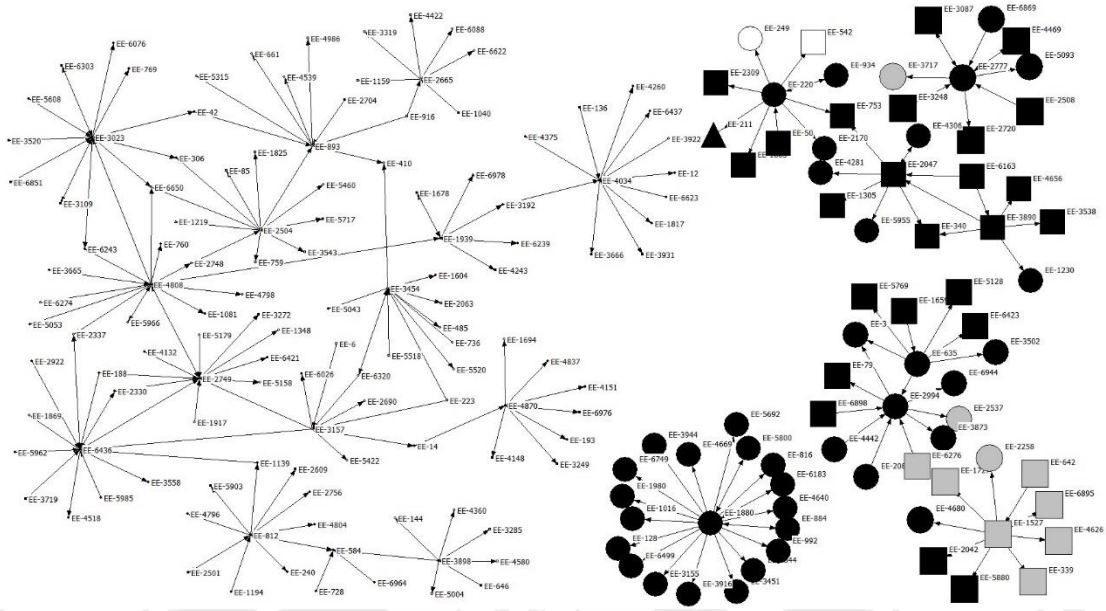


Figure 4.61 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.57 with Emphasis on Closeness Centrality Measure

Similarly, key actors listed in Table 4.29 and their associated networks were extracted and shown in Figure 4.61. These actors (that is, groups around EE-220, EE-2777, EE-2047, EE-3890, EE-635, EE-2994, EE-1880, and EE-1527) were identified as being ‘close’ to other actors. As key actors were one node (step) from their named individual pairs, their closeness centrality scores (calculated as the reciprocal of the distance between nodes) were high. However, this also meant that the group did not connect to any other group; that is, they were ‘close’ within their own groups. Thus, cohesion between groups was low. This was also localized to the context of the key actors being top scorers in closeness centrality.

4.3.2.3 Item-question Q1: ‘ingroup ties’ degree centrality

Similarly, Figure 4.62 and Figure 4.63 re-displays Figure 4.56 and Figure 4.57 respectively with added emphasis for actors with higher degree centrality scores. Degree centrality measures the number of ties to an actor. An actor identified in Figure 4.63 as top scorer for degree centrality could appear also as a top scorer for betweenness centrality (compare with Figure 4.59). In this study, actors with multiple connections could have acted as ‘bridges’ between groups and members. These actors

could also link groups at different locations (see connections between gray-colored shapes and black-colored shapes).

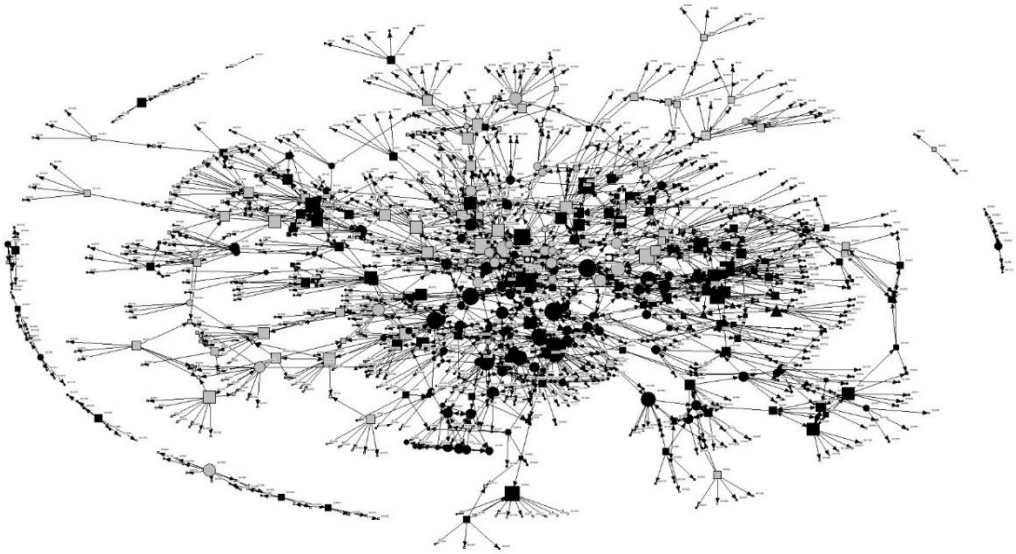


Figure 4.62 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q1 with Emphasis on Degree Centrality Measure

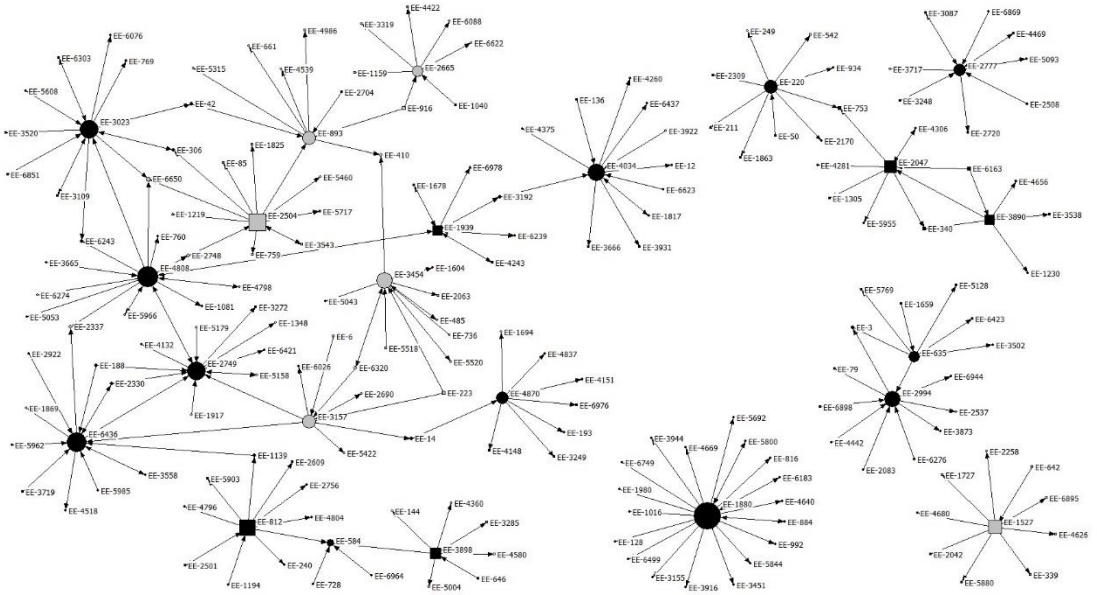


Figure 4.63 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.57 with Emphasis on Degree Centrality Measure

Actors identified with high degree centrality (see Figure 4.59) included EE-4808, EE-2749, EE-6436, EE-3157, EE-812, EE-2504, EE-3023, EE-893, EE-3454, EE-1939, EE-4034, EE-2665, EE-4870, EE-3898, EE-1880, EE-635, EE-EE-2994, EE-1527, EE-3890, EE-2047, EE-2777, and EE-220. About half of the group were actors with high betweenness centrality scores (namely, EE-4808, EE-2749, EE-6436, EE-3157, EE-812, EE-2504, EE-3023, EE-893, EE-3454, EE-1939, and EE-4034). This reflected that the actors played a dual role of connecting groups and members, again exemplifying 'ingroup ties.' Separately, actors like EE-2665, EE-4870, EE-3898, EE-1880, EE-635, EE-2994, EE-1527, EE-3890, EE-2047, EE-2777, and EE-220 had higher scores in degree centrality but not betweenness centrality (compare Figure 4.63 and Figure 4.59) as they had a higher number of ties but were isolated from other parts of the network.

The second item under the construct 'social identity' is discussed next.

4.3.3 Item-Question Q2: 'Centrality-1'

The second item under the construct 'social identity' was the first of two 'centrality' questions; this item-question looked at if the participant 'often thought about the fact of being part of a group' with the named individual. The social network graph elicited from 1,090 nodes (actors) and 1,877 ties (connections) recorded as responses to item-question Q2 is shown in Figure 4.64. Item-question Q2 sought to determine who the participant felt belonged to the same group with. Thus, it was assumed that if a participant provided a list of named individuals, the participant affirmed that he/she 'often thought about the fact of being part of a group with' the named individuals. The thesis in the context of this item-question was that connection between members of the network signified a willingness to be 'identified' as a group together. Such an 'identification' would contribute positively to cohesiveness.

Table 4.30 lists key participants based on top scores in respective parameters and the social network graphs containing them, and their named individual pairs are shown in Figure 4.65.

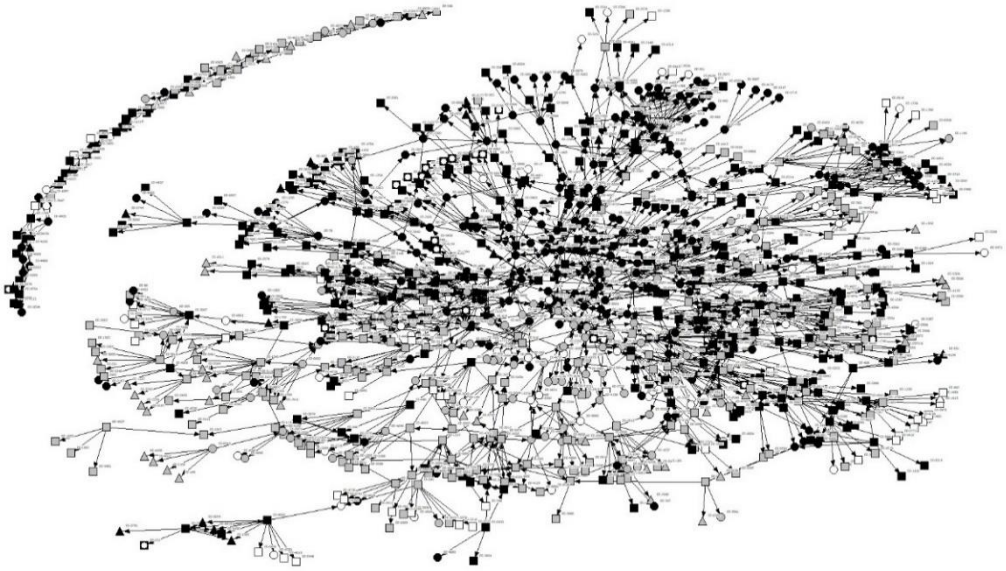


Figure 4.64 Social Network Graph Elicited from Participant and Named Individual Pairs Recorded as a Response to Item-Question Q2

Table 4.30 List of Key Nodes (Actors) Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q2 ('Social Identity' Construct) in this Study

Network Parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-3023	EE-4798	EE-2749	EE-1917
Closeness centrality	EE-2704	EE-5207	EE-3615	EE-5582	EE-1041
Degree centrality	EE-1880	EE-6183	EE-3023	EE-728	
Reach	EE-4129	EE-5544	EE-6436	EE-6567	EE-6650
Fragmenting	EE-1527	EE-3109	EE-3898	EE-5670	EE-6215
Distancing	EE-1527	EE-2748	EE-306		

In the 'reach' parameter, the five listed actors had a combined reach of 243 nodes or 23.3% of the network. In the 'fragmenting' parameter (based on betweenness centrality scores), the five listed actors, if removed, would have resulted in disconnected groups and isolation. In the 'distancing' parameter (based on closeness centrality scores), the three listed actors, if removed, would have resulted in increased

distance between groups and actors. It should be mentioned that Table 4.30 lists key actors based on the entire social network graph elicited for Q2 in this study while betweenness centrality, closeness centrality, and degree centrality graphs presented later focused only on the key actors identified in Table 4.30.

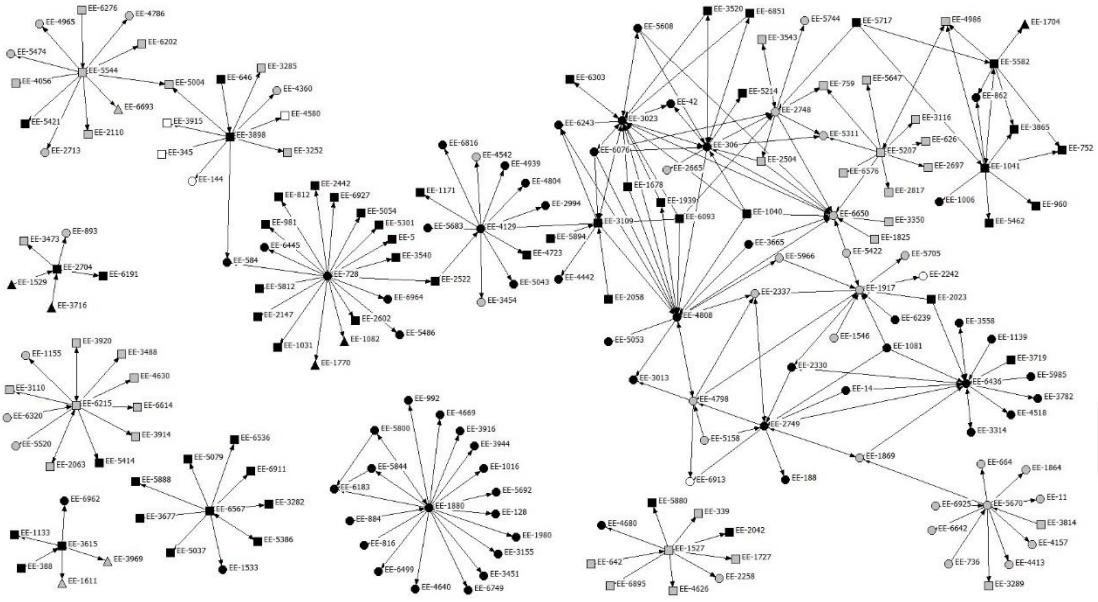


Figure 4.65 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Measures; Extracted from Table 4.30

An immediate observation from Figure 4.65 was that majority of the key actors and their named individual pairs were situated at the same work location, evidenced by same-colored shapes in the same cluster. For example,

1) The cluster centered at EE-5670 and connected to EE-6925, EE-4157, EE-3289, EE-664, EE-1869, EE-6642, EE-11, EE-1864, EE-3814, and EE-4413. All members were from work location B (gray-colored shapes).

2) The sub-network cluster cemtered at EE-5207 and connected to EE-6650, EE-5311, EE-759, EE-626, EE-4986, EE-6576, EE-3116, EE-2817, EE-5647, and EE-2697. All members were from work location B (gray-colored shapes).

3) The cluster centered at EE-6567 and connected to EE-5888, EE-5079, EE-6536, EE-6911, EE-3282, EE-5386, EE-1533, EE-5037, EE-3677. All members were from work location A (black-colored shapes).

There were also actors who connected to others from a different work location. For example,

1) EE-4808 (black) connected to EE-6650 (gray), who connected to EE-2748 (gray), who connected to EE-306 (black). At the same time, EE-6650 (gray) connected to 2504 (gray), EE-2748 (gray) connected to EE2504 (gray) and EE-2504 (gray) connected to EE-306 (black). EE-306 (black) subsequently connected to EE-2665 (gray).

2) EE-5207 (gray) connected to EE-4986 (gray), who connected to EE-1041 (black), who connected to EE-5582 (black). Both EE-1041 (black) and EE-5582 (black) connected to EE-5717 (black) who subsequently connected to EE-2748 (gray).

These sub-networks reflected those members from different work locations 'identified' ('thought about the fact they were part of a group with') with being part of the same group, which exemplified 'social identity' contributing to cohesion within the organization. However, this was only a small part of the overall network.

In the next three sub-sections, the social network graphs Figure 4.64 and Figure 4.65 are re-displayed with emphasis (with shapes sized according to scores) for actors with top scores in betweenness centrality, closeness centrality, and degree centrality.

4.3.3.1 Item-question Q2: 'centrality-1' betweenness centrality

Figure 4.66 and Figure 4.67 re-displays Figure 4.64 and Figure 4.65 with added emphasis for actors with top betweenness centrality scores. The key actors (identified with high centrality scores) were situated in the center of the network shown in Figure 4.66. Key actors listed in Table 4.30 and their associated networks were extracted and shown in Figure 4.67 since the enlarged shapes may not show well in Figure 4.66 and salient points may be illustrated better in the extracted graph.

In the context of Figure 4.67, actors EE-728 (black), EE-2522 (black), EE-4129 (black), EE-3109 (black), EE-4808 (black), EE-584 (black), EE-3898 (black), EE-2749 (black), EE-6650 (gray), EE-5004 (gray), EE-2748 (gray), EE-4798 (gray), EE-2748 (gray), EE-5544 (gray), EE-1869 (gray), and EE-5670 (gray) have

been identified as actors with higher betweennes centrality scores using the Netdraw methodology.

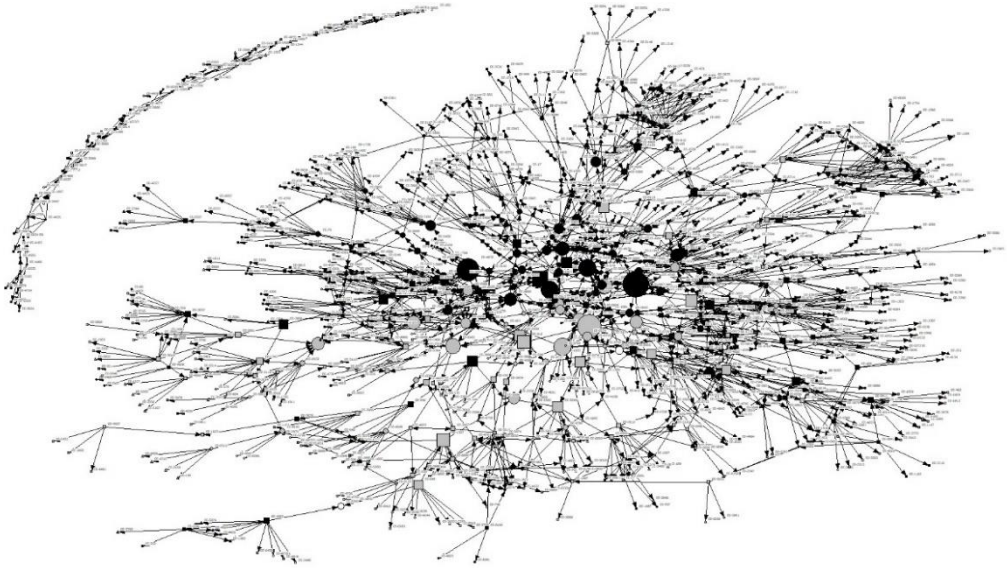


Figure 4.66 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q2 with Emphasis on Betweenness Centrality Measure

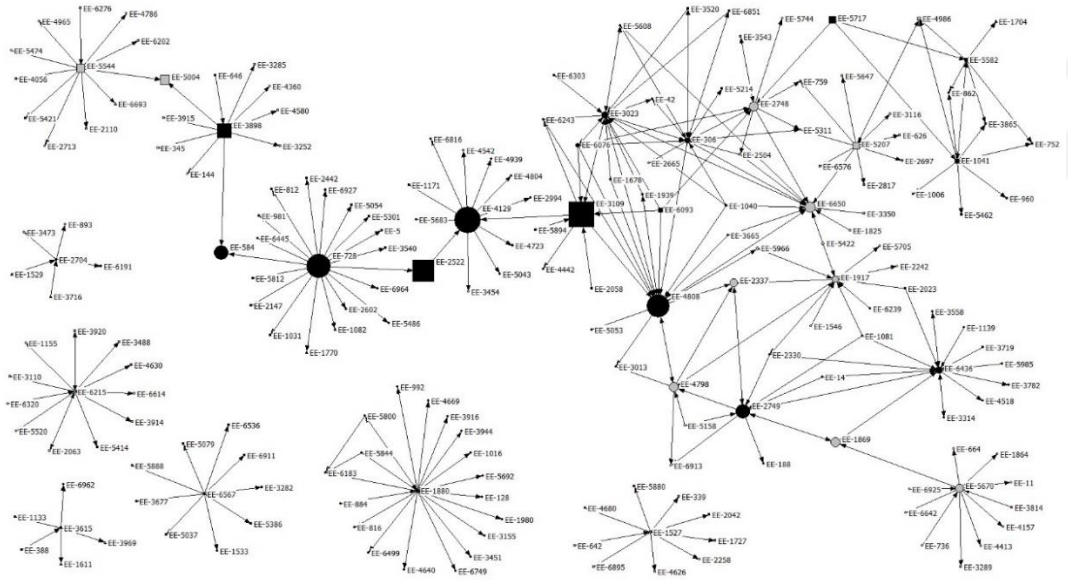


Figure 4.67 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.65 with Emphasis on Betweenness Centrality Measure

Actors with higher betweenness centrality scores played the critical role of ‘bridging’ members or groups in the network. One type of ‘bridge’ was between members across different work location, exemplified by (see Figure 4.67),

1) EE-6650 (gray) ‘bridged’ the clusters centered at EE-306 (black) and EE-4808 (black) to the clusters centered at EE-5207 (gray) and EE-1917 (gray).

2) EE-1869 (gray) ‘bridged’ the clusters centered at EE-5670 (gray) to clusters centered at EE-6436 (black) and EE-2749 (black).

Another type of ‘bridge’ that is remarkable in the context of Figure 4.67 was the single actor ‘bridge’ where, if removed, the clusters would be disconnected. Such actors included,

1) EE-5004 (gray) between clusters centered at EE-5544 (gray) and EE-3898 (black).

2) EE-584 (black) between clusters centered at EE-3898 (black) and EE-728 (black).

3) EE-2522 (black) between clusters centered at EE-728 (black) and EE-4129 (black).

4) EE-1869 (gray) between clusters centered at EE-5670 (gray) and EE-2749 (black) and EE-6436 (black).

A third type of ‘bridge’ was the actor from a different work location ‘bridging’ members or clusters from the same work location, exemplified by EE-4798 (gray) ‘bridging’ the clusters centered at EE-4808 (black) and EE-2749 (black).

‘Bridging’ enabled members from different areas (e.g., work location) to connect and collaborate. For example,

1) EE-4413 (gray) could reach EE-752 (black) through EE-5670 (gray), EE-1869 (gray), EE-6436 (black), EE-1081 (black), EE-1917 (gray), EE-5433 (gray), EE-6650 (gray), EE-5207 (gray), EE-4986 (gray), and EE-5582 (black).

2) EE-5421 (black) could reach EE-664 (gray) through EE-5544 (gray), EE-5004 (gray), EE-3898 (black), EE-584 (black), EE-728 (black), EE-2522 (black), EE-4129 (black), EE-3109 (black), EE-4808 (black), EE-4798 (gray), EE-2749 (black), EE-1869 (gray), and EE-5670 (gray).

These were positive examples of cohesion at the sub-organization level within the post-merger organization found with item-question Q2 as part of the construct ‘social identity’.

4.3.3.2 Item-question Q2: ‘centrality-1’ closeness centrality

Similarly, Figure 4.68 and Figure 4.69 re-displays Figure 4.64 and Figure 4.65 with added emphasis for actors with top closeness centrality scores. As closeness centrality identifies actors with the shortest distance to each other, those clustered within one step of each other will have higher closeness centrality scores. The key actors were again situated at the peripheral of the network shown in Figure 4.68. Briefly, it was observed that majority of gray-colored shapes were gathered on the right-hand side of the peripheral group, while most black-colored shapes were gathered on the left-hand side of the peripheral group. There was also no connection between the peripheral groups to the main network in the middle of the social network graph. This was also evident in Figure 4.69, which were constructed from key actors (with their named individual pairs) listed in Table 4.30.

In Figure 4.69, clusters centered around EE-2704 (black), EE-6215 (gray), EE-3615 (black), EE-6567 (black), EE-1880 (black), and EE-1527 (gray) were identified as actors with high closeness centrality scores. Three of the six clusters did consist of members across different work locations, namely,

1) Cluster centered at EE-1527 (gray) consisted of EE-5880 (black) and EE-4860 (black) from work location A while EE-339 (gray), EE-2258 (gray), EE-1727 (gray), EE-4626 (gray), EE-6895 (gray), and EE-642 (gray) from work location B.

2) Cluster centered at EE-3515 (black) consisted of EE-3969 (gray) and EE-1611 (gray) from work location B while EE-388 (black), EE-1133 (black), and EE-6962 (black) were from work location A.

3) Cluster centered at EE-2704 (black) consisted of EE-893 (gray) and EE-3473 (gray) from work location B while EE-1529 (black), EE-3716 (black), and EE-6191 (black) were from work location A.

These three high closeness centrality clusters exemplified ‘cohesion’ though ‘identfying’ (that is, often thinking about being part of a group with’ the group) with members across work locations. However, this represented half the

network. It should be noted that the greater the closeness centrality scores and a higher concentration of members from the same work location, the weaker the case for cohesion at the post-merger organization level.

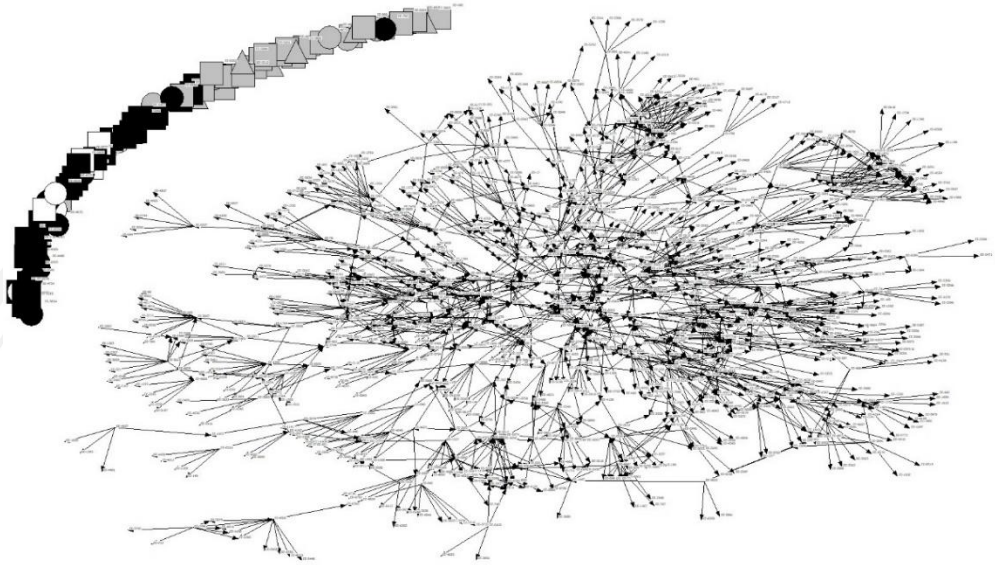


Figure 4.68 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q2 with Emphasis on Closeness Centrality Measure

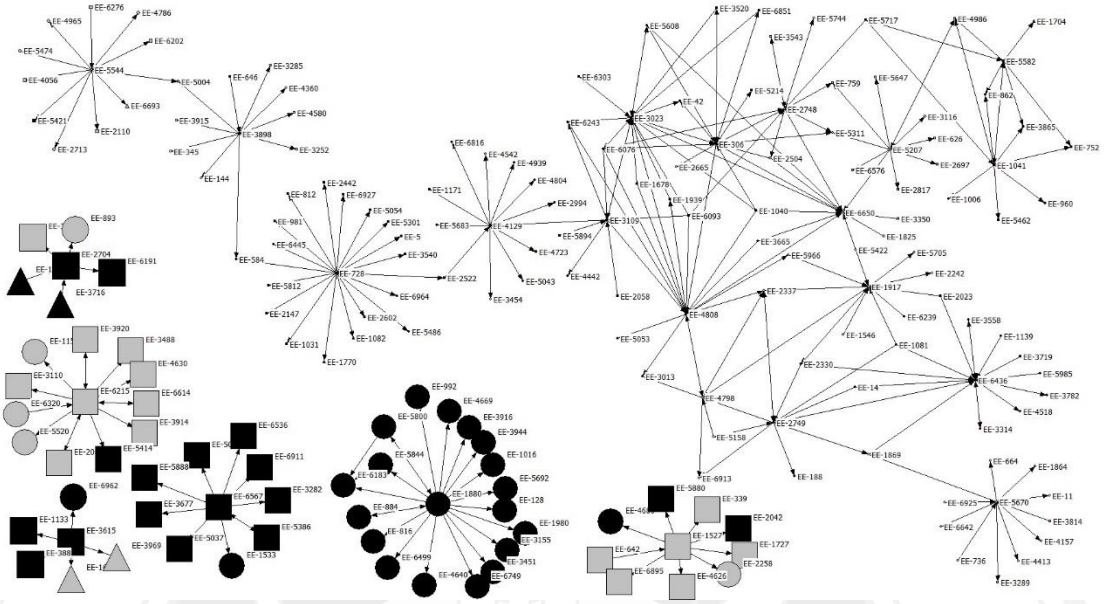


Figure 4.69 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.65 with Emphasis on Closeness Centrality Measure

4.3.3.3 Item-question Q2: ‘centrality-1’ degree centrality

Similarly, Figure 4.70 and Figure 4.71 re-displays Figure 4.64 and Figure 4.65 with added emphasis for actors with top degree centrality scores with added emphasis for actors with top degree centrality scores. Degree centrality simply measures the number of ties to an actor in the network.

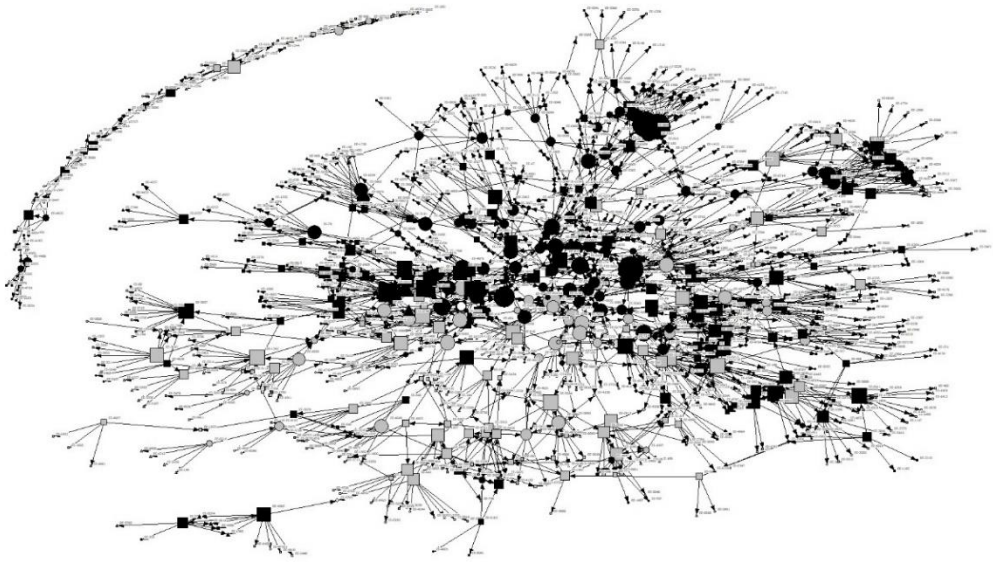


Figure 4.70 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q2 with Emphasis on Degree Centrality Measure

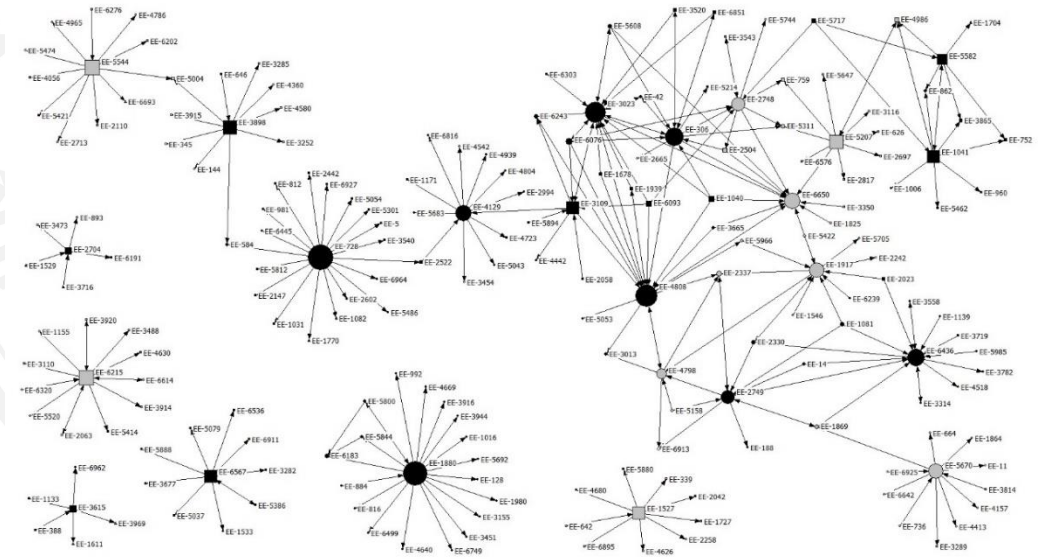


Figure 4.71 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.65 with Emphasis on Degree Centrality Measure

An actor identified in Figure 4.71 as top scorer for degree centrality could appear also as a top scorer for betweenness centrality (compare with Figure 4.67). Actors identified with high degree centrality (see Figure 4.67) included EE-

5544, EE-3898, EE-728, EE-4129, EE-3109, EE-3023, EE-306, EE-2748, EE-4808, EE-6650, EE-5207, EE-1917, EE-1041, EE-5582, EE-6436, EE-2749, EE-5670, EE-4798, EE-6215, EE-6567, EE-1800, and EE-1527. More than half were actors with high betweenness centrality scores (namely, EE-5544, EE-3898, EE-728, EE-4129, EE-3109, EE-2748, EE-4808, EE-6650, EE-5207, EE-1917, EE-6436, EE-2749, EE-5670, and EE-4798). This reflected that the actors played a dual role of connecting groups and members, again exemplifying 'ingroup ties.' Separately, actors like had higher scores in degree centrality but not betweenness centrality (compare Figure 4.71 and Figure 4.67) as they had a higher number of ties but were isolated from other parts of the network (e.g., EE-3023, EE-306, EE-1041, EE-5582, EE-6215, EE-6567, EE-1880, and EE-1527).

The key actors identified with higher degree centrality scores were centers of their own group, as shown in Figure 4.71. The actors did not necessarily hold management positions (round shapes). As the social network graphs did not show hierarchy information, no conclusion about chain of command could be made consequently.

The third item under the construct 'social identity' is discussed next.

4.3.4 Item-Question Q3: 'Centrality-2'

The third item under the construct 'social identity' is the second 'centrality' item. This item sought to know if the participant felt that being part of the group with the named individual was important to his/her self-image. In other words, being in a group with the named individual made the participant look good. The social network graph elicited from 1,059 nodes (actors) and 1,832 ties (connections) recorded as responses to item-question Q3 is shown in Figure 4.72. It is remarkable that black-colored and gray-colored shapes seem to be more randomly arranged in this social network group than previous graphs presented so far in this volume. However, a closer look at key sub-networks is required to validate.

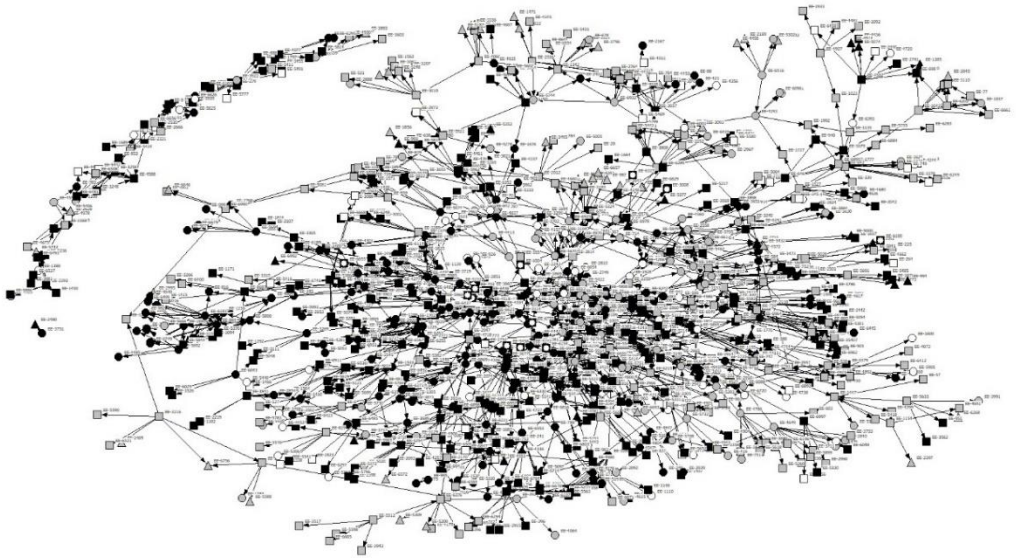


Figure 4.72 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q3

Table 4.31 lists key participants based on top scores in betweenness centrality, closeness centrality, degree centrality, reach, fragmenting, and distancing parameters. The social network graphs containing them is constructed and shown in Figure 4.73. As observed, groups in both graphs consisted mainly of members of the same work location clustering together. For example, clusters centered at EE-6183, EE-6303, EE-4442, EE-6255 all came from work location A (black-colored shapes) while clusters centered at EE-1546 and EE-6614 all came from work location B (gray-colored shapes). There were also groups with members from both work locations (e.g., group around EE-2337 and EE-3898).

Table 4.31 List of Key Nodes (Actors) Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q3 ('Social Identity' Construct) in this Study

Network parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-3023	EE-4442	EE-4129	EE-42	EE-6303
Closeness centrality	EE-6614	EE-2665	EE-3716	EE-2704	EE-2906

Network parameter	Top	Second	Third	Fourth	Fifth
Degree centrality	EE-2337	EE-6183	EE-3023	EE-6255	
Reach	EE-2337	EE-4129	EE-42	EE-4469	EE-6436
Fragmenting	EE-1546	EE-2116	EE-4837	EE-584	EE-5921
Distancing	EE-1527	EE-3898	EE-5921		

In the ‘reach’ parameter, the five listed actors have a combined reach of 267 nodes or 25.2% of the network. In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would have resulted in disconnected groups. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would have resulted in increased distance between groups or actors.

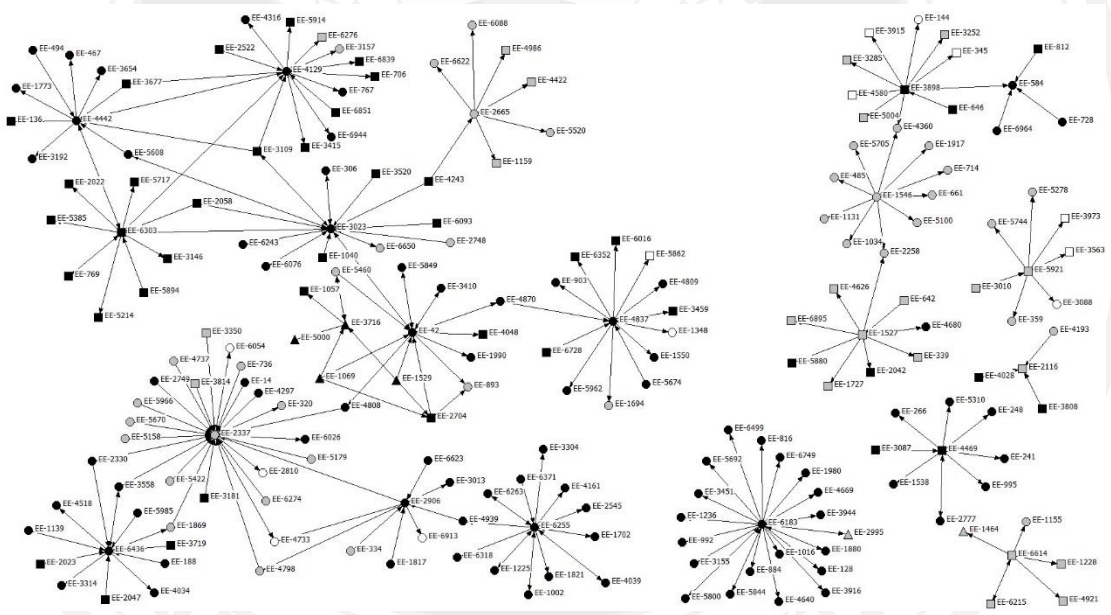


Figure 4.73 Social Network Graph Elicited for Identified Key Participant and Named Individual Pairs Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Measures; Extracted from Table 4.31.

It should be noted in Figure 4.73, actors like EE-4360 (gray), EE-2258 (gray), EE-4870 (black), EE-4939 (black), and EE-4808 (black) played a critical role that bridged two groups of actors together. Without them, groups would not be connected. The group would also have less (reduced) access to resources.

There were actors that connected members across different work locations, for example,

1) EE-4360 (gray) connected actors EE-1536 (gray) and EE-3898 (black).

2) EE-2258 (gray) connected actors EE-1546 (gray) and EE-1527 (gray).

EE-4360 exemplified the desired case that would reflect cohesion of the post-merger organization, connecting team between the two integrating sites. As this item-question related to the construct ‘social identity’, this example also reflected that ‘social identity’ positively contributes to cohesion of the post-merger organization. However, as this is the only instance detected in the analysis of key actors, it is insufficient to establish the claim that there is contribution to cohesion of the post-merger organization.

In the next three sub-sections, the social network graphs shown in Figure 4.72 and Figure 4.73 are re-displayed with emphasis (that is, shapes sized according to scores) for actors with top scores in betweenness centrality, closeness centrality, and degree centrality.

4.3.4.1 Item-question Q3: ‘centrality-2’ betweenness centrality

Figure 4.74 and Figure 4.75 re-displays Figure 4.72 and Figure 4.73 respectively with added emphasis for actors with top betweenness centrality scores. Key actors listed in Table 4.31 and their associated networks were extracted and shown as Figure 4.75 since the enlarged shapes may not show well in Figure 4.74.

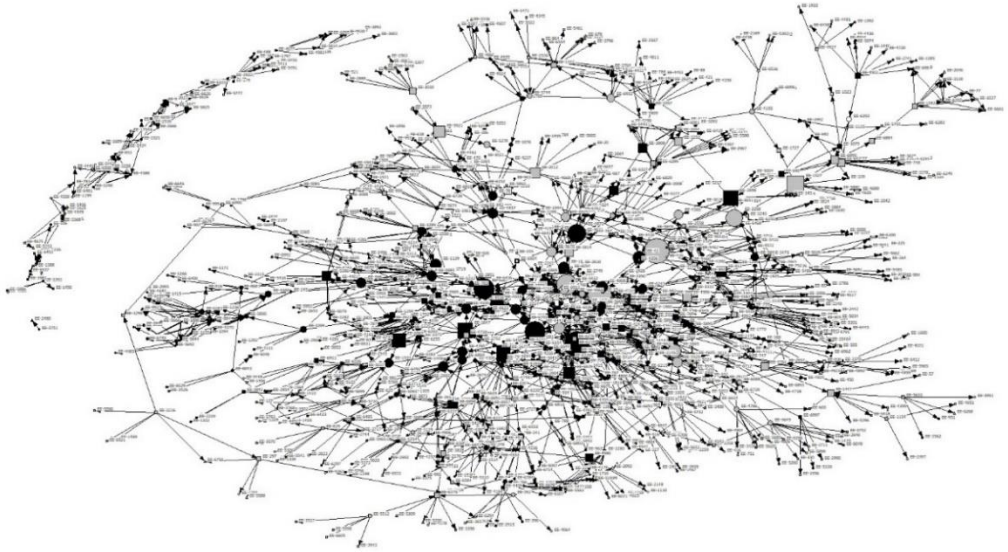


Figure 4.74 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q3 with Emphasis on Betweenness Centrality Measure

In Figure 4.75, actors EE-2337 (gray), EE-3023 (black), EE-42 (black), EE-4808 (black), EE-2906 (black), EE-4939 (black), EE-6255 (black), EE-4870 (black), EE-4837 (black), EE-4129 (black), EE-6303 (black), and EE-6436 (black) were all identified as actors with high betweenness centrality scores (compare with Table 4.31).

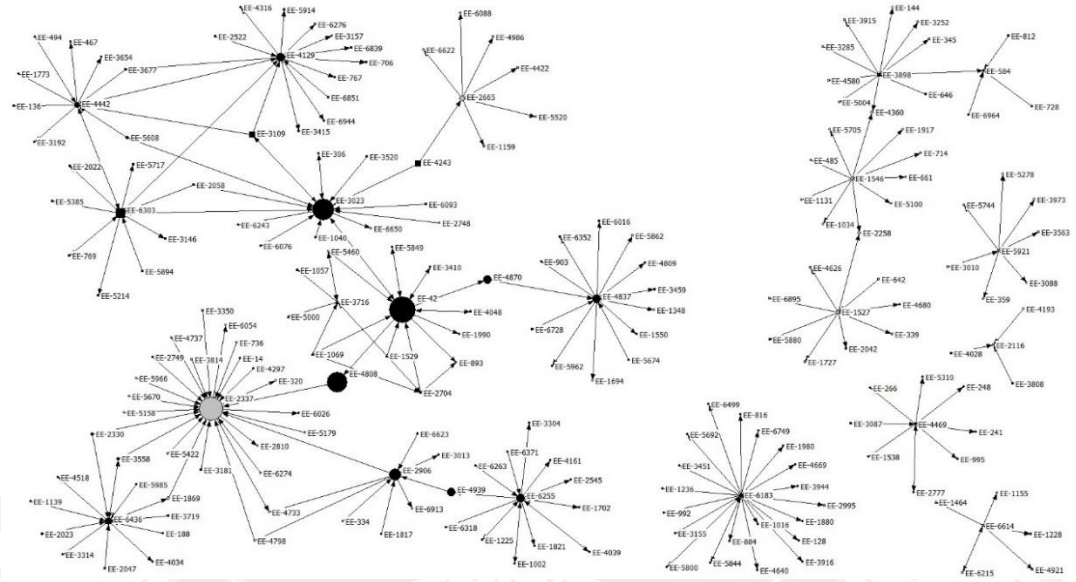


Figure 4.75 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.73 with Emphasis on Betweenness Centrality Measure.

As the betweenness centrality measure indicates, these actors played key bridging roles between members within the network. Members, through these actors, could reach other more distant players in the network. Actors EE-3023 (black), EE-42 (black), EE-4808 (black), and EE-2337 (gray) formed a ‘chain’ the ‘bridged’ clusters around EE-4442, EE-6303, EE-4129, EE-2665, and actor EE-3109 to clusters around EE-4837, EE-6436, EE-2906, EE-6255, and actors EE-4870 and EE-4939. It is remarkable that actors EE-4243, EE-4870, EE-4808, and EE-4939, if removed, resulted in groups (EE-2665, EE-4837, EE-2337, and EE-6255) becoming isolated from the main network (see Figure 4.75).

Members from different work locations connected through ‘bridging’ actors. For example,

1) EE-4243 (black) connected EE-2665 (gray; cluster) and EE-3023 (black; cluster).

2) EE-4808 (black) connected EE-42 (black, cluster) and EE-2337 (gray; cluster).

3) EE-2906 (black) connected EE-2337 (gray; cluster) and actor EE-4939 (black).

That is, it was possible for members of a work location to reach resources at another work location through ‘bridging’ actors. In the context of item-question Q3 (that is, ‘being part of a group is important to self-image’), the ‘bridging’ of members from different work locations exemplified ‘social identity’ contributing to cohesion. But such connections are observed at the group level and not in the context of the larger organization (evidenced by the smaller connected clusters / networks shown so far) and thus insufficient to support a claim for contribution to organization cohesion of a post-merger organization.

4.3.4.2 Item-question Q3: ‘centrality-2’ closeness centrality

Similarly, Figure 4.76 and Figure 4.77 re-displays Figure 4.72 and Figure 4.73 respectively with added emphasis for actors with top closeness centrality scores. As with previous graphs, the key actors identified were situated at the peripheral of the main network. Similarly, key actors listed in Table 4.31 and their associated networks were extracted and shown as Figure 4.77.

In Figure 4.77, the actors identified with high closeness centrality scores included clusters centered at EE-584, EE-3898, EE-1546, EE-1527, EE-5921, EE-2116, EE-4469, EE-6614, and EE-6183 and ‘connectors’ EE-4360 and EE-2558.

One observation compared the connected chain EE-584, EE-3898, EE-4360, EE-1546, EE-2258, and EE-1527 with the connected chain EE-4837, EE-4870, EE-42, EE-4808, EE-2337, EE-1869, EE-2330, EE-3558, and EE-6436 in Figure 4.77. While the former connected chain had shapes enlarged (that is, high closeness centrality), the latter did not. As the average distance to all actors of the former connected chain was shorter than the average distance to all actors of the latter connected chain, the actors in the former chain scored higher in closeness centrality. While previous graphs with closeness centrality emphasis consisted of isolated clusters, this instance had a connected chain with actors of relatively higher closeness centrality. As this item-question related to the construct ‘social identity’, it also reflected that ‘social identity’ positively contributed to cohesion of the post-merger organization from the perspective of closeness centrality of actors. However, this did not indicate the same at the post-merger organization level.

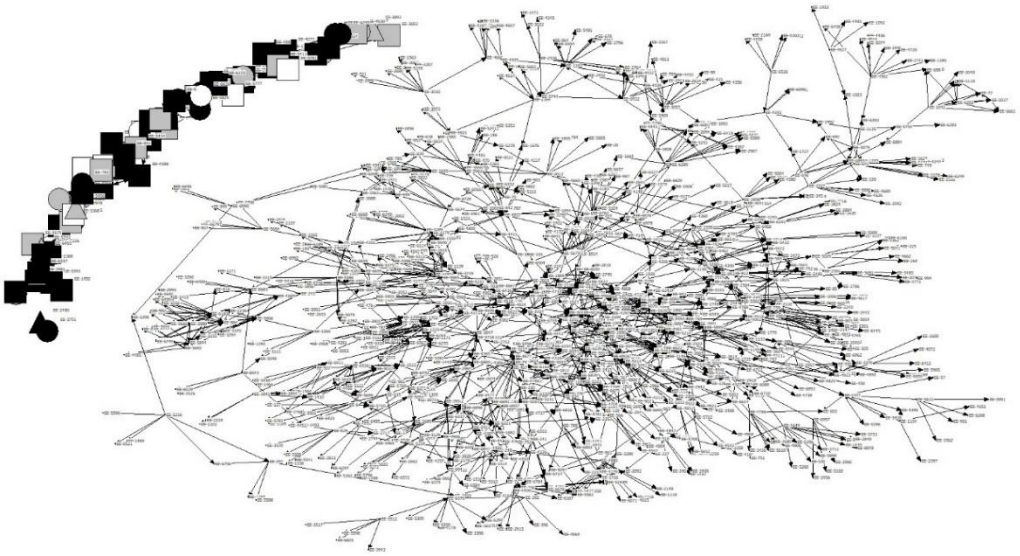


Figure 4.76 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q3 with Emphasis on Closeness Centrality Measure

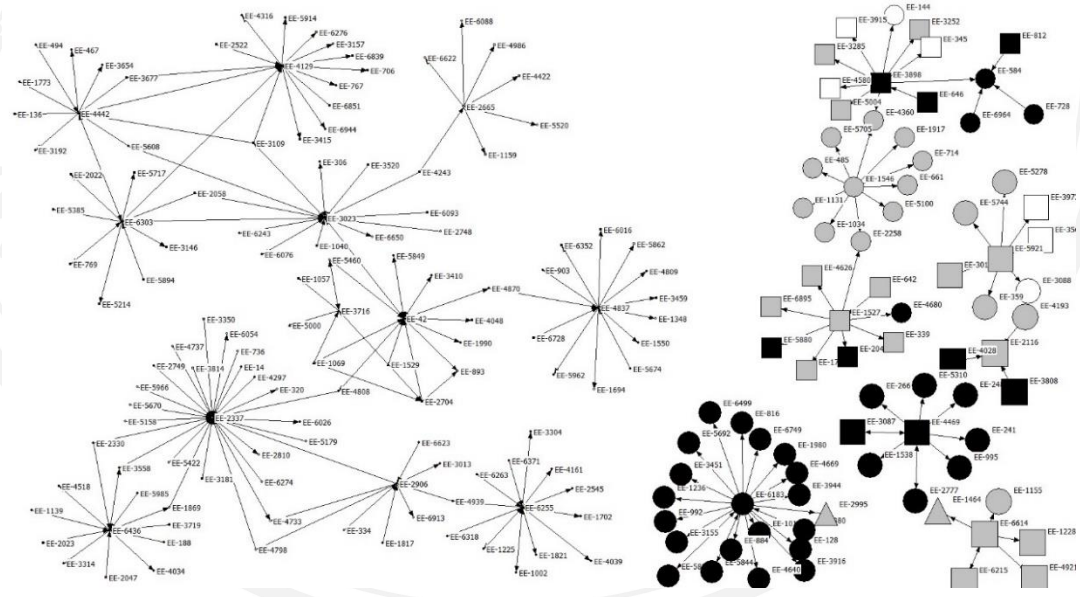


Figure 4.77 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.73 with Emphasis on Closeness Centrality Measure

4.3.4.3 Item-question Q3: ‘centrality-2’ degree centrality

Similarly, Figure 4.78 and Figure 4.79 re-displays Figure 4.72 and Figure 4.73 respectively with added emphasis for actors with top degree centrality scores. Key actors identified with higher degree centrality scores are situated at the center of the network extending outwards, as shown in Figure 4.78. Degree centrality measures the number of ties an actor has. Key actors listed in Table 4.31 and their associated networks were extracted and shown as Figure 4.79.

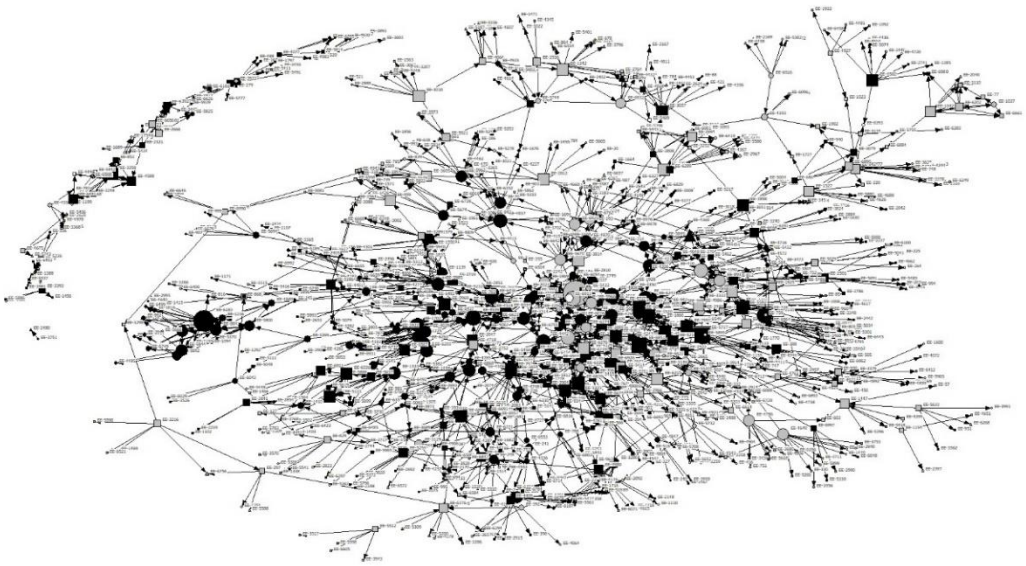


Figure 4.78 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q3 with Emphasis on Degree Centrality Measure

Degree centrality simply measured the number of ties to an actor. It can be observed from Figure 4.79 that the size of the shapes simply followed the number of ties of the actor. In the context of Figure 4.79, actors EE-2337 (gray), EE-6436 (black), EE-2906 (black), EE-6255 (black), EE-6183 (black), EE-4469 (black), EE-1527 (gray), EE-5921 (gray), EE-1546 (gray), EE-3898 (black), EE-42 (black), EE-4837 (black), EE-3023 (black), EE-6303 (black), EE-4442 (black), EE-4129 (black), and EE-2265 (gray) were identified with high degree centrality. About half of the group were actors with high betweenness centrality scores (namely, EE-2337, EE-6436, EE-2906, EE-6255, EE-42, EE-4837, EE-3023, EE-6303, and EE-4129).

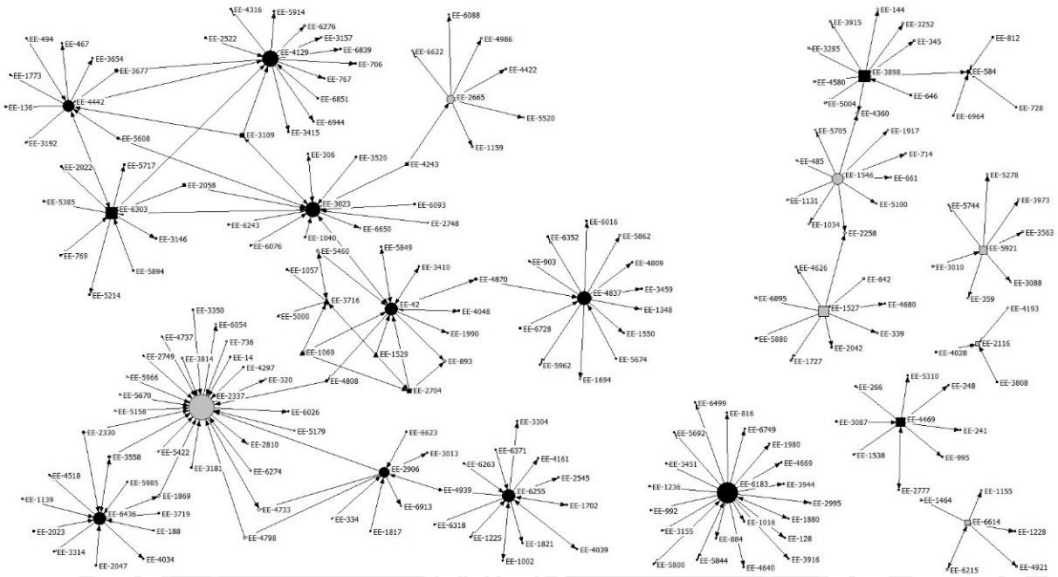


Figure 4.79 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.73 with Emphasis on Degree Centrality Measure

The final item under the construct ‘social identity’ is discussed next.

4.3.5 Item-Question Q4: ‘Ingroup Affect’

The fourth and final item under the construct ‘social identity’ is ‘ingroup affect’. This item sought to know if the participant felt good when thinking about himself / herself as being part of a group with the named individual. It is important to note that the social network graph elicited will show whom (by way of connections or ties) the participant felt good with as being part of a group together (or the mere thought being together in a group) – that is, the participant feeling good with another individual that they are part of a group together; the social network graph cannot tell if the participant felt good or not in general. The item-question specifically asked the participant to name individual(s) whom they felt good with as part of a group (or merely thinking that they were part of a group). The social network graph elicited from 1,089 nodes (actors) and 1,910 ties (connections) recorded as responses to item-question Q4 is shown in Figure 4.80. It is still observed that majority of groups formed came from the same work location (black-colored shapes versus gray-colored shapes connected). At the first glance, the social network graph did not show

connections of members from both work locations of interest as the concept of ‘group’ should not be defined by work location.

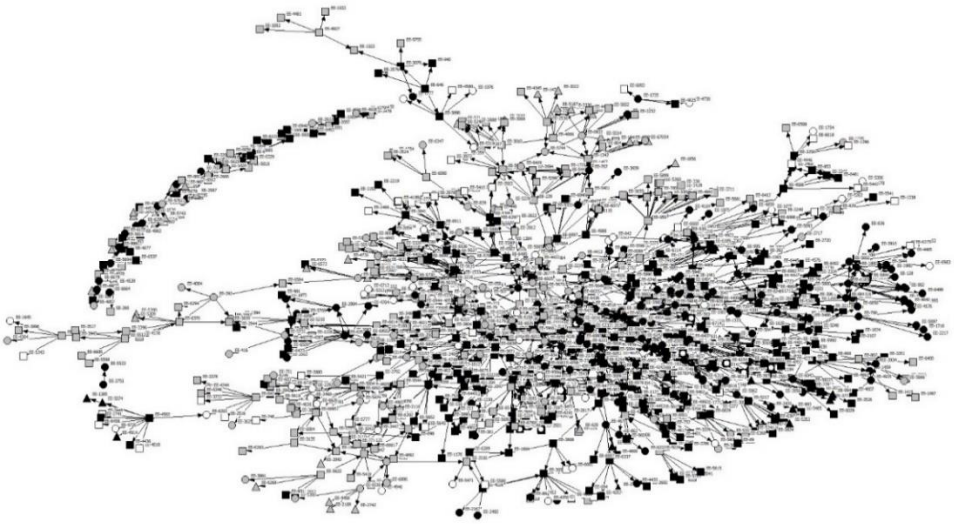


Figure 4.80 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q4

Table 4.32 List of Key Nodes (Actors) Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q4 (‘Social Identity’ Construct) in this Study

Network Parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-42	EE-14	EE-2922	EE-1917
Closeness centrality	EE-2047	EE-1816	EE-1659	EE-4306	EE-220
Degree centrality	EE-6183	EE-4808	EE-3023	EE-2337	EE-5800
Reach	EE-1917	EE-4129	EE-5544	EE-5969	EE-6567
Fragmenting	EE-1546	EE-4870	EE-4980	EE-5921	EE-6895
Distancing	EE-1527	EE-4980	EE-2023		

Table 4.32 lists key participants based on top betweenness centrality, closeness centrality, degree centrality, reach, fragmenting, and distancing parameters. The social network graphs containing them are constructed and shown in Figure 4.81.

It can be observed that majority groupings in Figure 4.81 were formed with members from the same work location (see black-colored shapes and gray-colored shapes).

In the ‘reach’ parameter, the five listed actors have a combined reach of 278 nodes or 25.5% of the network. In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would result in disconnected groups. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would result in increased distance between groups and actors.

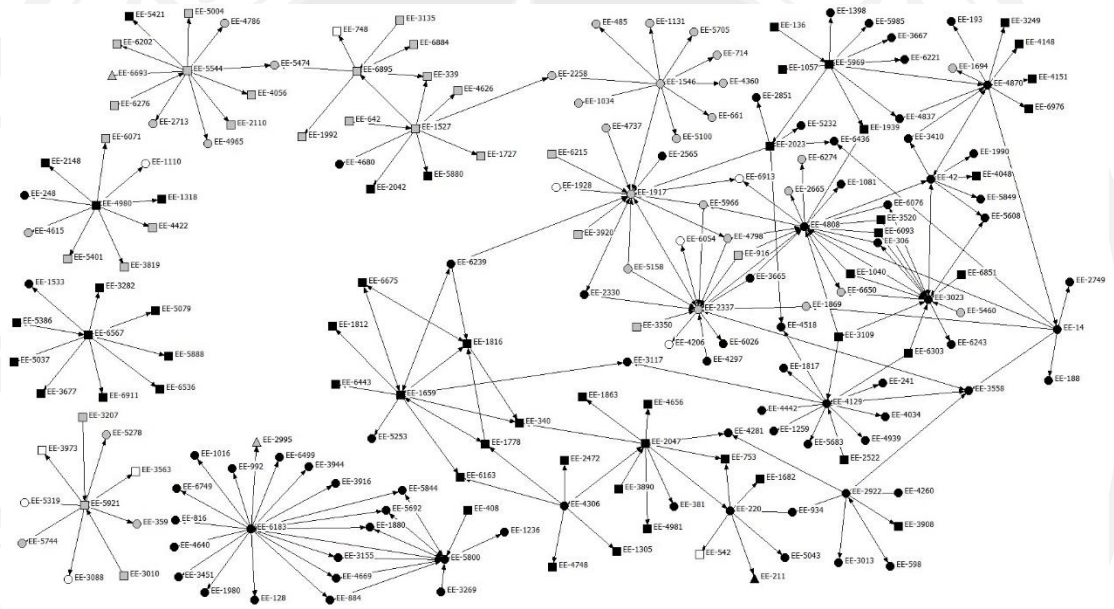


Figure 4.81 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Measures; Extracted from Table 4.32.

As the social network graphs were elicited from the responses of participants, they reflected the participants’ understanding, opinion, and point of view. As evidenced by the work location of the named individual pairs provided by the participants, it could be inferred that participants thought about or considered (or remembered) only members at their work locations unless there was a compelling reason to consider otherwise. As Q4 looks at ‘ingroup affect’, the data (hence the social network graphs elicited) suggested that ‘ingroup’ mostly meant members at the

same work location. Whereas the premise of this study was ‘ingroup affect’ (for a ‘cohesive’ group) meant connected members came from different work locations. The data thus suggested that the item ‘ingroup affect’ under the concept of ‘social identity’ was more reflective at the team or group level at the same work location, rather than the broader organization level across different work locations. That is, the ‘social identity’ was built around the work location, or the members being co-located at the same work location. As observed from Figure 4.81, actors from work location B (gray-colored shapes; clusters centered at EE-5544, EE-6895, EE-1527, EE-1546, and EE-1917) eventually got connected to actors from work location A (black-colored shapes; clusters centered at EE-5969, EE-4870, EE-42, EE-4129, EE-1659, EE-4306, EE-2047, EE-220, and EE-2922) but largely connected to members of the same work location within each cluster.

In the next three sub-sections, the social network graphs shown in Figure 4.80 and Figure 4.81 are re-displayed with emphasis (that is, shapes sized according to scores) on the actors with top scores in betweenness centrality, closeness centrality, and degree centrality.

4.3.5.1 Item-question Q4: ‘ingroup affect’ betweenness centrality

Figure 4.82 and Figure 4.83 re-displays Figure 4.80 and Figure 4.81 respectively with added emphasis for actors with top betweenness centrality scores. The enlarged shapes were situated in the center of the social network graph in Figure 4.82.

In Figure 4.83, actors EE-1917 (gray), EE-1546 (gray), EE-2337 (gray), EE-4808 (black), EE-3558 (black), EE-2258 (gray), EE-1527 (gray), EE-6895 (gray), EE-5474 (gray), EE-5544 (gray), EE-2023 (black), EE-5969 (black), EE-4870 (black), EE-4129 (black), EE-1659 (black), EE-2047 (black), and EE-2922 (black) were identified as actors with high betweenness centrality scores.

At first glance, the connected network at the top half of Figure 4.83 showed connected groups from work location B (gray-colored shapes) on the left-hand side and connected groups from work location A (black-colored shapes) on the right-hand side, linked by actors EE-2023 (black) and EE-6239 (black) to EE-1917 (gray) through the following connected paths,

1) EE-1917 (gray) to EE-4808 (black) through actors EE-5966 (gray), EE-4798 (gray), and EE-6913 (white).

2) EE-1917 (gray) to EE-5969 (black), EE-3558 (black), and EE-4808 (black) through actors EE-2023 (black) and EE-2337 (gray).

3) EE-1917 (gray) to EE-6239 (black).

Although there were some mixings in the connected groups, it was observed that majority came from the same work locations. As ‘betweenness’ suggests, the actor with a higher betweenness centrality score acted as the ‘in-between’ for two other actors, joining (bridging) groups together.

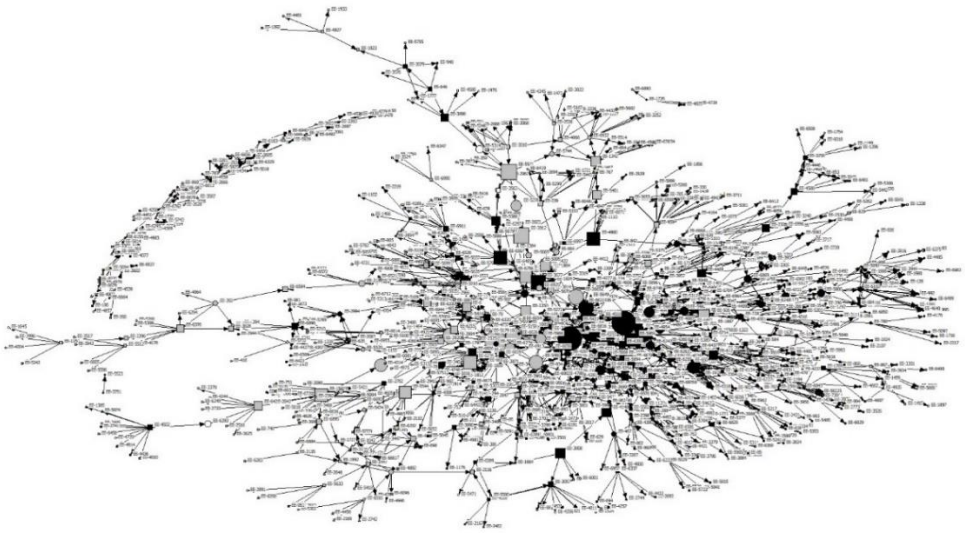


Figure 4.82 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q4 with Emphasis on Betweenness Centrality Measure

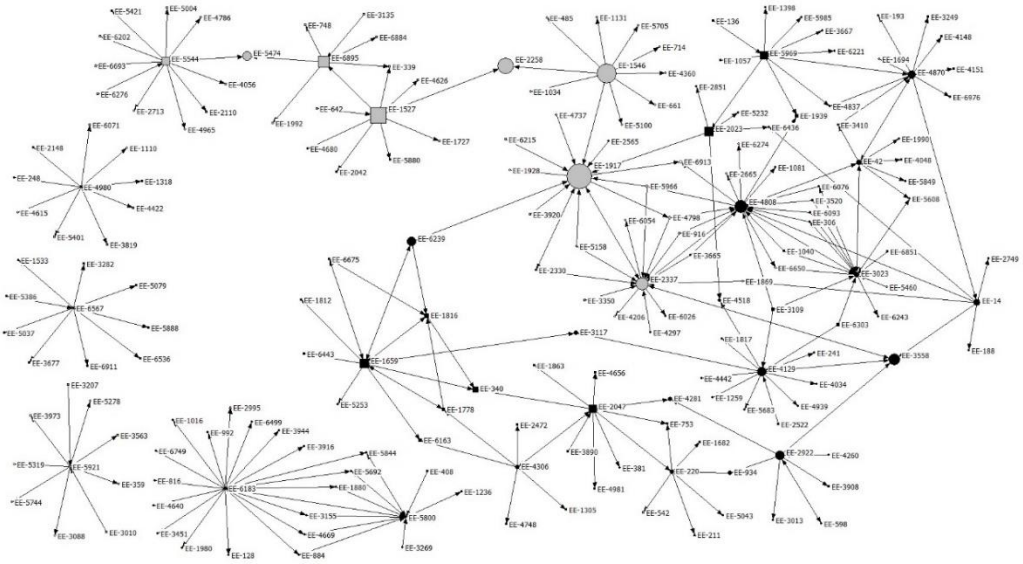


Figure 4.83 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.81 with Emphasis on Betweenness Centrality Measure

While there were actors connecting groups from both work locations, and there were groups with some mix of members from both work locations, the extent is insufficient (as seen in Figure 4.81 and Figure 4.83) to claim that 'ingroup affect' (of the construct 'social identity') contributed to increasing cohesion in the post-merger organization for actors with higher betweenness centrality scores.

4.3.5.2 Item-question Q4: 'ingroup affect' closeness centrality

Similarly, Figure 4.84 and Figure 4.85 re-displays Figure 4.80 and Figure 4.81 respectively with added emphasis for actors with top closeness centrality scores. Closeness centrality measures the reciprocal of the mean shortest distance from actor to actor. Therefore, it is likely that isolated groups could score higher.

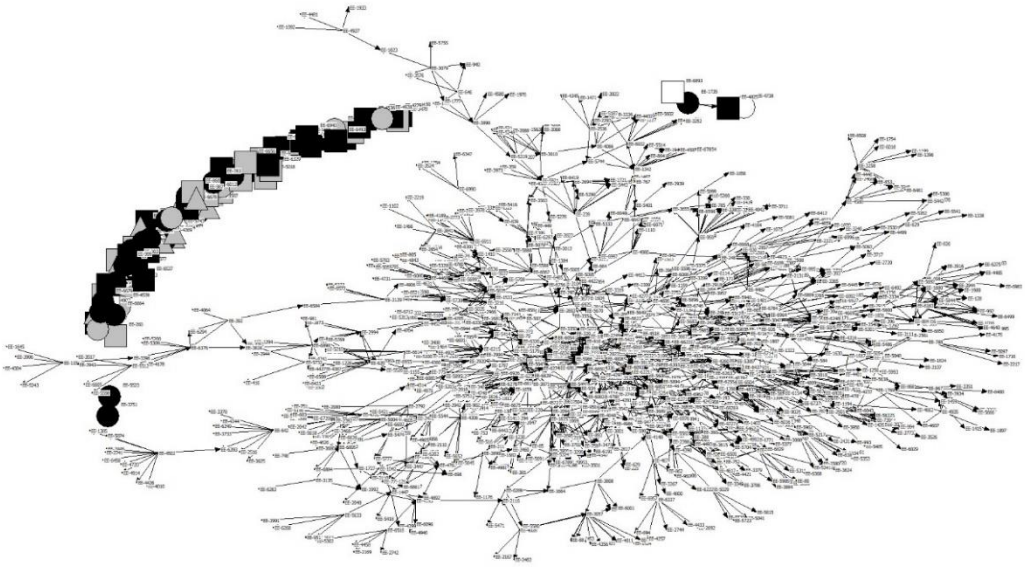


Figure 4.84 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q4 with Emphasis on Closeness Centrality Measure

In Figure 4.85, actors centered at EE-4980, EE-6567, EE-5921, EE-6183, and EE-5800 were identified as actors with high closeness centrality scores. They connected to themselves within the group and therefore were ‘close’ within the group.

In Figure 4.85, two of the five sub-groups identified as having higher closeness centrality scores consisted of members from work location A (clusters around EE-6567 and EE-5800; black-colored shapes). The other two, clusters centered around EE-4890 and EE-5921, did show a mix of members from different work locations. In the fifth subgroup (cluster centered around EE-6183) had one member from work location B (gray-colored shape) while the rest of the group was from work location A (black-colored shapes). Members in a ‘close’ group would present high closeness centrality scores from the perspective of social network analysis. The data suggested that participants reflected that the ‘group’ (possibly defined by work) was an important consideration for ‘ingroup affect’ – that is, participants thought of individuals working with themselves first (or remembered them better), rather than individuals from another group. As there was mixing (of

work locations) in half the clusters with high closeness centrality scores, work location was not a primary consideration but could still be a factor. Whereas an ideal situation would see a complete mix of members from different work locations.

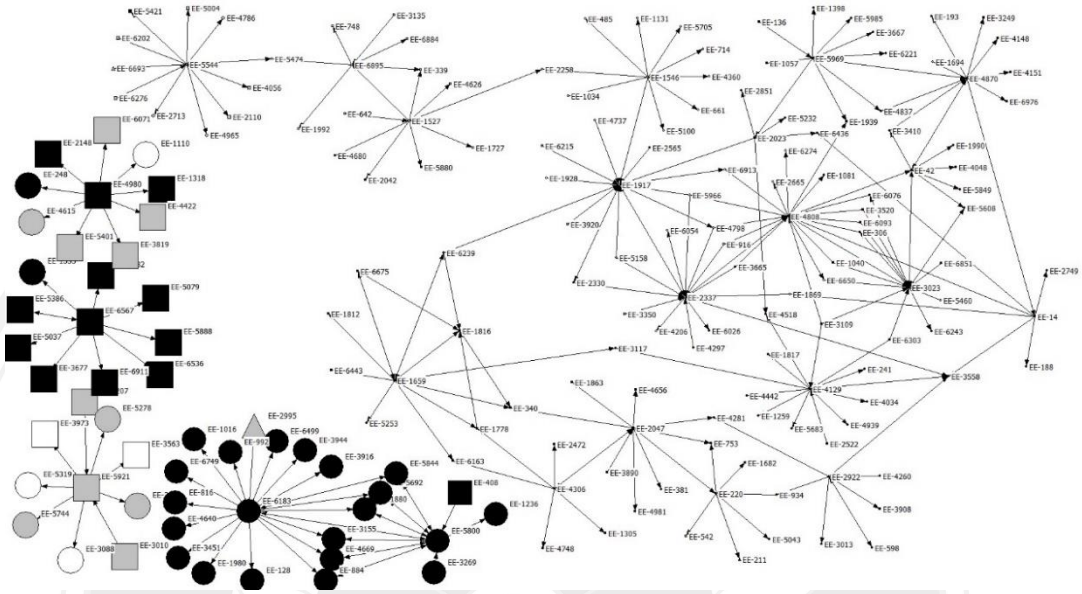


Figure 4.85 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.81 with Emphasis on Closeness Centrality Measure

4.3.5.3 Item-question Q4: ‘ingroup affect’ degree centrality

Similarly, Figure 4.86 and Figure 4.87 re-displays Figure 4.80 and Figure 4.81 respectively with added emphasis for actors with top degree centrality scores. Degree centrality simply measures the number of ties to each actor. Figure 4.86 shows the enlarged shapes (that is, actors with higher degree centrality scores) situated at the center of the network graph and extended outwards. Focusing on key actors listed in Table 4.32, their corresponding network graphs with added emphasis on degree centrality are shown in Figure 4.87.

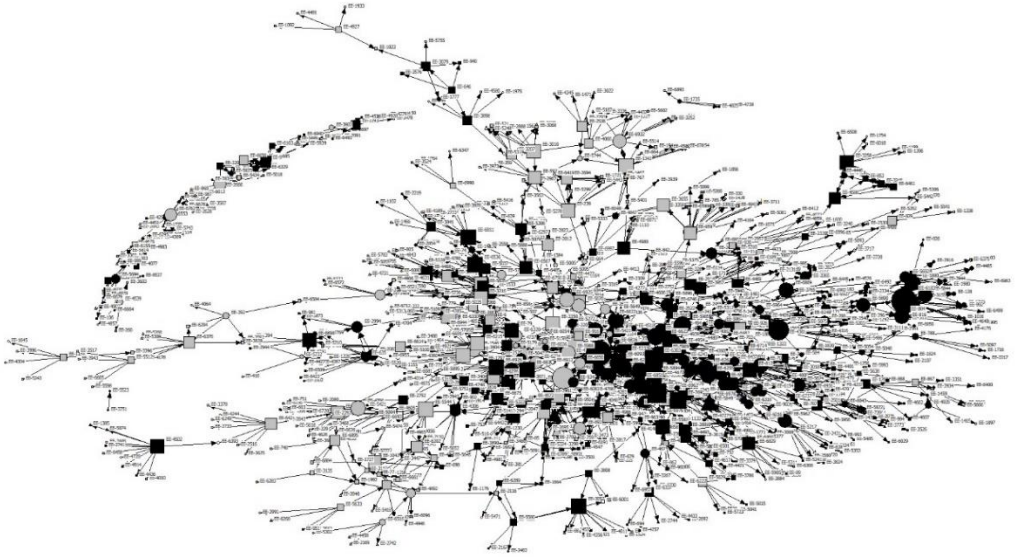


Figure 4.86 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q4 with Emphasis on Degree Centrality Measure

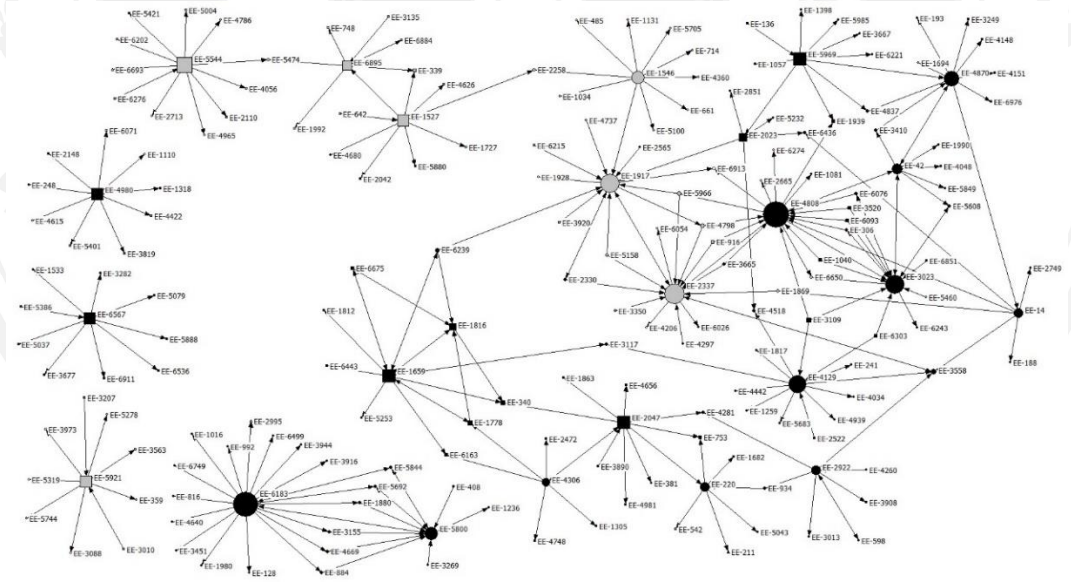


Figure 4.87 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.81 with Emphasis On Degree Centrality Measure

In Figure 4.87, actors EE-4980 (black), EE-6567 (black), EE-5921 (gray), EE-6183 (black), EE-5800 (black), EE-1659 (black), EE-2047 (black), EE-

4129 (black), EE-2337 (gray), EE-4808 (black), EE-3023 (black), EE-1917 (gray), EE-14 (black), EE-2023 (black), EE-42 (black), EE-2922 (black), EE-220 (black), EE-4306 (black), EE-1816 (black), EE-4870 (black), EE-5969 (black), EE-1546 (gray), EE-1527 (gray), EE-6895 (gray), and EE-5544 (gray) were identified as actors with high degree centrality. Comparing Figure 4.87 to Figure 4.83, it is noted that actors with higher degree centrality scores also had higher betweenness centrality scores (namely, EE-1659, EE-2047, EE-4129, EE-2337, EE-4808, EE-1917, EE-2023, EE-2922, EE-4870, EE-5969, EE-1546, EE1527, EE-6895, and EE-5544). This is expected if actors were well-connected, at the same time, played the role as connectors for others. The key actors identified with high degree centrality were centers of their own group.

The four items under the construct ‘social identity’ have been reviewed using social network analysis and presented above. A summary of the findings is provided next.

4.3.6 Summary for ‘Social Identity’ Construct

Four items (‘ingroup ties,’ ‘centrality-1’, ‘centrality-2’, and ‘ingroup affect’) under the construct ‘social identity’ have been reviewed extensively. The findings discussed can summarized as follows,

1) Network statistics presented (e.g., cohesion measures) discussed in section 4.3.1 did not support the thesis that ‘social identity’ contributed to cohesion in a post-merger organization. In fact, the low cohesion observed in the social network graphs elicited from the data collection could indicate ‘social identity’ inhibiting cohesion.

2) The review of social network graphs elicited for all the items concluded with no evidence supporting the thesis that ‘social identity’ contributed to cohesion in a post-merger organization. In fact, social network graphs suggested that participants often thought of members at the same work location as being ‘ingroup.’ In other words, work location could be a ‘social identity’ that contributed to cohesion within the work location and group but inhibited cohesion at the post-merger organization level.

3) Lists of key actors based on betweenness, closeness, degree, reach, fragmenting, and distancing scores (see Table 4.29, Table 4.30, Table 4.31, and Table 4.32) may not see repeated entries, whereas social network graphs depicting betweenness centrality and degree centrality might show the same actors as having high scores for both parameters. It should be noted that the lists were drawn from entries in various categories to avoid repetition while the graphs were calculated with all nodes included. It should also be mentioned that the interviewees for the quanlitative part of this study were selected from the list of key actors (that is, Table 4.29, Table 4.30, Table 4.31, and Table 4.32), hence a preference for unique entries to include as many actors as possible.

The next four items to be discussed underpin the construct ‘attachment’. There are two items under the concept of ‘attachment anxiety’ and two items under the concept of ‘attachment avoidance’. The following sections will review each one in detail from the perspective of social network analysis.

4.3.7 Item-Question Q5: ‘Attachment Anxiety-1’

The first item under the construct ‘attachment’ is the first ‘attachment anxiety’ (Q5) item out of two. This item-question sought to know if the participant worried that the named individual pair did not value him/her as much as he/she valued the named individual (that is, reciprocating or mutual value); essentially the importance of being valued by another. The social network graph elicited from 825 nodes (actors) and 1,217 ties (connections) recorded as responses to item-question Q5 is shown in Figure 4.88. It is noted that the number of actors recorded is approximately 10% lower when compared to other item-questions (e.g., Q1 to Q4) possibly due to the comfort level of responding to the item-question (recall the study allowed the participant to skip the question if they felt uncomfortable responding). It is observed that majority of groups formed came from the same work location (black-colored shapes versus gray-colored shapes). The thesis on looking at attachment anxiety is that the actor might experience negative emotions that he/she disconnected from the group. This also could have driven down the number of responses. Otherwise, actors who did not worry would continue to connect with the group while actors who did worry could try to change the way to connect to avoid the fear of rejection. It was a

response beyond identifying with a group (Smith et al., 1999). An assumption here is that the participant connected with the named individual if a response was provided.

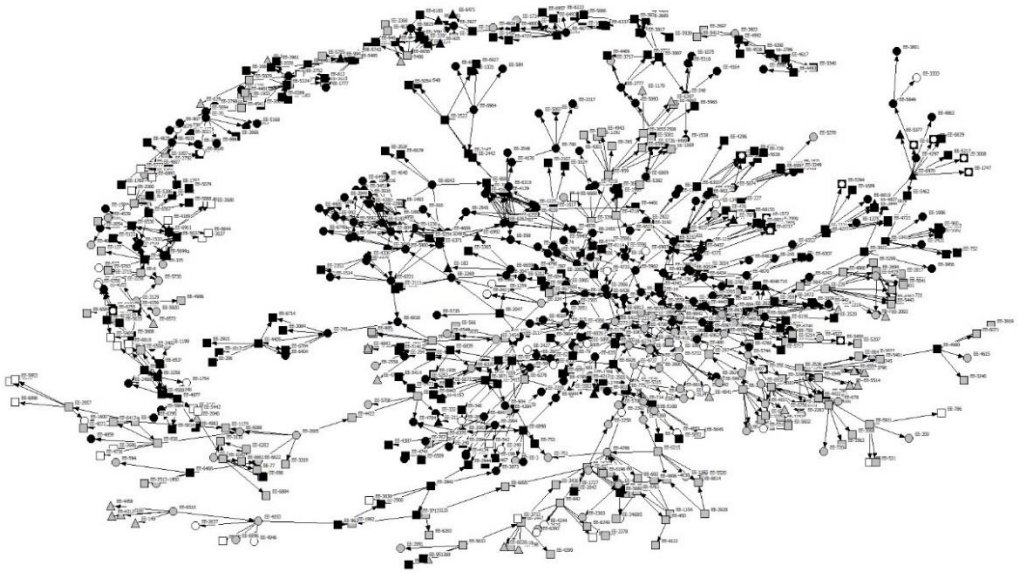


Figure 4.88 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q5

Table 4.33 List of Key Nodes (Actors) Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q5 ('Attachment' Construct) in this Study

Network Parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-4798	EE-5460	EE-3023	EE-42
Closeness centrality	EE-4442	EE-2748	EE-2690	EE-6093	EE-4737
Degree centrality	EE-6183	EE-4808	EE-6255	EE-5800	
Reach	EE-4808	EE-5744	EE-6320	EE-6436	EE-6536
Fragmenting	EE-1546	EE-2996	EE-4718	EE-4786	EE-5962
Distancing	EE-1546	EE-4786	EE-5962		

Table 4.33 lists key participants based on top betweenness centrality, closeness centrality, degree centrality, reach, fragmentation, and distancing parameters. The social network graph containing them was constructed and shown in Figure 4.89. It

can be observed that majority groupings in Figure 4.89 were formed with members from the same work location (see black-colored shapes and gray-colored shapes).

In the ‘reach’ parameter, the five listed actors have a combined reach of 203 nodes or 24.6% of the network. In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would result in disconnected groups. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would result in increased distance between groups and actors.

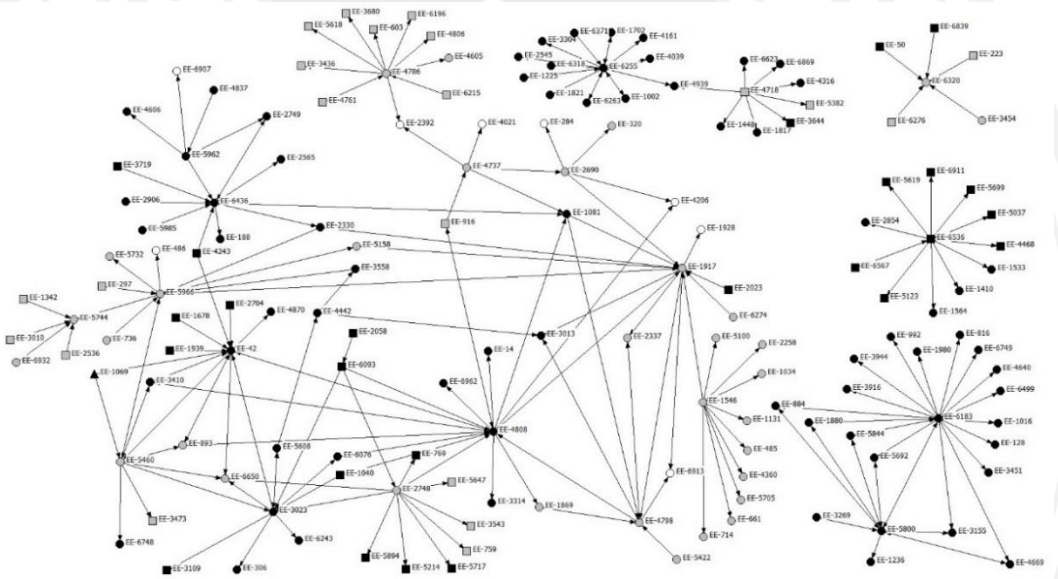


Figure 4.89 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Measures; Extracted from Table 4.33

The chain formed by EE-1917 (gray) and EE-4798 (gray) to EE-3013 (black) to EE-4442 (black) to EE-3558 (black) to EE-5966 (gray) to EE-1917 (gray) exemplified connections across work locations (connections between gray-colored and black-colored shapes). Specifically, based on recorded responses, this chain can be characterized further as,

1) EE-1917 to EE-3013: ‘worried’ (anxious) while being ‘close’.
2) EE-1917 to EE-4798: ‘worried’ (anxious) while being ‘close’.

3) EE-1917 to EE-5966: ‘worried’ (anxious) while being ‘close’.
4) EE-3013 to EE-4442: ‘worried’ (anxious) while being ‘close’.
5) EE-4442 to EE-3558: ‘worried’ (anxious) while being ‘close’.
6) EE-3558 to EE-5966: ‘worried’ (anxious) while being ‘close’.

This chain exemplified connected members from different work locations being ‘worried’ (anxious) about not receiving reciprocal appreciation or cherish (that is, being valued) although indicating being ‘close’ to each other (based on responses recorded). Members in this chain might try very hard to get the attention of those connected to them, being watchful of any signals that might indicate unfavorable situations (hence ‘worrying’), according to Richards and Schat (2011).

The other remarkable chain consisted of EE-1917 (gray) and EE-4798 (gray) to EE-4808 (black) to EE-42 (black) to EE-5460 (gray) to EE-3023 (black) to EE-2748 (gray) to EE-4808 (black). This also exemplified connections across work locations (connections between gray-colored and black-colored shapes). This chain can be characterized as,

1) EE-4808 to EE-1917: ‘not worried’ (not anxious) while being ‘close’.
2) EE-4798 to EE-4808: ‘worried’ (anxious) while being ‘close’.
3) EE-4808 to EE-42: ‘not worried’ (not anxious) while being ‘close’.
4) EE-42 to EE-5460: ‘worried’ (anxious) while being ‘close’.
5) EE-5460 to EE-3023: ‘not worried’ (not anxious) while being ‘close’.
6) EE-2748 to EE-3023: ‘worried’ (anxious) while being ‘close’.
7) EE-2748 to EE-4808: ‘worried’ (anxious) while being ‘close’.

This chain exemplified connected members from different work locations being both ‘worried’ (not anxious) and ‘not worried’ (not anxious) about not receiving reciprocal appreciation or cherish although indicating being ‘close’ to each other (based on responses recorded). Members, depending on ‘worried’ (anxious) or not, would react differently in getting attention of those connected with them based on Richards and Schat (2011).

Clusters could be characterized as follows,

1) Same work location and exhibited ‘worried’ (anxious) sentiments within the cluster were clusters centered about EE-4786, EE-6255, EE-6536, EE-6183, and EE-5800.

2) Different work locations and exhibited ‘worried’ (anxious) sentiments within the cluster were clusters centered about EE-4718, EE-6320, and EE-2748.

3) Same work location and exhibited ‘not worried’ (not anxious) sentiments within the cluster was the cluster centered about EE-1546.

4) Different work location and exhibited ‘not worried’ (not anxious) sentiments within the cluster was the cluster centered about EE-4808.

5) Different work location and exhibited a mix of ‘worried’ (anxious) and ‘not worried (not anxious) sentiments within the cluster was the cluster centered about EE-42.

A sense of ‘worry’ (indicative of ‘attachment anxiety’ under the construct ‘attachment’) could lead to lower levels of trust and reaching out, ultimately resulting in lesser connectedness (Albert et al., 2015; Kahn & Fellows, 2013; Richards & Schat, 2011). Hence knowing if such a sense of ‘worry’ existed within the organization could help with improving cohesiveness within the organization.

In the next three sub-sections, the social network graphs shown in Figure 4.88 and Figure 4.89 are re-displayed with emphasis (that is, shapes sized accordingly) on the actors with top scores in betweenness centrality, closeness centrality, and degree centrality.

4.3.7.1 Item-question Q5: ‘attachment anxiety-1’ betweenness centrality

Figure 4.90 and Figure 4.91 re-displays Figure 4.88 and Figure 4.89 respectively with an emphasis for actors with top betweenness centrality scores. Key actors listed in Table 4.33 and their associated networks were extracted and shown as Figure 4.91 since the enlarged shapes may not show well in Figure 4.90 and salient points may be illustrated better in the extracted graph.

Actors EE-4786, EE-4737, EE-6436, EE-5966, EE-42, EE-4808, EE-2748, EE-1917, EE-1546, EE-1081, and EE-3023 in Figure 4.91 were identified as

actors with higher betweenness centrality scores. As the measure indicates, these actors played key bridging roles between groups within the network. Members, through these actors, could reach other more distant players in the network. For example,

1) EE-661 (gray) could reach EE-3719 (black) through EE-1917 to EE-2330 to EE-6436.

2) EE-661 (gray) could reach EE-6932 (gray) through EE-1917 to EE-2330 to EE-5966 to EE-5744.

3) EE-3109 (black) could reach EE-714 (gray) through EE-3023 to EE-2748 to EE-4808 to EE-1917 to EE-1546.

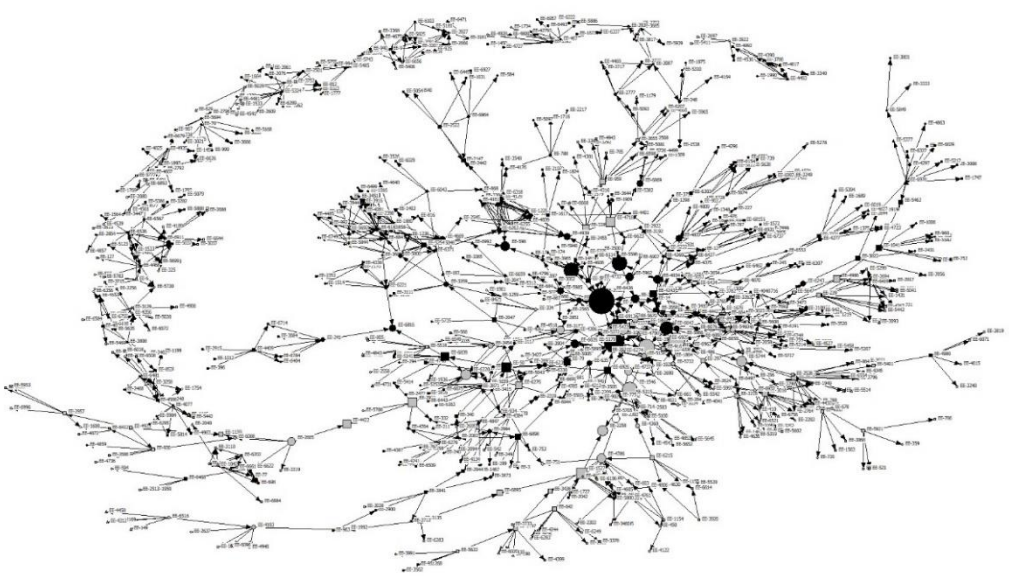


Figure 4.90 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q5 with Emphasis on Betweenness Centrality Measure

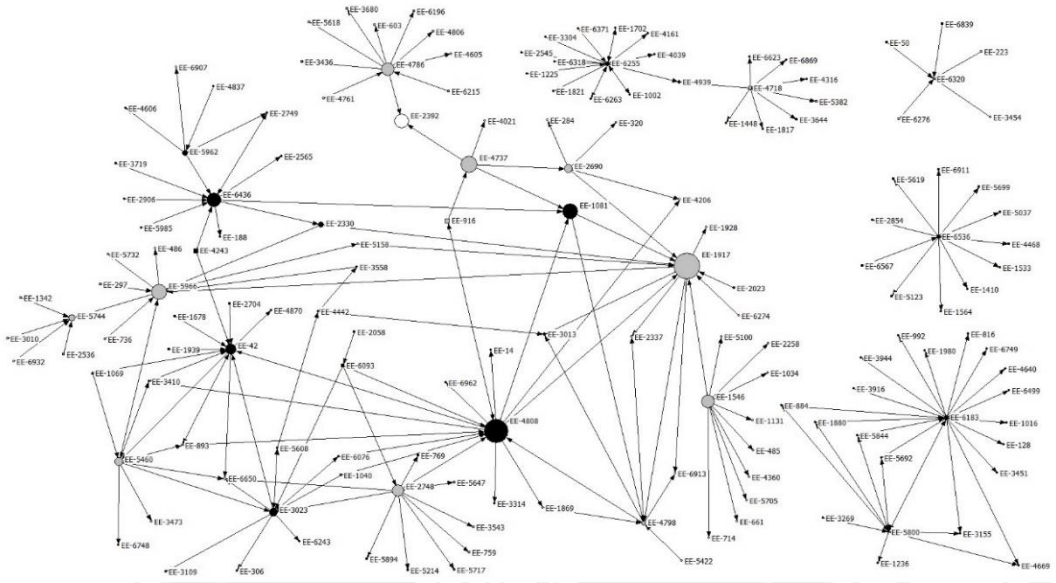


Figure 4.91 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.89 with Emphasis on Betweenness Centrality Measure

That is, it was possible for members of a work location to reach resources at another work location through the ‘bridging’ actors. Cohesion could be enhanced through expanded reach within the network through the ‘bridging’ actors. It is also important to note the ‘bridging’ actors’ attitude towards ‘worry’ (anxiety) for reciprocal appreciation or cherish under the construct ‘attachment’. Recorded responses showed,

1) ‘Worry’ (anxious): EE-4786, EE-6436, EE-5966, EE-2748, EE-1917, and EE-3023.

2) ‘Not worry’ (not anxious): EE-4808, and EE-1546.

3) Mixed (both ‘worry’ and ‘not worry’): EE-42, and EE-1081.

As indicated previously, knowing if such a sense of ‘worry’ existed within the organization could help with improving cohesiveness within the organization. It would be more critical in the case of ‘bridging’ actors as their attitudes / sentiments could affect the connections directly.

4.3.7.2 Item-question Q5: ‘attachment anxiety-1’ closeness centrality

Similarly, Figure 4.92 and Figure 4.93 re-displays Figure 4.88 and Figure 4.89 respectively with an emphasis for actors with top closeness centrality scores.

Key actors listed in Table 4.33 and their associated networks were extracted and shown as Figure 4.93 since the enlarged shapes may not show well in Figure 4.92 and salient points may be illustrated better in the extracted graph.

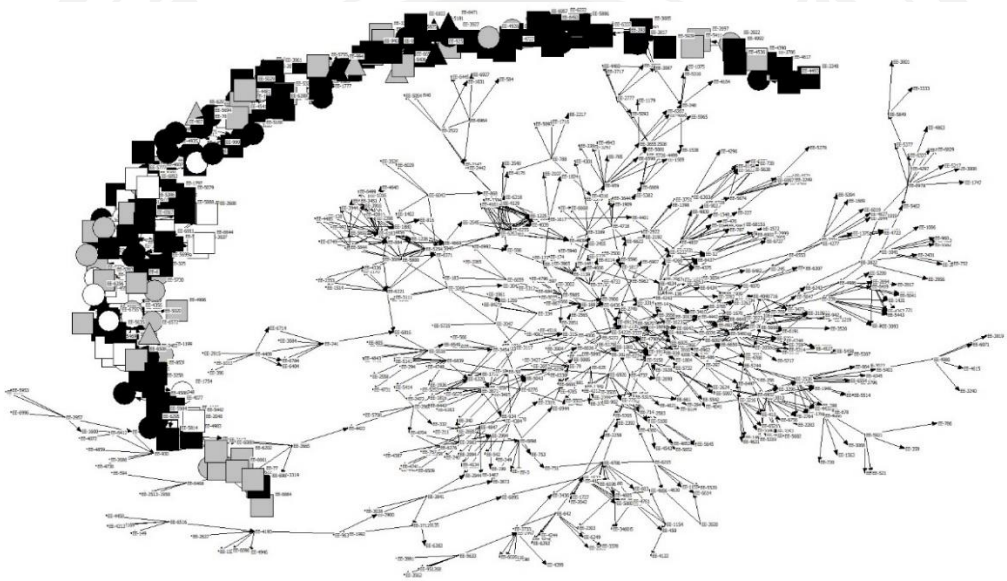


Figure 4.92 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q5 with Emphasis on Closeness Centrality Measure

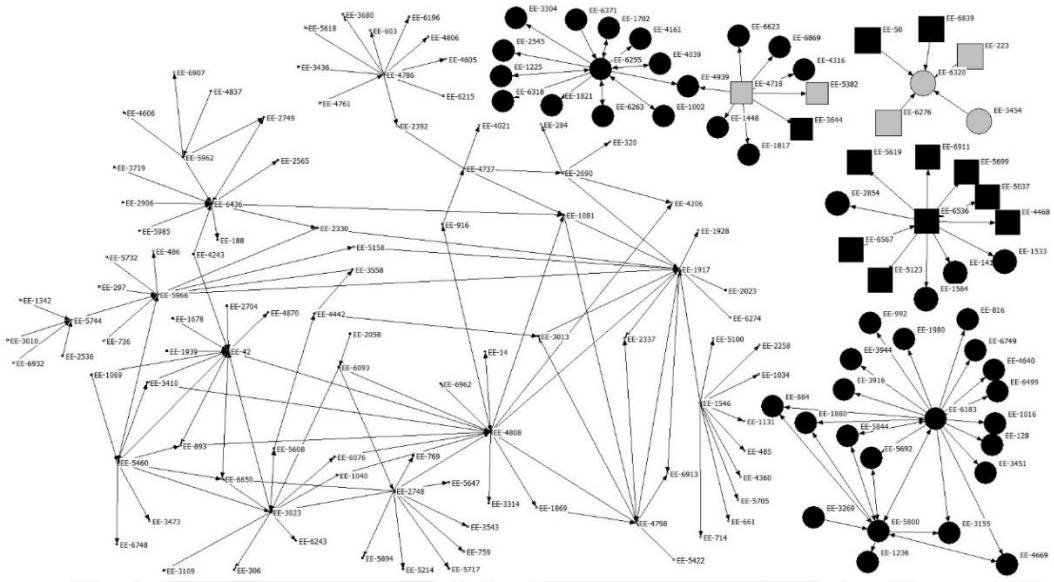


Figure 4.93 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs from Figure 4.89 with Emphasis on Closeness Centrality Measure

These actors were identified as being ‘close’ to other actors; they could be influential (that is, an influencer) in the network. As with previous observations presented in this chapter, the actors with higher closeness centrality were situated at the peripheral of the main network. The isolated actors and their related groups were not connected to other parts of the network. That is, they were ‘close’ within their own groups.

It is also important to note the clusters of ‘close’ actors’ attitude towards ‘worry’ (anxiety) for reciprocal appreciation or cherish under the construct ‘attachment’. Recorded responses showed,

1) ‘Worry’ (anxious): EE-6255, EE-4718, EE-6536, EE-6183, and EE-5800.

2) Mixed (both ‘worry’ and ‘not worry’): EE-6320.

4.3.7.2 Item-question Q5: ‘attachment anxiety-1’ degree centrality

Similarly, Figure 4.94 and Figure 4.95 re-displays Figure 4.88 and Figure 4.89 respectively with an emphasis for actors with top degree centrality scores. Degree centrality measures the number of ties to an actor.

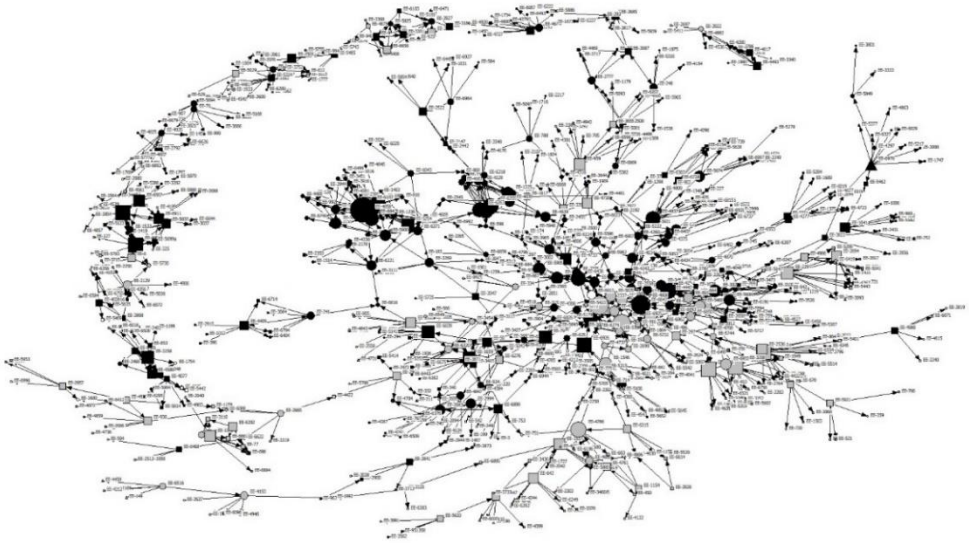


Figure 4.94 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q5 with Emphasis on Degree Centrality Measure

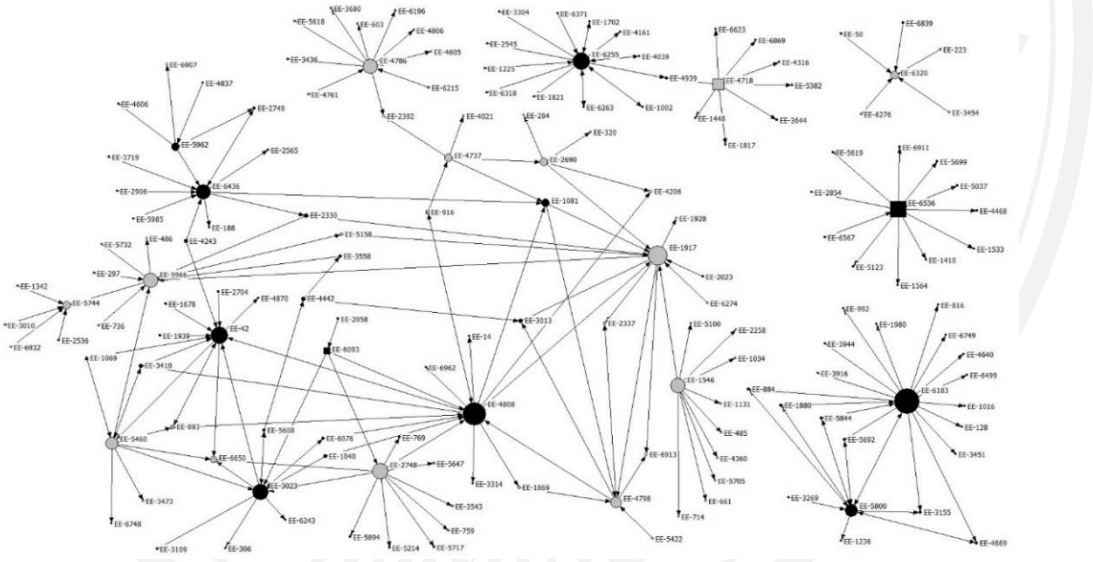


Figure 4.95 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.89 with Emphasis on Degree Centrality Measure

Like previous discussions, an actor identified in Figure 4.95 as top scorer for degree centrality could appear also as top scorer for betweenness centrality

(compare with Figure 4.91). In this study, the actors with many connections also acted as ‘bridges’ between groups and members. These actors could also link groups at different work locations together (see connections between gray-colored shapes and black-colored shapes in Figure 4.95). Actors identified with high degree centrality scores (from Figure 4.95) included EE-4808, EE-1917, EE-1546, EE-2748, EE-3023, EE-42, EE-5966, EE-6436, EE-6183, EE-6536, EE-6255, and EE-4786. All except EE-6536 and EE-6255 were also actors with high betweenness centrality scores.

It is also important to note the attitude of the actors with high degree centrality scores towards ‘worry’ (anxiety) for reciprocal appreciation or cherish under the construct ‘attachment’. Recorded responses showed,

1) ‘Worry’ (anxious): EE-1917, EE-2748, EE-3023, EE-5966, EE-6436, EE-6183, EE-6536, EE-6255, and EE-4786.
2) ‘Not worry’ (not anxious): EE-4808, and EE-1546.
3) Mixed (both ‘worry’ and ‘not worry’): EE-42.

As indicated previously, knowing if such a sense of ‘worry’ existed within the organization could help with improving cohesiveness within the organization. It would be more critical in the case of actors with many connections as their attitudes / sentiments could affect group connections directly.

In summary, the contribution of the first item of ‘attachment anxiety’ under the construct ‘attachment’ towards organization is surfacing the sense of ‘worry’ for reciprocal appreciation or cherish existing within the organization that can be addressed through interventions that would otherwise could have led to reduced interactions within the organization. However, it is also noted that the data reflected the indication at the group or team level rather than the overall organization.

The second item under the construct ‘attachment’ is discussed next.

4.3.8 Item-Question Q6: ‘Attachment Anxiety-2’

The second item under the construct ‘attachment’ is the second ‘attachment anxiety’ (Q6) item out of two. This item-question sought to affirm if the participant ‘did not worry being alone or not being accepted by the group’. While the previous question sought to understand if the participant felt a sense of worry (enquiry), this item-question sought to affirm that they did not. Thus, it was assumed that if a

participant provided a list of named individuals, the participant affirmed that he/she ‘did not worry being alone or not being accepted by the group’. Otherwise, it was expected that the participant skipped the question. The social network graph elicited from 779 nodes (actors) and 1,026 ties (connections) recorded as responses to item-question Q6 is shown in Figure 4.96. It is noted that the number of actors recorded is approximately 20% lower when compared to other item-questions (e.g., Q1 to Q4) possibly due to either, (a) the participant not being able to affirm the statement (that is, the participant worry about being alone or not being accepted by the group), or (b) comfort level of responding to the item-question (recall the study allowed the participant to skip the question if they felt uncomfortable responding). It is observed that majority of the groups formed came from the same work location (grouping of black-colored shapes versus gray-colored shapes). The thesis on looking at attachment anxiety is that the actor might experience negative emotions that he/she disconnected from the group.

This item-questionm was to affirm that the participant did not experience negative emotions or ‘worry’ (anxiety) resulting from the perceived relationships with members of the group (that is, ‘being alone’ or ‘not being accepted’). Otherwise, actors who did worry could try to change the way to connect to avoid the fear of rejection. It should be noted that the nature of this item-question is affirming that a negative emotion did not exist. In other words, it would have been a negatively scored item in a traditional survey. Hence the assumption that if the participant would not have responded if he/she could not affirm that the negative emotion did not exist. This could confuse the participant when responding due to the bipolarity nature of the response (see Russell & Carroll, 1999 for review on bipolarity affect); affirming not experiencing ‘worry’ for the named individual provided did not mean the participant did not experience ‘worry’ with others. Within the scope of this study, knowing an affirmed position provided insight to the connections between individual from the perspective that the participant would not avoid making connections with those named individuals.

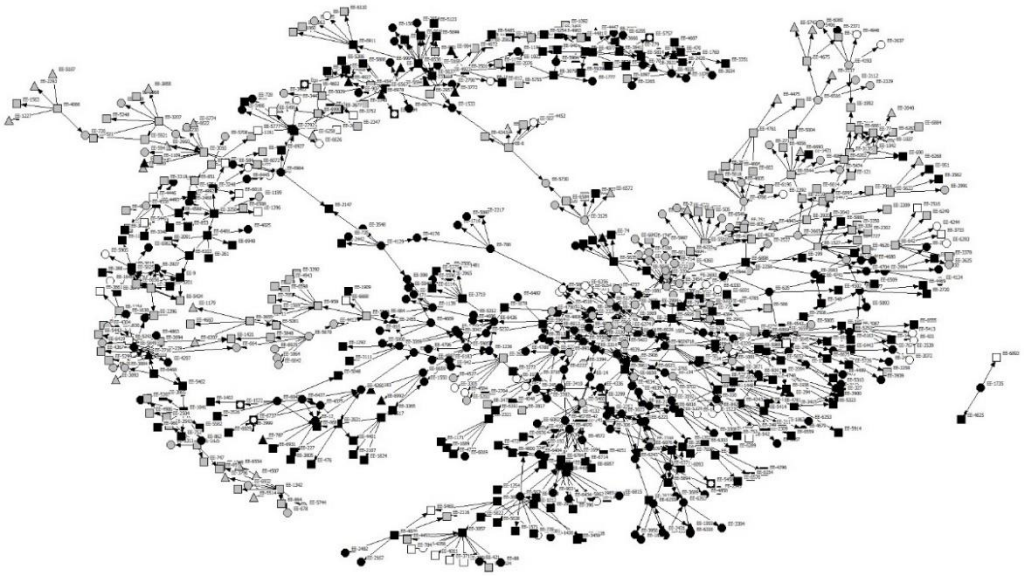


Figure 4.96 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q6.

Table 4.34 List of Key Nodes (Actors) Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q6 ('Attachment' Construct) in this Study

Network parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-42	EE-5422	EE-3157	EE-2330
Closeness centrality	EE-2690	EE-1081	EE-2565	EE-188	EE-3023
Degree centrality	EE-1917	EE-2337	EE-4837	EE-5608	EE-6839
Reach	EE-1081	EE-4837	EE-5544	EE-6436	EE-6839
Fragmenting	EE-1546	EE-3289	EE-4129	EE-4870	EE-5635
Distancing	EE-1546	EE-3289	EE-4870		

Table 4.34 lists key participants based on top betweenness centrality, closenees centrality, degree centrality, reach, fragmentation, and distancing parameters. The social network graph containing them was constructed and shown in Figure 4.97. It can be observed that majority groupings in Figure 4.97 were formed

with members from the same work location (groupings of black-colored shapes versus gray-colored shapes).

In the ‘reach’ parameter, the five listed actors have a combined reach of 180 nodes or 23.1% of the network. It is noted that this is about 10% lower than other ‘reach’ statistics discussed in this chapter (e.g., Q1 to Q4). In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would result in disconnected groups. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would result in increased distance between groups and actors.

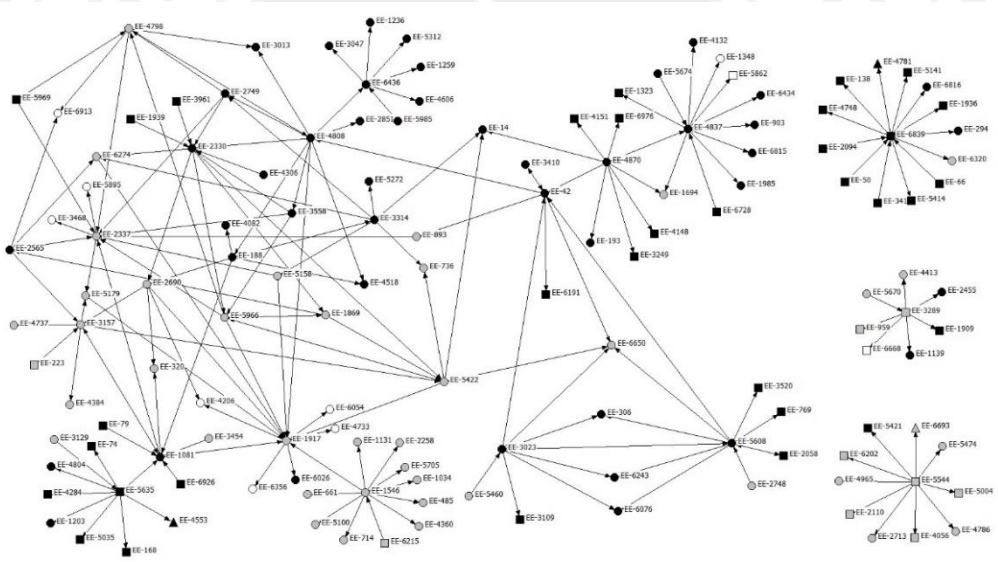


Figure 4.97 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Measures; Extracted from Table 4.34

It is remarkable that the chain formed by EE-1081 (black) to EE-1917 (gray) and EE-2337 (gray) to EE-4808 (black) and EE-2749 (black) respectively, EE-2749 (black) to EE-4798 (gray) and EE-2749 (black) to EE-4808 (black) and EE-4798 (gray) exemplified connections across work locations (connections between gray-colored shapes and black-colored shapes). In the context of this item-question, this exemplified participants from different work locations did not worry about ‘being

alone' or 'not accepted by the group' and connected anyways. This is salient in enhancing cohesion as connections between individuals enable relationships that is the building block for cohesiveness.

On closer inspection of the recorded responses, this chain can be further characterized as:

1) EE-1081 and EE-1917: reflected being in slight disagreement to the item-question, thus indicating some extent of doubt even though a list of named individuals was provided.

2) EE-2337: reflected being in slight agreement to the item-question, thus expressing some extent of sureness with the list of named individuals provided.

3) EE-4808, EE-2749, and EE-4798: reflected being in strong agreement to the item-question, thus expression sureness with the list of named individuals.

As indicated earlier, the bipolarity nature could complicate analysis and interpretation. Additional context, such as the reflection of the participants indicated in the response, provided insight that aided analysis.

It can be observed that the connections between members from different work locations allowed access to additional resources. For example, the cluster around EE-5635 (mainly black-colored) could access resources associated with the cluster around EE-1546 (gray-colored) through 'connectors' EE-1081 (black) and EE-1917 (gray). However, it must be noted that at closer inspection of the reflections of the participants that,

1) EE-5635: reflected mix of agreement and disagreement to the item-question although a list of named individuals was provided, indicating some extent of doubt.

2) EE-1546: reflected disagreement to the item-question although a list of named individuals was provided, indicating doubt.

Such insight provided would enable additional considerations rather than the assumption that connection between members from different work locations would provide access. In this case, the reflected sentiments could inhibit the access.

RQ 2 sought to understand how the constructs 'social identity' and 'attachment' contributed to organization cohesion. In this regard, although key actors

identified with key social network parameters exemplified contribution to organization cohesion (in the sense of connecting across work locations), these were limited. Thus, there is insufficient evidence to claim contribution for this item-question under the construct ‘attachment’.

In the next three sub-sections, the social network graphs shown in Figure 4.96 and Figure 4.97 are re-displayed with emphasis (that is, shapes sized accordingly) on the actors with top scores in betweenness centrality, closeness centrality, and degree centrality.

4.3.8.1 Item-question Q6: ‘attachment anxiety-2’ betweenness centrality

Figure 4.98 and Figure 4.99 re-displays Figure 4.96 and Figure 4.97 respectively with an emphasis for actors with top betweenness centrality scores. Key actors listed in Table 4.34 and their associated networks were extracted and shown as Figure 4.99 since the enlarged shapes may not show well in Figure 4.98 and salient points may be illustrated better in the extracted graph.

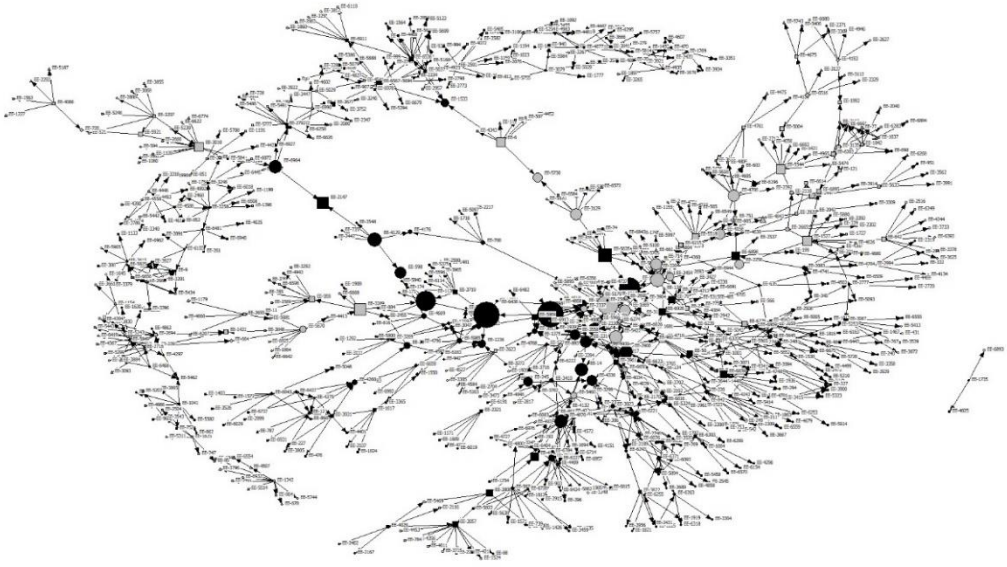


Figure 4.98 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q6 with Emphasis on Betweenness Centrality Measure

In Figure 4.99, actors EE-4808, EE-42, EE-6436, EE-1917, EE-1081, EE-5635, EE-2337, EE4780, EE-4837, EE-5608, EE-1546, EE-3157, EE-14, and EE-5422 were all identified as actors with higher betweenness centrality scores (compare with Table 4.34).

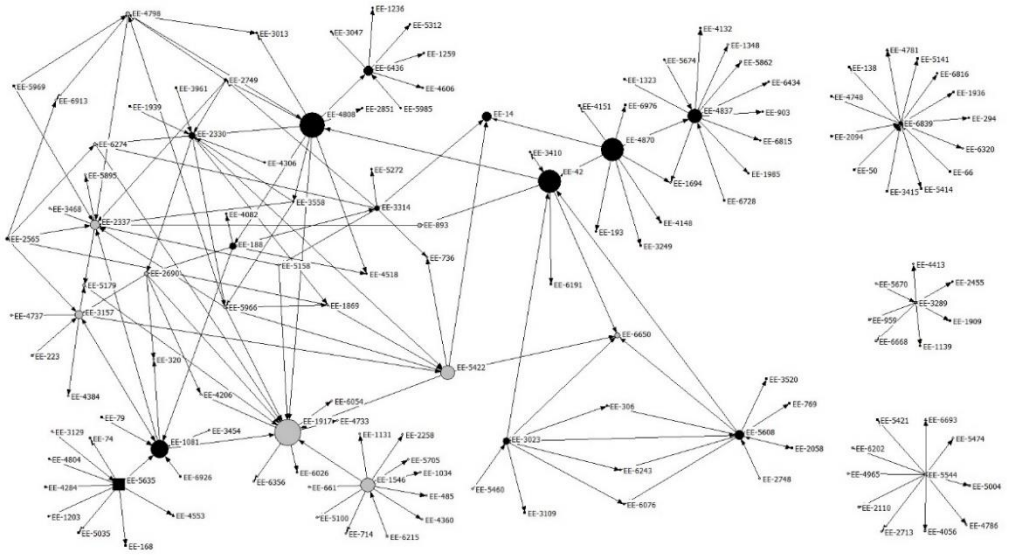


Figure 4.99 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.97 with Emphasis on Betweenness Centrality Measure

As the betweenness centrality measure indicates, these actors played key bridging roles between members within the network. Members, through these actors, could reach other more distant players in the network. For example,

1) EE-6434 (black) could reach EE-6215 (gray) through EE-4837 to EE-42 to EE-4808 to EE-1917 to EE-1546.

2) EE-233 (gray) could reach EE-1259 (black) through EE-3157 to EE-2690 to EE-1917 to EE-4808 to EE-6436.

That is, it was possible for members of a work location to reach resources at another work location through ‘bridging’ actors. Cohesion could be enhanced through expanded reach within the network through the ‘bridging’ actors. It is also important to note the ‘bridging’ actors’ attitude towards ‘being alone’ or ‘not

being accepted' in this item-question under the construct 'attachment'. Recorded responses showed,

1) 'Worry' (that is disagreement with item-question): EE-42, EE-1917, EE-1546, EE-2337, EE-6436, EE-14, EE-5422, and EE-5608.

2) 'Not worry' (that is agreement with item-question): EE-4808, EE-4870, and EE-3157,

3) Mixed (both 'worry' and 'not worry'; that is, both disagreement and agreement with item-question): EE-4837, EE-1081, and EE-5635.

Knowing if such a sense of 'worry' existed within the organization could help with improving cohesiveness within the organization. It would be more critical in the case of 'bridging' actors as their attitudes / sentiments could affect the connections directly.

4.3.8.2 Item-question Q6: 'attachment anxiety-2' closeness centrality

Similary, Figure 4.100 and Figure 4.101 re-displays Figure 4.96 and Figure 4.97 respectively with an emphasis for actors with top closeness centrality scores..

These actors (that is, groups around EE-6839, EE-3289, and EE-5544) were identified as being 'close' to other actors. The actors and their related groups were not connected to other parts of the network. That is, they were 'close' within their own groups.

It is also important to note the clusters of 'close' actors' attitude towards 'being alone' or 'not being accepted' under the construct 'attachment'. Recorded responses showed,

1) 'Worry' (anxious; disagreement with item-question): EE-6839.

2) 'Not worry' (not anxious; agreement with item-question): EE-3289 and EE-5544.

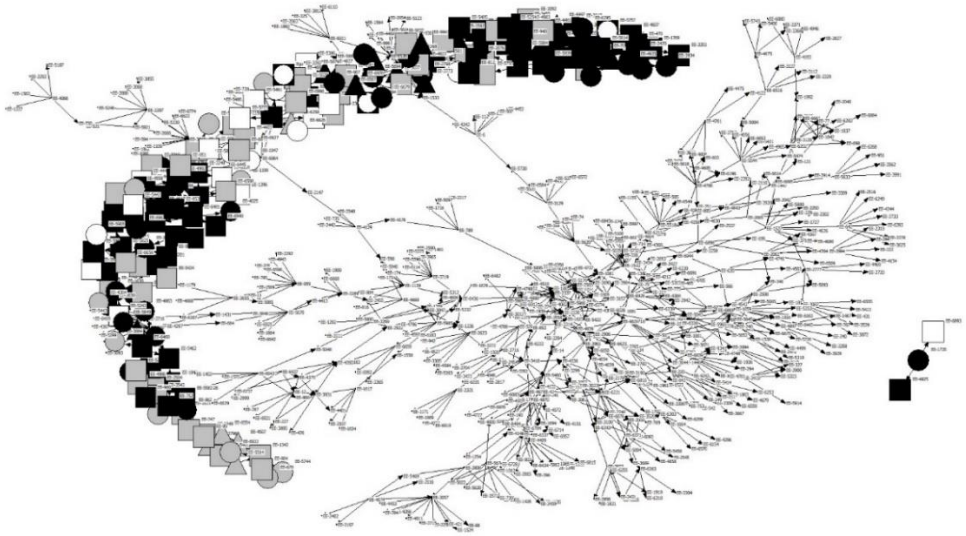


Figure 4.100 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q6 with Emphasis on Closeness Centrality Measure

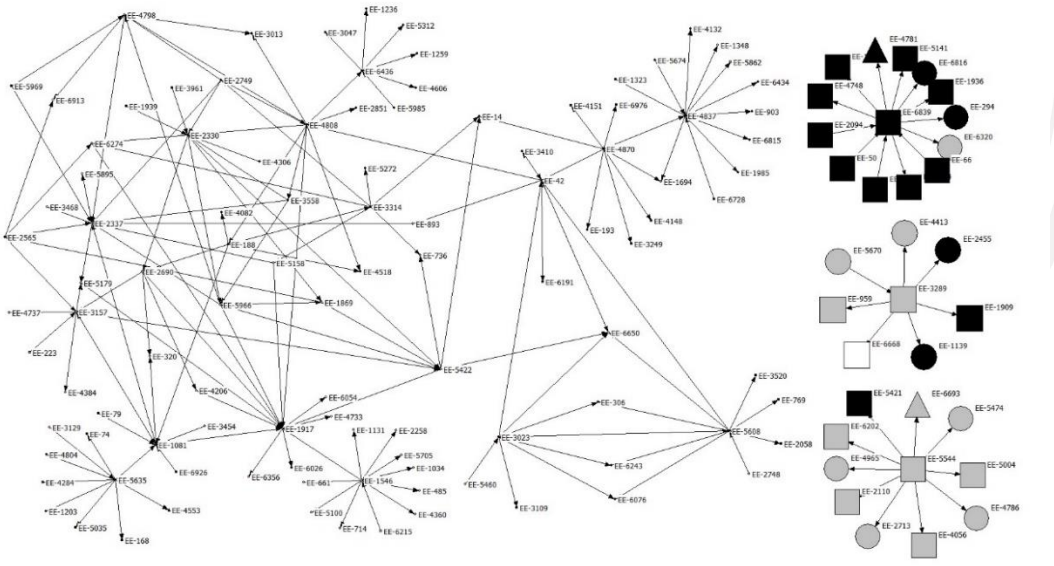


Figure 4.101 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.97 with Emphasis on Closeness Centrality Measure

As indicated previously, knowing if such a sense of ‘worry’ existed within the organization could help with improving cohesiveness within the organization. It would be more critical in the case of ‘close’ actors as their attitudes/ sentiments could affect group sentiments and ultimately ‘closeness’ of the group directly.

4.3.8.3 Item-question Q6: ‘attachment anxiety-2’ degree centrality

Similarly, Figure 4.102 and Figure 4.103 re-displays Figure 4.96 and Figure 4.97 respectively with an emphasis for actors with top degree centrality scores. Degree centrality measures the number of ties to an actor.

In this study, the actors with many connections also acted as ‘bridges’ between groups and members. These actors could also link groups at different work locations (see connections between gray-colored shapes and black-colored shapes in Figure 4.103). Actors identified with high degree centrality (see Figure 4.103) included EE-6839, EE-3289, EE-5544, EE-5608, EE-3023, EE-1546, EE-1917, EE-1081, EE-5635, EE-5422, EE-5966, EE-3157, EE-2690, EE-2337, EE-3314, EE-42, EE-4870, EE-4837, EE-4808, EE-2330, EE-6436, and EE-4798. About half of the group were actors with high betweenness centrality scores (namely, EE-1546, EE-5608, EE-1917, EE-1081, EE-5635, EE-5422, EE-3157, EE-2337, EE-42, EE-4870, EE-4837, EE-4808, and EE-6436).

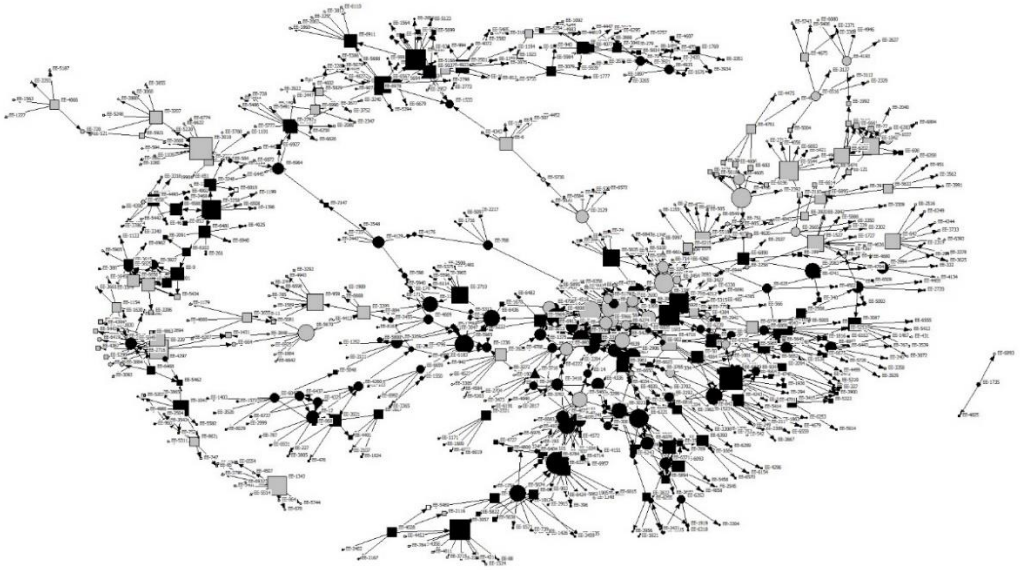


Figure 4.102 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q6 with Emphasis on Degree Centrality Measure

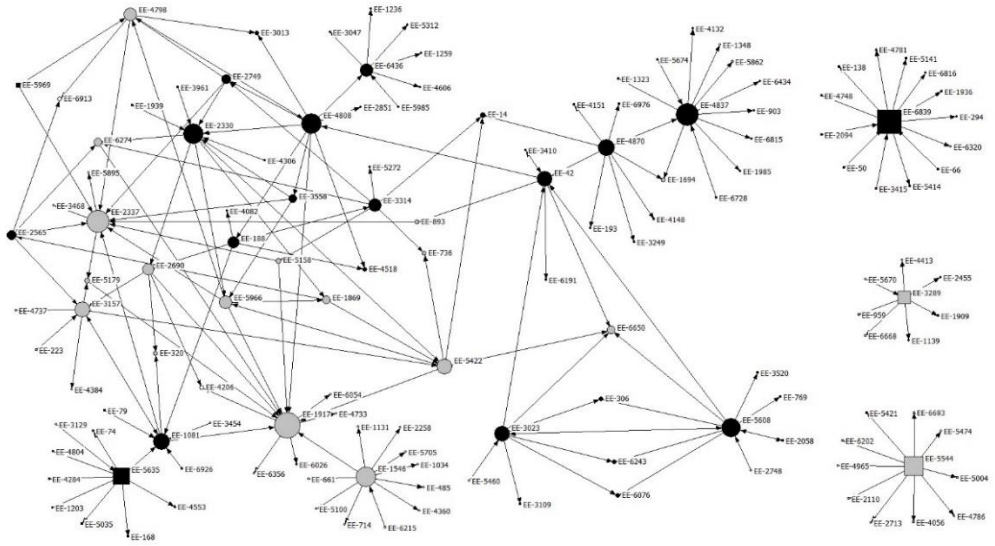


Figure 4.103 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.97 with Emphasis on Degree Centrality Measure

It is also important to note the attitudes of the actors with high degree centrality scores towards ‘being alone’ or ‘not being accepted by group’ under the construct ‘attachment’. Recorded responses showed,

1) ‘Worry’ (anxious; disagreement with item-question): EE-6839, EE-1546, EE-1917, EE-5966, EE-3157, EE-42, and EE-2330.

2) ‘Not worry’ (not anxious; agreement with item-question): EE-3289, EE-5544, EE-5608, EE-3023, EE-5422, EE-2337, EE-3314, EE-4870, EE-4808, EE-6436, and EE-4798.

3) Mixed (that is, both ‘worry’ and ‘not worry’; disagreement and agreement with item-question): EE-1081, EE-5635, EE-2690, and EE-4837.

The salient point reflected thus far for ‘attachment anxiety-2’ item-question (Q6) under the construct ‘attachment’ was bipolarity of affect that members have for the members in the network. Social network analysis could only indicate key actors within a network based on network measures (such as betweenness centrality, closeness centrality, or degree centrality). To better understand behavior within the network, attitudes of key actors toward the item-question would have to be analyzed. Such attitudes (such as not worrying about ‘being alone’ or ‘not being accepted by the group’ in this item-question) could affect how the key actor approached interaction within the network. This in turn contributes to organization cohesion. Such analysis is only possible if the survey collected data from both the social network and traditional survey perspectives. It was fortunate this was the case of this study.

The third item under the construct ‘attachment’ is discussed next.

4.3.9 Item-Question Q7: ‘Attachment Avoidance-1’

The third item under the construct ‘attachment’ is the first of ‘attachment avoidance’ (Q7) item out of two. This item-question sought to affirm if the participant preferred ‘not to depend on group’ or ‘have group depend on them’. This also affirms that the participant may avoid connecting with members in the network as ‘attachment avoidance’ would be linked to reduced intimacy, dependencies on others and reduced levels of positive emotions brought about by association with a group (Smith et al., 1999). While one way to treat the data collected is to assume that the participant provided a list of named individuals that he/she did not want to connect with, a more

constructive way is to interpret from the social network graphs elicited and the participants recorded attitude towards the relationships.

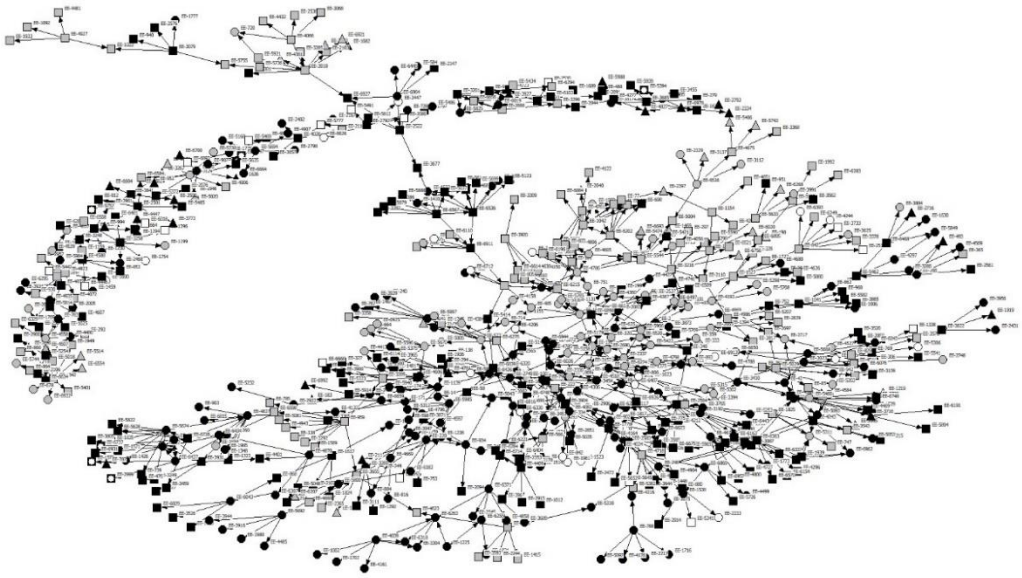


Figure 4.104 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q7

The social network graph elicited from 721 nodes (actors) and 929 ties (connections) recorded as responses to item-question Q7 is shown in Figure 4.104. It is noted that the number of actors recorded is approximately 25% lower when compared to other item-questions (e.g., Q1 to Q4) possibly due to either, 1) comfort level of responding to the item-question (recall the study allowed the participant to skip the question if they felt uncomfortabl responding), or 2) the participant is not able to affirm the statement (that is, the partipant did not prefer to ‘not depend on group’ or ‘have group depend on them’). The social network graph elicited from collected named individual pairs showed majority of the groups formed coming from the same work locations (grouping of black-colored shapes versus gray-colored shapes). This is not different than previous social network groups presented in this chapter. The thesis on looking at attachment avoidance, as described in the earlier paragraph, is that the actor might have experienced lower social support or disconnected from group due to negative affect or reduced positive affect. Knowing

the attitude of the participant would inform contribution to organization cohesion under the construct ‘attachment’. The social network analysis begins with a conventional view of network parameters measured of a typical network, without interpretation of the item-question involved.

Table 4.35 lists key participants based on top betweenness centrality, closeness centrality, degree centrality, reach, fragmentation, and distancing parameters. The social network graph containing the key actors was constructed and show in Figure 4.105.

Table 4.35 List of Key Nodes (Actors) Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q7 (‘Attachment’ Construct) in this Study

Network Parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-2330	EE-2690	EE-3314	EE-1917	EE-3558
Closeness centrality	EE-5179	EE-5272	EE-5158	EE-5966	EE-2565
Degree centrality	EE-1917	EE-4786	EE-2330	EE-3010	EE-6536
Reach	EE-1081	EE-3410	EE-6215	EE-6436	EE-6816
Fragmenting	EE-2063	EE-2749	EE-4786	EE-4986	EE-6215
Distancing	EE-2063	EE-2749	EE-4986		

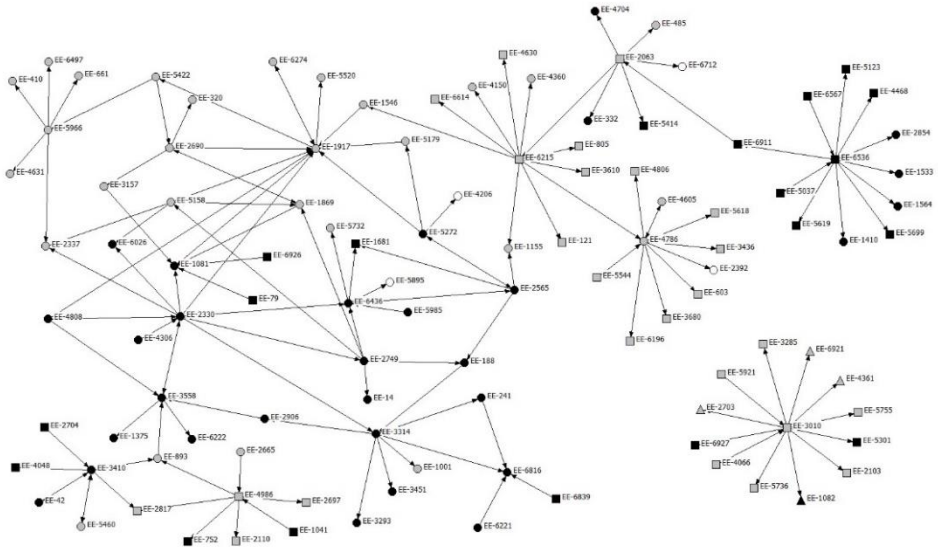


Figure 4.105 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Measures; Extracted from Table 4.35.

In the ‘reach’ parameter, the five listed actors have a combined reach of 173 nodes or 24.0% of the network. It is noted that this is about 15% lower than other ‘reach’ statistics discussed in this chapter (e.g., Q1 to Q4). In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would result in disconnected groups. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would result in increased distance between groups and actors.

Connections formed by EE-1041 (black) to EE-4986 (gray) to EE-893 (gray) to EE-3558 (black) to EE-2330 (black) to EE-1917 (gray) to EE-5272 (black) to EE-2565 (black) to EE-1155 (gray) to EE-6215 (gray) to EE-2063 (gray) to EE-6911 (black) to EE-6536 (black) exemplified connections work locations (connections between gray-colored shapes and black-colored shapes). This chain also ‘walked’ through majority of key actors in the extracted network. This exemplified participants from different work locations preferred ‘not to depend on group’ or ‘have group depend on them’. Interpreting directly would reflect a situation where members from

different work locations avoided connecting to reduce dependencies. Such interaction would contribute negatively to organization cohesion.

On closer inspection of the recorded responses, this chain could be further characterized as:

1) Agreement with item-question (that is, prefer ‘not to depend on group’ or ‘have group depend on them’ reflecting ‘attachment avoidance’): EE-1041, EE-4986, EE-3558, EE-5272, EE-2565, EE-1155, EE-6215, and EE-2063.

2) Disagreement with item-question (that is, not prefer ‘not to depend on group’ or ‘have group depend on them’ reflecting no ‘attachment avoidance’): EE-893.

3) Mixed responses (that is, both agreement and disagreement) with item-question: EE-2330, EE-1917, EE-6911, and EE-6536.

The characterization casted upon the chain would yield two ‘positive’ connections (that is, reduced or no ‘attachment avoidance’) exemplifying connections across different work locations, namely, (a) EE-893 (gray) to EE-3558 (black), and (b) EE-2330 (black) to EE-1917 (gray) to EE-5272 (black).

As mentioned in the previous section, the bipolarity nature of the question could have elicited such responses. The reflection of the participants indicated as part of the response provided additional context and insight to the analysis.

Other remarkable groups observed were clusters centered around EE-6536 (black), EE-3010 (gray), and EE-4786 (gray). Interpretation in the context of the item-question would reflect that these actors avoided interdependencies with others in the same group. However, closer inspection of the participants’ attitude toward the relationships would reflect,

1) Agreement with item-question (that is, prefer ‘not to depend on group’ or ‘have group depend on them’ reflecting ‘attachment avoidance’): EE-3010.

2) Disagreement with item-question (that is, not prefer ‘not to depend on group’ or ‘have group depend on them’ reflecting no ‘attachment avoidance’): EE-4786.

3) Mixed responses (that is, both agreement and disagreement) with item-question: EE-6536.

Thus, actor EE-3010 would be identified as a potential case to monitor in terms of ‘attachment avoidance’ with his/her associated group. In layman terms, this would make a case to monitor actor EE-3010 for anti-social behaviors.

The contribution of this item-question under the construct ‘attachment avoidance’ toward organization cohesion would be surfacing potential connections within the network indicative of reduced desire to connect and/or identifying actors (e.g., actor EE-3010) who would avoid connecting with members of group (work or otherwise).

In the next three sub-sections, the social network graphs shown in Figure 4.104 and Figure 4.105 are re-displayed with emphasis (that is, shapes sized accordingly) on the actors with top scores in betweenness centrality, closeness centrality, and degree centrality.

4.3.9.1 Item-question Q7: ‘attachment avoidance-1’ betweenness centrality

Figure 4.106 and Figure 4.107 re-displays Figure 4.104 and Figure 4.105 respectively with an emphasis for actors with top betweenness centrality scores. Key actors listed in Table 4.35 and their associated networks were extracted and shown as Figure 4.107 since the enlarged shapes may not show well in Figure 4.106.

In Figure 4.107, actors EE-6215, EE-1917, EE-1546, EE-2063, EE-2330, EE-3558, EE-893, EE-6911, and EE-6536 were all identified as actors with higher betweenness centrality scores (compare with Table 4.35).

In the tradition of betweenness centrality, actors with higher scores played bridging roles between members within the network. However, in the context of this item-question (that is, affirming if the participant preferred ‘not to depend on group’ or ‘have group depend on them’ reflecting ‘attachment avoidance’), the analysis would have to include consideration of the attitudes of the actions in the data collected.

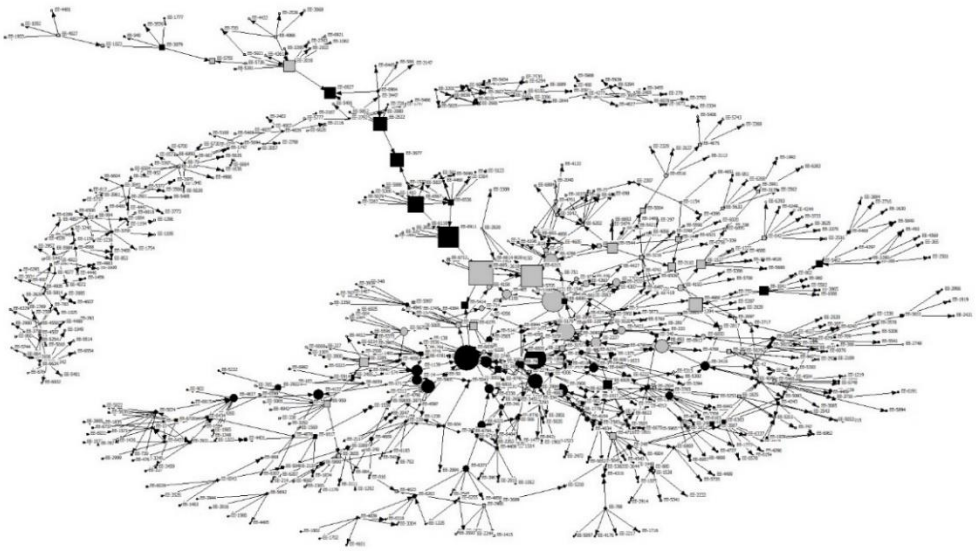


Figure 4.106 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q7 with Emphasis on Betweenness Centrality Measure

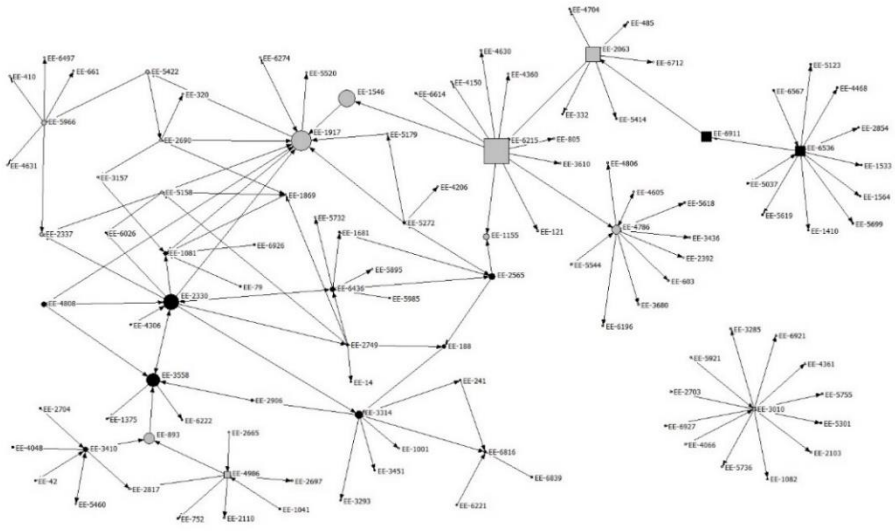


Figure 4.107 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.105 with Emphasis on Betweenness Centrality Measure

Consider the cluster centered around EE-6536 (black) linked to cluster centered around EE-2063 (gray) through EE-6911 (black; ‘bridging’ actor). Traditional social network analysis would interpret this as exemplification of

participants connecting across different work location thus enhancing organization cohesion. However, within the context of this item-question, there were risks of reduced interaction given that the attitudes reflected were mainly ‘attachment avoidant’ from the responses recorded. This demonstrated a negative contribution to organization cohesion of ‘attachment avoidance’ under the construct ‘attachment’.

On actors identified as ‘bridging’ actors with higher betweenness centrality scores, reflected attitudes could be summarized as,

1) Agreement with item-question (that is, prefer ‘not to depend on group’ or ‘have group depend on them’ reflecting ‘attachment avoidance’): EE-6215 (gray), EE-2063 (gray), and EE-3558 (black).

2) Disagreement with item-question (that is, ***not*** prefer ‘not to depend on group’ or ‘have group depend on them’ reflecting no ‘attachment avoidance’): EE-1546 (gray) and EE-893 (gray).

3) Mixed responses (that is, both agreement and disagreement) with item-question: EE-1917 (gray), EE-2330 (black), EE-6911 (black), and EE-6536 (black).

Knowing if an ‘avoidance’ sentiment existed within the network could help with improving cohesiveness within the organization. It could be more critical in the case of ‘bridging’ actors as their attitudes / sentiments could affect connections directly.

4.3.9.2 Item-question Q7: ‘attachment avoidance-1’ closeness centrality

Similarly, Figure 4.108 and Figure 4.109 re-displays Figure 4.104 and Figure 4.105 respectively with an emphasis for actors with top closeness centrality scores.

Similarly, key actors listed in Table 4.35 and their associated networks were extracted and shown as Figure 4.109. The actors (that is, the sole group centered around EE-3010) were identified as being ‘close’ (that is, with higher closeness centrality scores being one step away with no other connections).

As indicated previously, knowing if an ‘avoidance’ sentiment existed within the network could help improve cohesiveness within the organization.

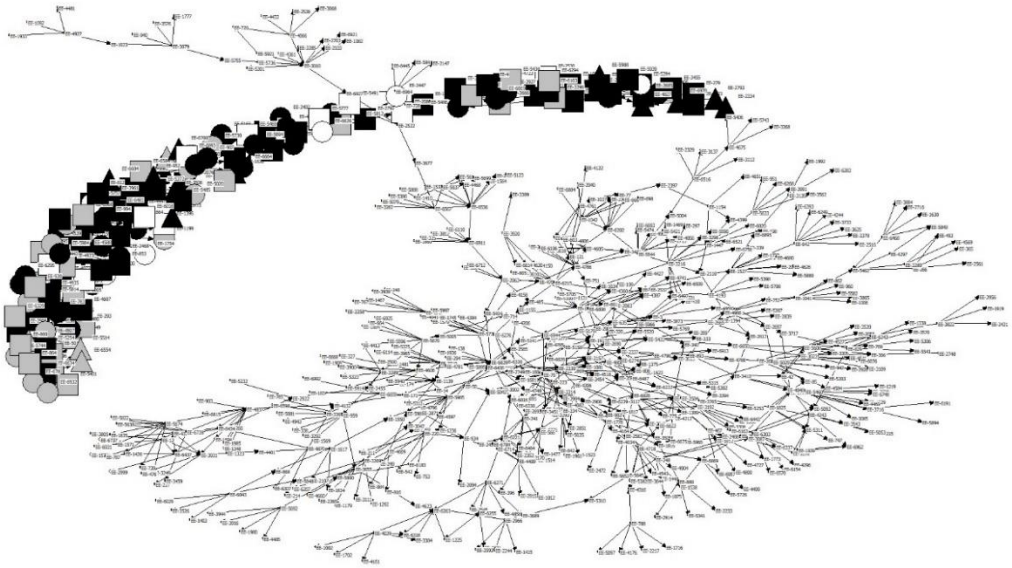


Figure 4.108 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q7 with Emphasis on Closeness Cenrality Measure

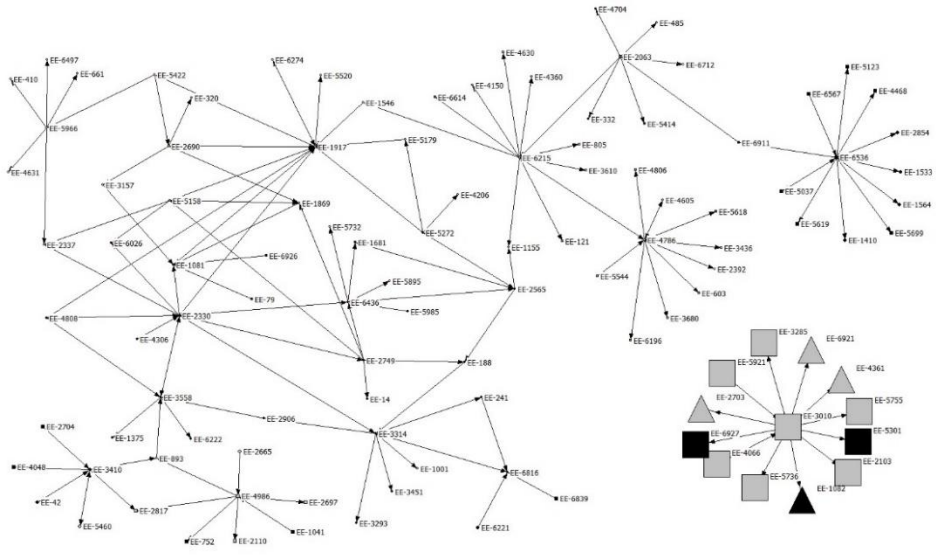


Figure 4.109 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.105 with Emphasis on Closeness Centrality Measure

4.3.9.3 Item-question Q7: ‘attachment avoidance-1’ degree centrality

Similarly, Figure 4.110 and Figure 4.111 re-displays Figure 4.104 and Figure 4.105 respectively with an emphasis for actors with top degree centrality scores. Recall that degree centrality measures the number of ties to an actor.

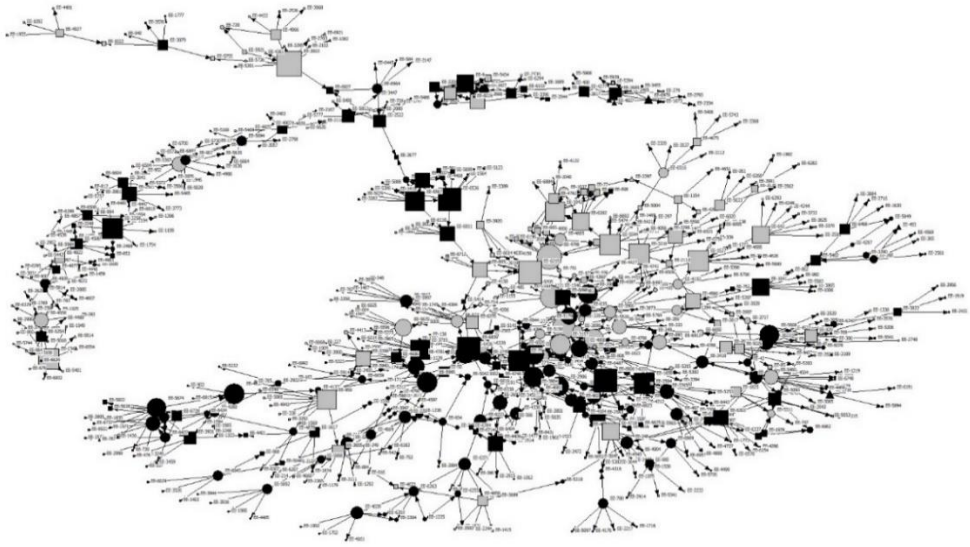


Figure 4.110 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q7 with Emphasis on Degree Centrality Measure

Actors identified with high degree centrality (see Figure 4.111) included EE-6536, EE-3010, EE-2063, EE-6215, EE-4786, EE-1917, EE-2330, EE-3314, EE-4986, EE-3410, EE-6436, EE-2749, EE-5966, EE-2690, EE-5158, EE-1869, EE-2565, and EE=1081, of whom EE-6536, EE-2063, EE-6215, EE-1917, and EE-2330 were identified earlier as actors with high betweenness centrality scores.

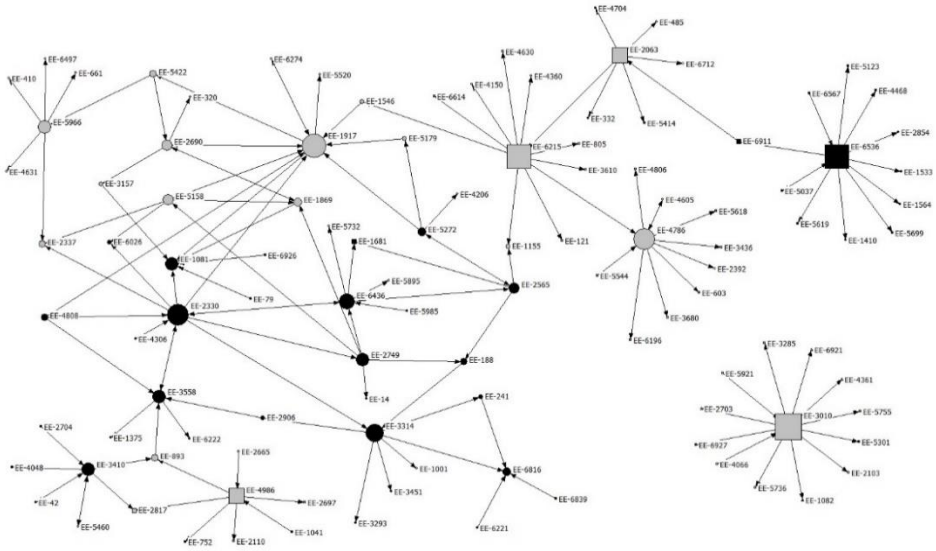


Figure 4.111 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.105 with Emphasis on Degree Centrality Measure

In the context of item-question Q7 (that is, affirming if the participant preferred ‘not to depend on group’ or ‘have group depend on them’ reflecting ‘attachment avoidance’), the analysis would have to include consideration of the attitudes of the actors in the data collected. Recorded responses showed,

1) Agreement with item-question (that is, prefer ‘not to depend on group’ or ‘have group depend on them’ reflecting ‘attachment avoidance’): EE-3010 (gray), EE-2063 (gray), EE-6215 (gray), EE-3314 (black), EE-4986 (gray), EE-6436 (black), EE-1869 (gray), and EE-2565 (black).

2) Disagreement with item-question (that is, not prefer ‘not to depend on group’ or ‘have group depend on them’ reflecting no ‘attachment avoidance’): EE-4786 (gray), EE-3410 (black), and EE-2749 (black).

3) Mixed responses (that is, both agreement and disagreement) with item-question: EE-6536 (black), EE-1917 (gray), EE-2330 (black), EE-5966 (gray), EE-2690 (gray), EE-5158 (gray), and EE-1081 (black).

The salient point reflected thus far for ‘attachment avoidance-1’ item-question (Q7) under the construct ‘attachment’ was the participants’ attitude toward connecting (and interacting) with others in the network. Social network analysis could

only indicate key actors within a network based on network measures (such as betweenness centrality, closeness centrality, or degree centrality). To better understand behavior within the network and correctly ascertain appropriate targets for developmental interventions, attitudes of key actors toward the item-question would have to be analyzed.

The final item, ‘attachment avoidance-2’, under the construct ‘attachment’ is discussed next.

4.3.10 Item-Question Q8: ‘Attachment Avoidance-2’

The fourth and final item under the construct ‘attachment’ is the second of ‘attachment avoidance’ (Q8) item out of two. This item-question sought to affirm if the participant ‘wanted to feel completely as one with group’. This also affirms that the participant would not avoid connecting with members in the network. In fact, this could affirm that the participant wanted to connect with members in the network. It was assumed that the participant provided a list of named individuals that he/she wanted to connect with (that is, ‘feel completely as one with’).

The social network graph elicited from 1,059 nodes (actors) and 1,749 ties (connections) recorded as responses to item-question Q8 is shown in Figure 4.112. It is noted that the number of actors recorded is comparable to other item-questions (e.g., Q1 to Q4) possibly due to the ‘positive’ (affirmative) tone of the survey question. It is observed that majority of groups formed came from the same work location (black-colored shapes versus gray-colored shapes). The thesis on looking at attachment avoidance is that the actor might experience negative emotions that he/she disconnected from the group. On the other hand, the actor might experience positive emotions (that is, ‘feel completely as one with’) that he/she would enhance connection and interaction with the group.

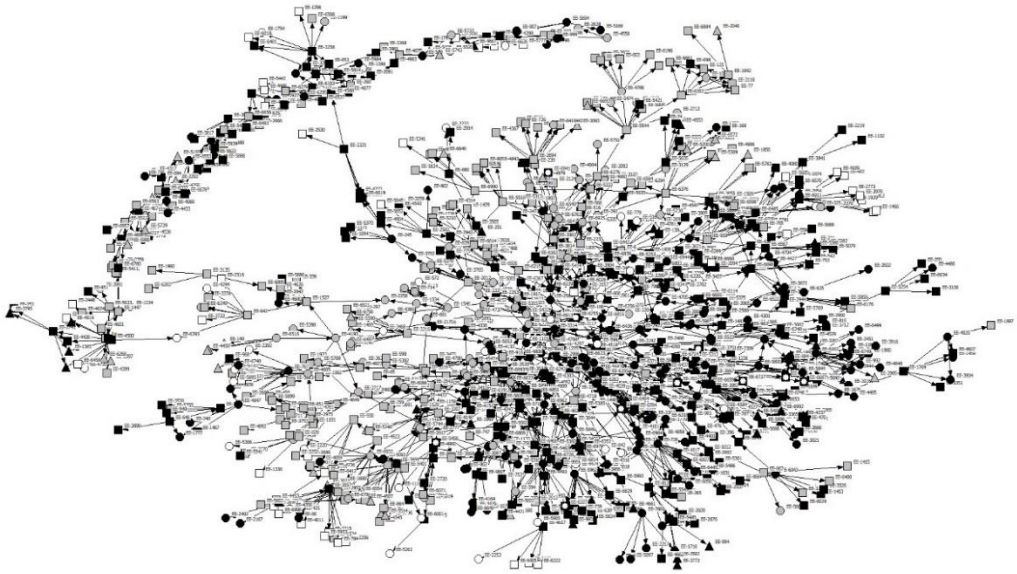


Figure 4.112 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q8

Table 4.36 List of Key Nodes (Actors) Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Scores from the Social Network Graph Elicited from the Responses Received for Item-Question Q8 ('Attachment' Construct) in this Study

Network Parameter	**Top**	**Second**	**Third**	**Fourth**	**Fifth**
Betweenness centrality	EE-4808	EE-4798	EE-1869	EE-3023	EE-5670
Closeness centrality	EE-6437	EE-3931	EE-4375	EE-12	EE-1529
Degree centrality	EE-6183	EE-4808	EE-2337	EE-42	EE-3023
Reach	EE-1917	EE-4129	EE-4808	EE-5744	EE-6567
Fragmenting	EE-136	EE-1527	EE-245	EE-6276	EE-6926
Distancing	EE-136	EE-1527	EE-6276		

Table 4.36 lists key participants based on top betweenness centrality, closeness centrality, degree centrality, reach, fragmentation, and distancing parameters. The social network graph containing them was constructed and shown in Figure 4.113. It can be observed that majority groupings in Figure 4.113 (e.g., cluster centered around

EE-6183, EE-6567, EE-5744, EE-5670, and EE-136) were formed with members from the same work location (see black-colored shapes and gray-colored shapes).

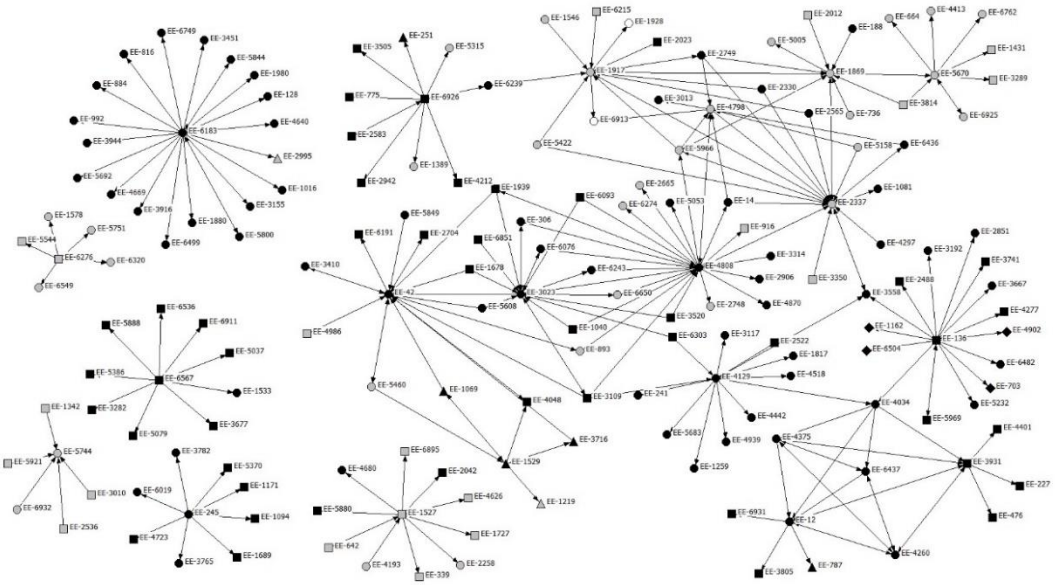


Figure 4.113 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Based on Betweenness, Closeness, Degree, Reach, Fragmenting, and Distancing Measures; Extracted from Table 4.36

In the ‘reach’ parameter, the five listed actors have a combined reach of 248 nodes or 23.4% of the network. In the ‘fragmenting’ parameter (based on betweenness centrality scores), the five listed actors, if removed, would result in disconnected groups. In the ‘distancing’ parameter (based on closeness centrality scores), the three listed actors, if removed, would result in increased distance between groups and actors.

The chain formed by EE-5670 (gray) to EE-1869 (gray) to EE-2337 (gray) to EE-4808 (black) and EE-3558 (black) to EE-3023 (black) and EE-136 (black), EE-4129 (black) respectively exemplified connections across work locations (connections between gray-colored shapes and black-colored shapes). Other remarkable observations exemplifying connections across work locations included,

1) Cluster centered around EE-1527 (gray): connecting with EE-4680 (black), EE-5880 (black), and EE-2042 (black) amongst other members from work location B (gray-colored shapes).

2) Cluster centered around EE-6926 (black): connecting with EE-5315 (gray) and EE-1389 (gray) amongst other members from work location A (black-colored shapes).

A sense of 'attachment avoidance' under the construct 'attachment' could lead to lower social support for the actor (Simpson et al., 1992) and the actor distrusting others (Reis & Patrick, 1996). Knowing if such a sense existed within the network contributes to organization cohesiveness through appropriate interventions.

In the next three sub-sections, the social network graphs shown in Figure 4.112 and Figure 4.113 are re-displayed with emphasis (that is, shapes sized accordingly) on the actors with top scores in betweenness centrality, closeness centrality, and degree centrality.

4.3.10.1 Item-question Q8: 'attachment avoidance-2' betweenness centrality

Figure 4.114 and Figure 4.115 re-displays Figure 4.112 and Figure 4.113 respectively with an emphasis for actors with top betweenness centrality scores. Key actors listed in Table 4.36 and their associated networks were extracted and shown in Figure 4.115 since the enlarged shapes may not show well in Figure 4.114 and salient points may be illustrated better in the extracted graph.

In Figure 4.115, actors EE-2337 (gray), EE-4808 (black), EE-3558 (black), EE-136 (black), EE-4129 (black), EE-1869 (gray), EE-1917 (gray), EE-42 (black), EE-3109 (black), EE-4034 (black), EE-6239 (black), and 6926 (black) were identified as actors with higher betweenness centrality scores. As the measure indicates, these actors played key briedging roles between groups within the network. In the traditional social network analysis perspective, members could reach other more distant players in the network through these actors. For example,

1) EE-775 (black) could reach EE-2012 (gray) through EE-6926 to EE-6239 to EE-1917 to EE-1869.

2) EE-1431 (gray) could reach EE-3117 (black) through EE-5670 to EE-1869 to EE-2337 to EE-3558 to EE-4129.

3) EE-3192 (black) could reach EE-5005 (gray) through EE-136 to EE-3558 to EE-2337 to EE-1869.

That is, it was possible for members of a work location to reach resources at another work location through the ‘bridging’ actors (which Netdraw visualized in a manner appropriate to this study). This exemplification contributed to organization cohesion.

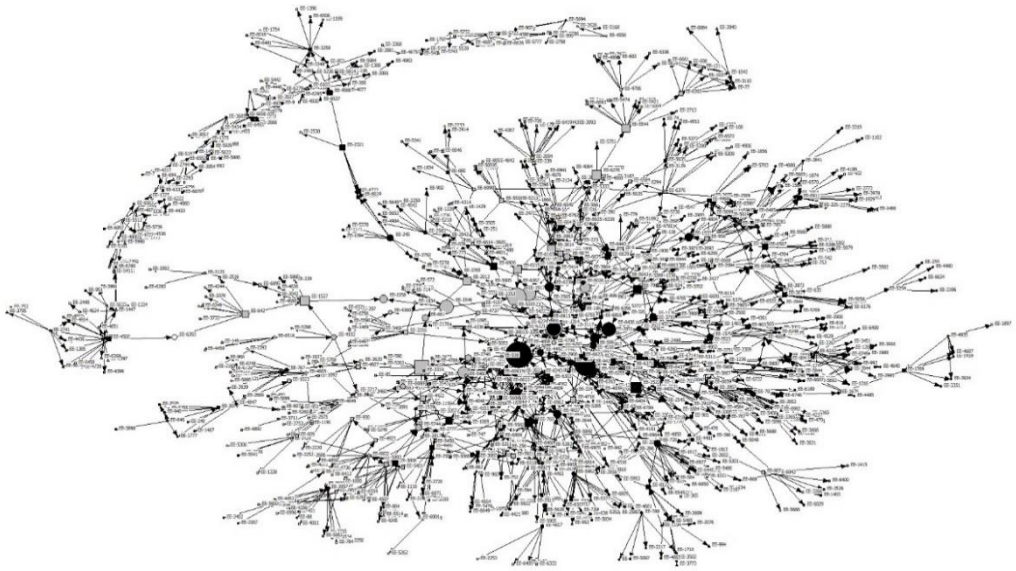


Figure 4.114 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q8 with Emphasis on Betweenness Centrality Measure

It is also important to examine the attitudes reflected by the key actors identified with higher betweenness centrality scores toward their named individuals. Recorded responses showed,

1) Affirmative responses to item-question (that is, agreement with ‘feeling completely as one with’): EE-2337, EE-3558, EE-4129, EE-1869, EE-42, EE-3109, EE-4034, EE-6239, and EE-6926.

2) Negative response to item-question (that is, disagreement with ‘feeling completely as one with’): none.

3) Mixed responses to item-question (that is, both agreement and disagreement with ‘feeling completely as one with’): EE-4808, EE-1917, and EE-136.

As indicated previously, knowing if such a sense of ‘attachment avoidance’ (that is, disagreement with ‘feeling completely as one with’) existed within the network could help with improving organization cohesion. It would be more critical in the case of ‘bridging’ actors as their attitudes / sentiments could affect the connections directly.

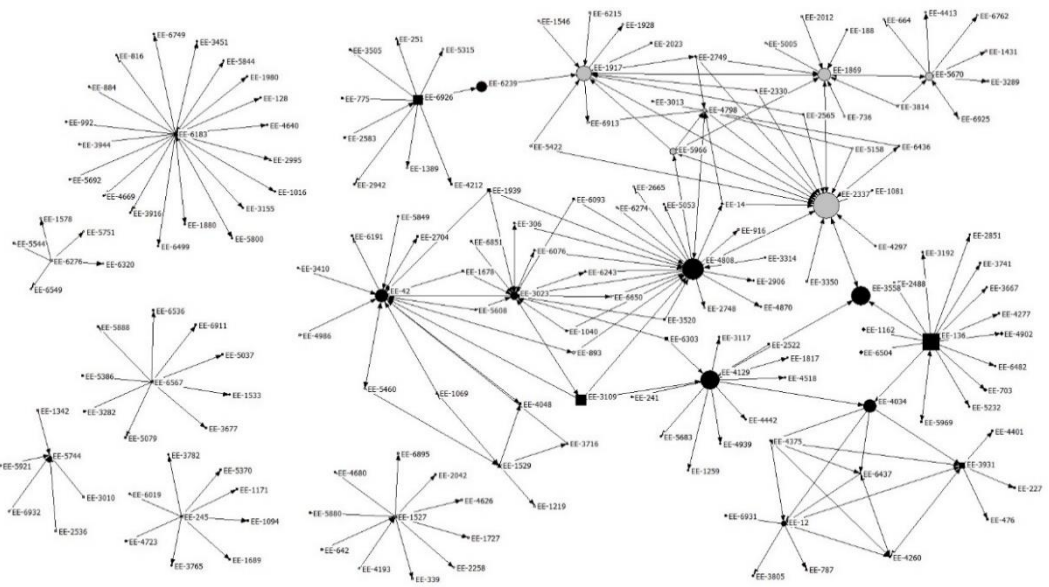


Figure 4.115 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.113 with Emphasis on Betweenness Centrality Measure

4.3.10.2 Item-question Q8: ‘attachment avoidance-2’ closeness centrality

Similarly, Figure 4.116 and Figure 4.117 re-displays Figure 4.112 and Figure 4.113 respectively with an emphasis for actors with top closeness centrality scores. Key actors listed in Table 4.36 and their associated networks were extracted and shown in Figure 4.117 since the enlarged shapes may not show well in Figure 4.116 as the main network is large with 1,059 nodes and 1,749 ties. Salient points may be illustrated better in the extracted graph (Figure 4.117).

These actors, namely, clusters centered around EE-6182 (black), EE-6276 (gray), EE-6567 (black), EE-5744 (gray), EE-245 (black), and EE-1527 (black), were identified as being ‘close’ to others as they are within one step to each other with

no other connections. It is important to note the attitudes of the key actors' attitudes toward members of their group. Recorded responses showed,

1) Affirmative responses to item-question (that is, agreement with 'feeling completely as one with'): EE-6183 (black), EE-6276 (gray), EE-5744 (gray), EE-245 (black), and EE-1527 (gray).

2) Negative response to item-question (that is, disagreement with 'feeling completely as one with'): none.

3) Mixed responses to item-question (that is, both agreement and disagreement with 'feeling completely as one with'): EE-6567 (black).

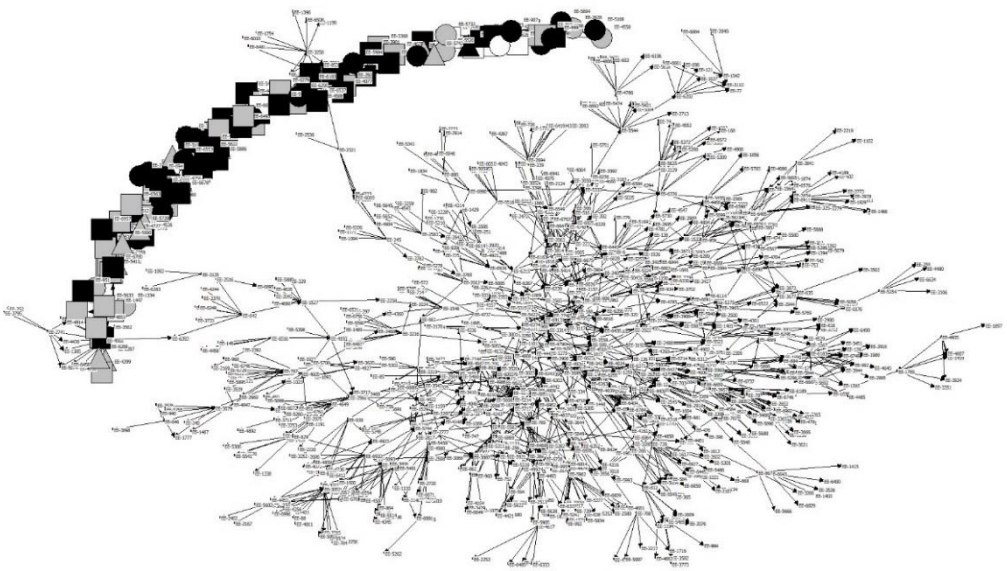


Figure 4.116 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q8 with Emphasis on Closeness Centrality Measure

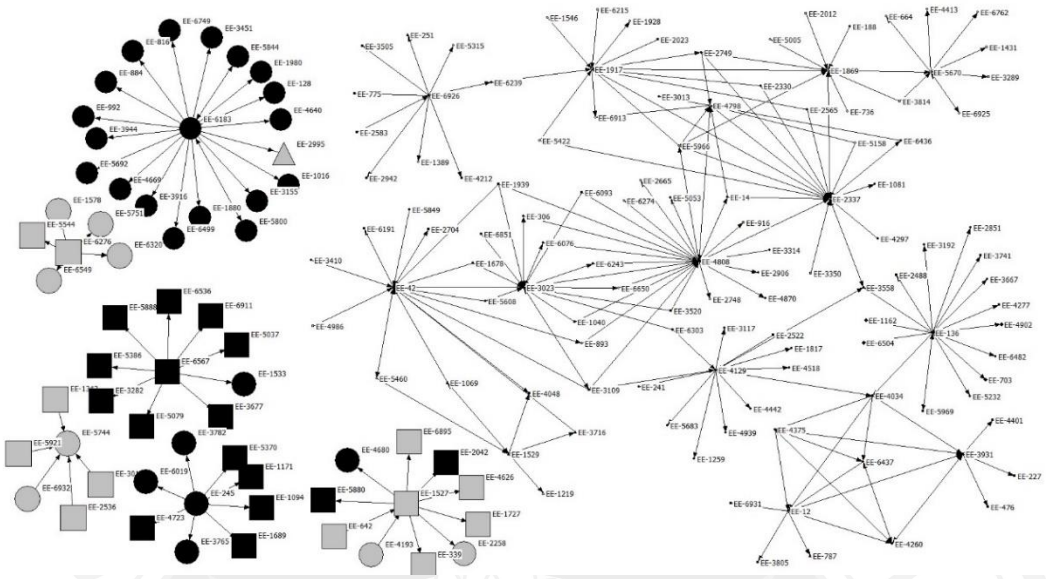


Figure 4.117 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.113 with Emphasis on Closeness Centrality Measure

4.3.10.3 Item-question Q8: ‘attachment avoidance-2’ degree centrality

Similarly, Figure 4.118 and Figure 4.119 re-displays Figure 4.112 and Figure 4.113 respectively with an emphasis for actors with top degree centrality scores. Degree centrality measures the number of ties to an actor.

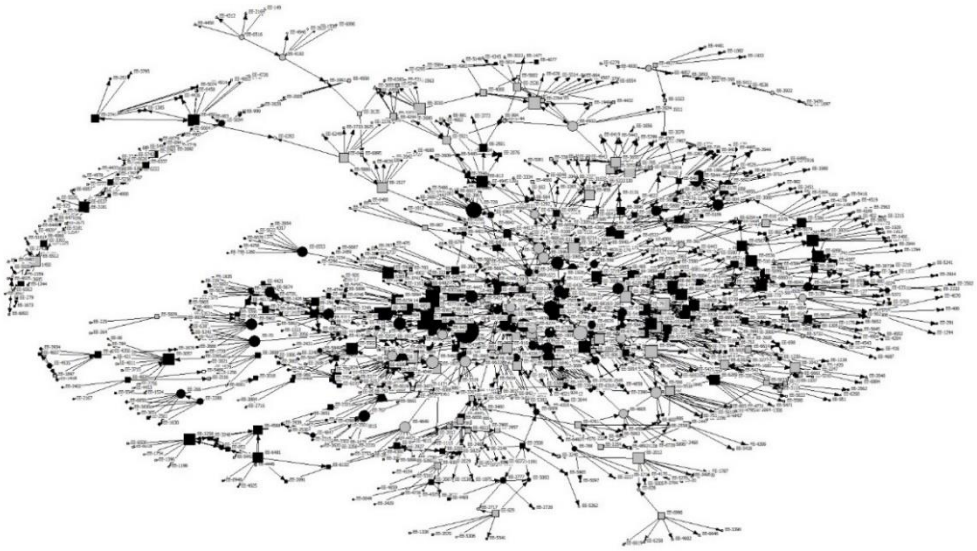


Figure 4.118 Social Network Graph Elicited from Participants and Named Individual Pairs Recorded as a Response to Item-Question Q8 with Emphasis on Degree Centrality Measure

In this study, the actors with many connections also acted as ‘bridges’ between groups and members. Actors identified with high degree centrality scores (from Figure 4.119) included EE-4808 (black), EE-3023 (black), EE-42 (black), EE-136 (black), EE-6183 (black), EE-2337 (gray), EE-4129 (black), EE-1917 (gray), EE-1869 (gray), EE-1527 (gray), EE-6567 (black), EE-245 (black), EE-6926 (black), EE-4798 (gray), EE-5670 (gray), EE-3931 (black), EE-12 (black) of whom EE-4808, EE-42, EE-136, EE-2337, EE-4129, EE-1917, EE-1869, and EE-6926 were also identified as actors with high betweenness centrality scores.

In item-question Q8, the analysis would have to include consideration of the attitudes of the actors in the data collected. Recorded responses showed,

1) Affirmative responses to item-question (that is, agreement with ‘feeling completely as one with’): EE-42 (black), EE-6183 (black), EE-4129 (black), EE-1869 (gray), EE-1527 (gray), EE-245 (black), EE-6926 (black), EE-5670 (gray), EE-3931 (black), and EE-12 (black).

2) Negative response to item-question (that is, disagreement with ‘feeling completely as one with’): none.

3) Mixed responses to item-question (that is, both agreement and disagreement with ‘feeling completely as one with’): EE-4808 (black), EE-3023 (black), EE-136 (black), EE-2337 (gray), EE-6567 (black), EE-1917 (gray), and EE-4798 (gray).

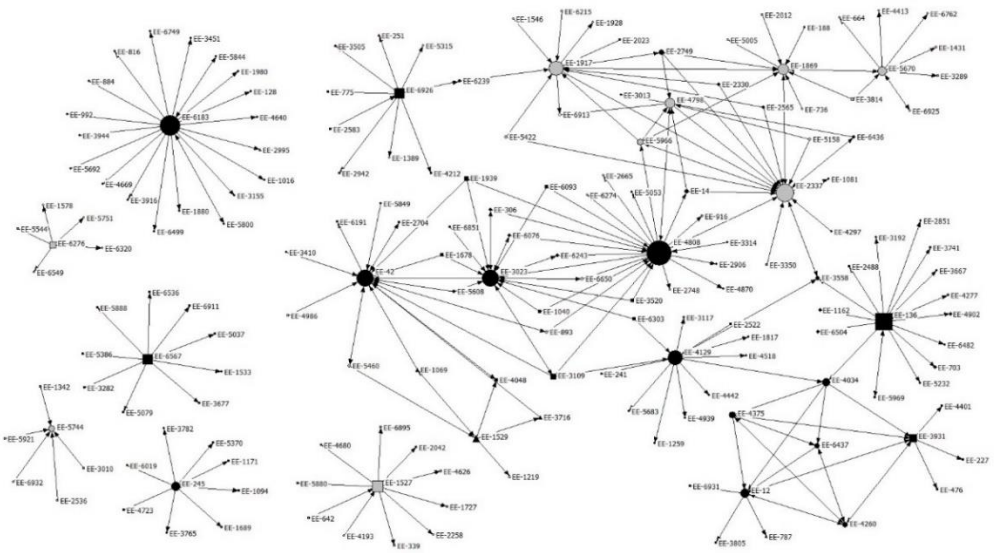


Figure 4.119 Social Network Graph Elicited for Identified Key Participants and Named Individual Pairs Extracted from Figure 4.113 with Emphasis on Degree Centrality Measure

In the context of item-question ‘attachment avoidance-2’ (Q8), responses recorded as agreement or disagreement with the item-question reflected the participants’ attitude towards avoiding connections with members of the network. Such attitudes could affect connections within the network, thus contributing (either positively or negatively) to organization cohesion.

The four items under the construct ‘attachment’ have been reviewed using social network analysis together with insight from attitudes reflected in the responses recorded for the item-questions and presented above. A summary of the findings is provided next.

4.3.11 Summary for ‘Attachment’ Construct

Four items (two items on ‘attachment anxiety’ and two items on ‘attachment avoidance’) under the construct ‘attachment’ have been reviewed extensively. The findings discussed can summarized as follows,

1) Network statistics presented (e.g., cohesion measures) did not support the thesis that ‘attachment’ contributed to cohesion in a post-merger organization. In fact, in the tradition of social network analysis, the low cohesion observed in the social network graphs elicited from the data collection could indicate ‘attachment’ inhibiting cohesion.

2) However, in the context of ‘attachment anxiety’ and ‘attachment avoidance’, a low cohesion would indicate low ‘anxiety’ and/or ‘avoidance’ across the network, which theoretically should imply or aid cohesion. ‘Attachment anxiety-1’ and ‘attachment avoidance-1’ were positively scored. That is, affirming the item-question would mean ‘anxious’ and/or ‘avoidant’. A low cohesion in the social network indicated lesser undesirable connections and hence supported the thesis that ‘attachment’ contributed to cohesion in a post-merger organization. On the other hand, ‘attachmment anxiety-2’ and ‘attachment avoidance-2’ were negatively scored. That is, affirming the item-question would mean the ‘non-anxious’ and/or ‘non-avoidant’. A low cohesion in the social network would inhibit cohesion as the thesis expected connections. An additional layer was the bipolarity nature of the item-question and the elicited social network graphs had to be analyzed using insight to the attitudes of the participants reflected in the responses to the item-questions. Such analysis possibly only if the survey collected data from both the social network and traditional survey perspectives. A salient point is that not affirming did not necessarily mean denial or negation (Rumfitt, 2000) due to the nature of the item-questions.

3) The review of social network graphs elicited for all the items concluded with no strong evidence supporting the thesis that ‘attachment’ contributed to cohesion in a post-merger organization but instead offered evidence supporting the thesis that ‘attachment’ influenced or affected cohesion in a post-merger organization. ‘Attachment’ was ascertained to be beyond identifying with a group (e.g., work location, work group, etc.; Reis & Patrick, 1996; Smith et al., 1999) and contributed

positively and negatively to cohesion within the group but insufficient evidence for any discussion at the post-merger organization level.

4) Lists of key actors based on betweenness, closeness, degree, reach, fragmenting, and distancing scores (see Table 4.33, Table 4.34, Table 4.35, and Table 4.36) may not see repeated entries, whereas social network graphs depicting betweenness centrality and degree centrality might show the same actors as having high scores for both parameters. It should be noted that the lists were drawn from entries in various categories to avoid repetition while the graphs were calculated with all nodes included. It should also be mentioned that the interviewees for the quanlitative part of this study were selected from the list of key actors, hence a preference for unique entries to include as many actors as possible.

All items under the constructs ‘social identity’ and ‘attachment’ have been reviewed. The summary of the findings leading to the conclusion for RQ 2 is presented next.

4.3.12 Summary of Quantitative Findings and Social Network Analysis

There were four items related to the construct ‘social identity’ and four items related to the construct ‘attachment’ that were used to survey participants in this part of the study. An extensive review of the data collected has been presented in prior sections:

1) Section 4.3.1 discussed social network statistics for RQ 2 ‘social identity’ and ‘attachment’. Network cohesion statistics (see Table 4.19 and Table 4.21 for ‘social identity’ and Table 4.20 and Table 4.22 for ‘attachment’) and network centrality statistics (betweenness, closeness, degree centrality; see Table 4.23, Table 4.25, and Table 4.27 for ‘social identity’ respectively, and Table 4.24, Table 4.26, and Table 4.28 for ‘attachment’ respectively) were discussed.

2) Section 4.3.2 discussed item-question Q1 ‘ingroup ties’.

3) Section 4.3.3 discussed item-question Q2 ‘centrality-1’.

4) Section 4.3.4 discussed item-question Q3 ‘centrality-2’.

5) Section 4.3.5 discussed item-question Q4 ‘ingroup affect’.

6) Section 4.3.7 discussed item-question Q5 ‘attachment anxiety-1’.

7) Section 4.3.8 discussed item-question Q6 ‘attachment anxiety-2’.
8) Section 4.3.9 discussed item-question Q7 ‘attachment avoidance-1’.
9) Section 4.3.10 discussed item-question Q8 ‘attachment avoidance-2’.

The goal was to determine how ‘social identity’ and ‘attachment’ contributed to organizational cohesion in the post-integration organization of a multi-national manufacturing company in Thailand. This part of the study surveyed the item-questions but solicited a social network from the participants. The constructs ‘social identity’ and ‘attachment’ were understood from the perspective of social network measures (that is, cohesion and centrality measures) and the contribution to organization cohesion determined through analysis and interpretation of the social network graphs solicited.

In conclusion, quantitative findings and social network analysis revealed low levels of cohesiveness in the organization in the context of the post-merger integration of a multi-national manufacturing company in Thailand; there is insufficient evidence to claim contribution.

4.3.13 Qualitative Findings: The Interviews

Key actors identified through social network analysis measures (such as betweenness centrality, closeness centrality, degree centrality, reach, etc.) were listed in Table 4.33, Table 4.34, Table 4.35, and Table 4.36. It reflected the relationship these actors have with others in the organization socially or for work purpose. Hence, they formed good candidates to sample to interview for the qualitative part of this study. A total of 24 participants (actors) were identified as potential interviewees. A total of 16 agreed to be interviewed and the final list of participants interviewed is shown in Table 4.37. It is observed that the HR employees formed 50% of the list of participants.

Table 4.37 List of Participants Interviewed with Demographic Information

Item	Candidate	Measure	Gender	Locale	Level	Function	YOS
Q1	EE-1880	degree	Female	Black	M107	Mfg	25
Q1	EE-2504	reach	Female	Gray	P107	HR	4
Q2	EE-3023	between	Male	Black	M109	HR	6
Q2	EE-306	reach	Male	Black	M108	HR	18
Q2	EE-3109	defrag	Female	Black	P108	HR	3
Q3	EE-42	between	Female	Black	M109	HR	7
Q4	EE-2023	defrag	Female	Black	P108	Quality	4
Q4	EE-5969	reach	Female	Black	P107	Quality	16
Q5	EE-2748	degree	Female	Gray	M108	HR	3
Q5	EE-5460	between	Male	Gray	M107	HR	18
Q6	EE-5608	degree	Male	Black	M108	HR	30
Q6	EE-5635	reach	Female	Black	P107	PDE	13
Q7	EE-6215	reach	Male	Gray	P108	Quality	10
Q7	EE-6911	defrag	Male	Black	P107	SVE	8
Q8	EE-136	defrag	Female	Black	P107	PCE	15
Q8	EE-6183	degree	Female	Black	M107	Mfg	27

The interviews were conducted according to the interview questions outlined in Appendix F. Each interview was between 30 to 45 minutes long. Participants were allowed to decline responding to any question(s) that made them feel uncomfortable. As the responses to some of the questions saturated within three interviews (it was noted that overlapping questions could have contributed), two focus groups were organized to get more insights. Two focus groups were attended by the listed participants and two external observers. The focus group discussions were held online to allow for optimum participation.

Key themes relating to RQ 2 ‘contributions by constructs social identity and attachment’ are discussed in the following sub-sections. Participants were asked questions about their perception of (a) cohesiveness, (b) ties with the group, (c)

feeling about the group, (d) worry about the group, and (e) avoidance of the group. Common themes gathered are presented as follows.

4.3.13.1 Social identity: common ground in helping community

Participants were asked to describe what ‘cohesiveness’ in their team looked like. Participants were more specific in responding to the question on ‘cohesiveness’. Volunteering work within communities signify ‘cohesiveness’ from the perspectives of the participants. To those interviewed, ‘cohesiveness’ meant working together to bring kindness to communities but there was never mention of the overall organization or work. Besides being ‘cohesive’, the participants are espousing a ‘social identity’; that is, helping the community. The following are excerpts from which key sub-themes were extracted.

> “Before COVID-19, the team traveled together and visited schools to do voluntary work together. Everyone had the same passion. Doing things together helped build relationships within the team. This also helped accomplish life goal outside of work” (participant EE-3023). “We get together to learn other skills together, like managing money for example. We get together to do community work, like donating lunch to others” (participant EE-5608). “The most memorable was the team helping communities during the great Thailand flood of 2011. We got to know each other so much more” (participant EE-306).

4.3.13.2 Social identity: group ties

Participants were asked how often they thought about being part of the team and if it was important that others saw them as part of a group. The participants spoke of thinking about their team all the time but reflected that it depends on the situation when it came to the importance of others seeing them as part of the team. The participants also reflected that it was more important how they felt as being part of the team, rather than how others thought about it. This added a perspective to the social network analysis discussed in prior sections 4.3.3 and 4.3.4 for item-questions Q2 and Q3 respectively. The following are excerpts from which key sub-themes were extracted.

"I don't really care if others see me as part of my team. I think it depends on the situation and topic" (participant EE-3109). "Whether it is important for others to see me as part of a team depends on the situation. Especially when there are emotions involved. If it is someone saying something about the team, it is important that stand together with the team and people see that" (participant EE-3023). "It's more about how we think rather than how people see us" (participant EE-306).

4.3.13.3 Social identity: group affect

Participants were asked how they felt about their team, how often they thought about being part of the team and how they felt when thinking about their team. Participants reflected that they spent a considerable amount of time thinking about their team and felt good thinking about their team. To the extent that it was parallel to investing time to feel comfortable to be able to connect to others. The participants espoused 'team' being work partners which brings additional insight to the social network analysis showed. The following are excerpts from which sub-themes were extracted.

"I think about the team all the time, even outside of work" (participant EE-2023). "Especially at home, I think about the team. I don't know why but I think about the team, and I feel more energy [sic] when I think about them" (participant EE-306). "Connecting equals being comfortable and we must invest time to connect. Otherwise, work will not flow" (participant EE-5460).

4.3.13.4 Attachment: anxiety around rejection and separation

Participants were asked how they felt if team members said 'no' to them (that is, akin to rejecting them) and how they felt if the team members were suddenly gone. As the social network analyses (sections 4.3.7 and 4.3.8) indicated, there was a mixed feeling of anxiety with rejection and separation; there were participants who felt anxious (about rejection and/or separation) and there were participants who did not. Qualitative excertps here showed participants espoused anxiety within the group when faced with rejection or separation. This provided

insight to understanding group cohesion and contribution to group cohesiveness at the group level. The following are excerpts from which key sub-themes were extracted.

> "It depends on what the question is when they said 'no'. But I find it hard to accept even if there was a good reason provided. I would still feel surprised" (participant EE-306). "I would feel awkward. We do have some expectation with the team. So, when we get a 'no' response, I still get a bit surprised" (participant EE-3023). "I don't feel surprised. Though it doesn't matter what the situation is, it is necessary to explain the reason to say 'no'. This means having trust" (participant EE-2748). "I won't feel surprised either but would expect to hear a reason for the 'no' (participant EE-5460).
>
> "I would be very surprised if the team members were suddenly gone. I would think that there was something very wrong. It would be nice to understand the reason before they left so that it becomes a positive experience" (participant EE-5460). "I would be shocked if the team members were suddenly gone. I would think that I did something wrong" (participant EE-3023). "Sad. I would feel very sad and shocked" (participant EE-42 and participant EE-306).

4.3.13.5 Attachment: dependence

Participants were asked how they felt having to depend on team members. The intent was to discover if particiants would avoid connecting with others as they did not want to depend on others. Participants reflected that they connected with others because they depended on others to complete the work. To them, depending on others was a necessity; the reflection is on the interdependent nature of work in the groups. Participants espoused similar sentiments as discussed in the social network analyses (that is, non avoidance of team; see section 4.3.10). The following are excerpts from which key sub-themes were extracted.

> "If there were no teams, work is not interesting. There would not be connections and belonging. I depend on teams to complete the work as it makes work interesting" (participant EE-42). "Each person has different expertise and combined, supported the organization, or helped each other.

Therefore, it is important to depend on team to get the work done" (participant EE-2504).

Summing it up, "work is the reason to improve understanding between people" (participant EE-5460).

4.3.13.6 Social identity and attachment: impact of COVID-19

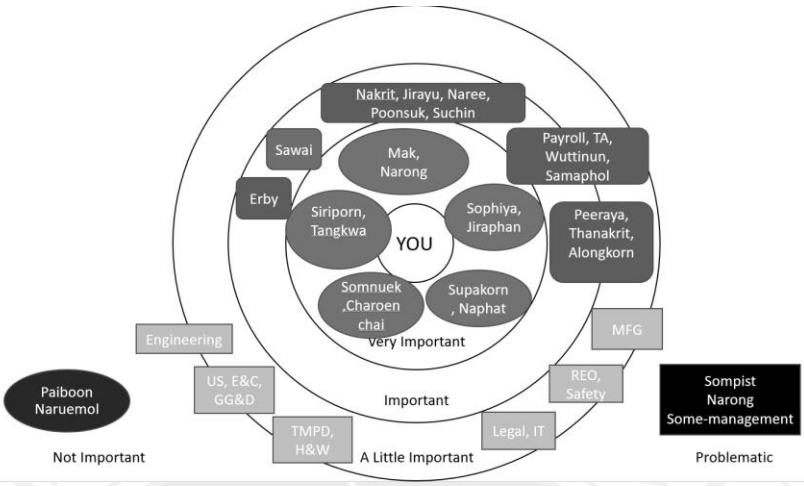
This study was conducted when initial waves of COVID-19 subsided and some level of group activity was permitted under tight controls (see Mak & Pruetipibultham, 2022 for a comprehensive review). Participants were asked if 'COVID-19 would have influenced relationships depicted in the sociograms'. Like what was discussed in section 0, the participants generally felt that COVID-19 impacted sustaining work relationships negatively but also brought some groups closer together (particularly those who had members who were infected). The following are excerpts from which key sub-themes were extracted.

"I did not feel that the team spirit was lost totally but definitely less than when we could see each other face to face" (participant EE-3023). "Yes, COVID-19 impacted the group. Connections were not as close. We could not check status of each other easily" (participant EE-42). "Connections were reduced due to COVID-19. Not changed but reduced. On the other hand, COVID-19 brought the team closer, especially when we have a confirmed case within the team. COVID-19 was a very challenging experience" (participant EE-1880).

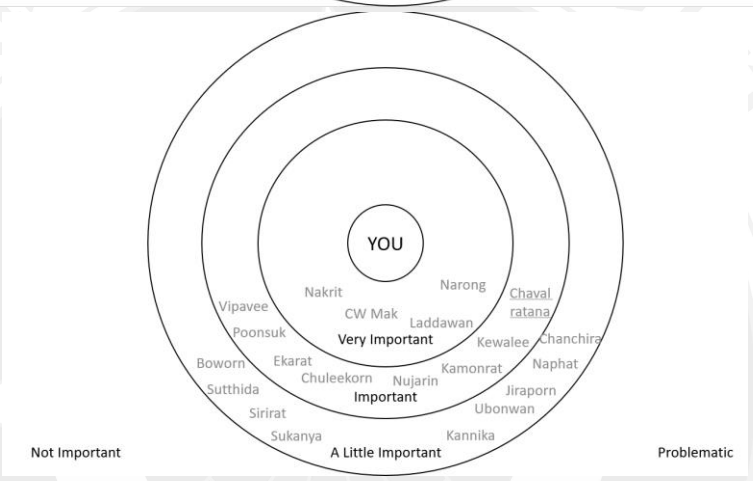
4.3.13.7 Social identity and attachment from participants' view

Participants were also asked to recount a recent event that he/she remembered to demonstrate cohesion within the organization and illustrate relationships on a template provided. Only five participants were willing to share; see Figure 4.120.

(a)


Nakrit, Jirayu, Naree, Poonsuk, Suchin
Sawai
Mak, Narong
Payroll, TA, Wuttinun, Samaphol
Erby
Siriporn, Tangkwa
YOU
Sophiya, Jiraphan
Peeraya, Thanakrit, Alongkorn
Somnuek ,Charoenchai
Supakorn , Naphat
Very Important
Engineering
MFG
Paiboon Naruemol
US, E&C, GG&D
Important
REO, Safety
Sompist Narong Some-management
TMPD, H&W
Legal, IT
Not Important
A Little Important
Problematic

(b)


YOU
Nakrit
Narong
Chaval ratana
Vipavee
CW Mak
Laddawan
Poonsuk
Very Important
Kewalee
Chanchira
Boworn
Ekarat
Kamonrat
Naphat
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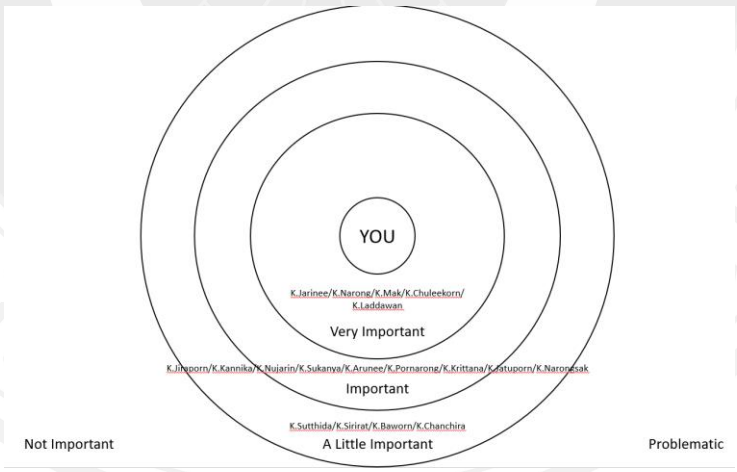
YOU
K.Jarinee/K.Narong/K.Mak/K.Chuleekorn/ K.Laddawan
Very Important
K.Jiraporn/K.Kannika/K.Nujarin/K.Sukanya/K.Arunee/K.Pornarong/K.Krittana/K.Patuporn/K.Naronsak
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K.Sutthida/K.Sirirat/K.Baworn/K.Chanchira
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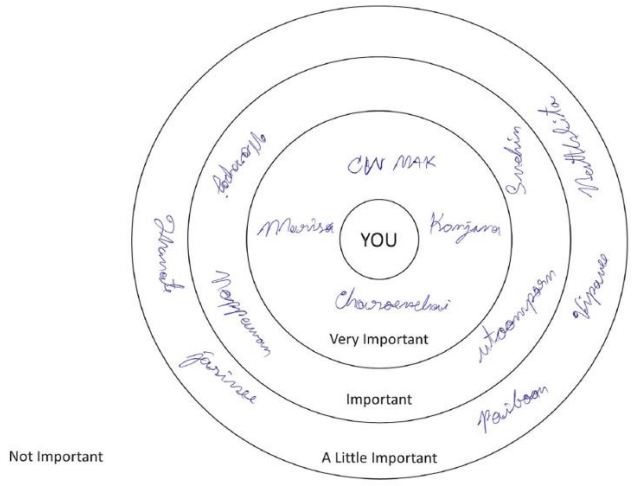

(e)

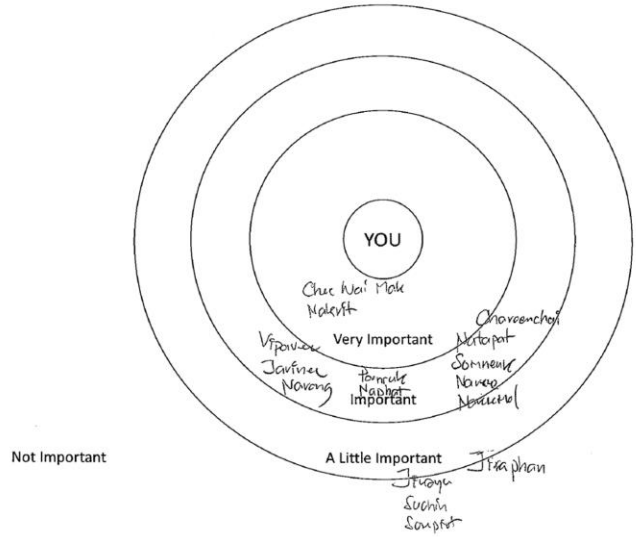

Figure 4.120 Group Member Relations According to Importance from the Point of View of Participants. Panels show the View from (a) EE-2748, (b) EE-42, (c) EE-5460, (d) EE-3023, and (e) EE-306

Interestingly, all participants recounted their experience during COVID-19 and how they and their teams touched different levels of employees. The salient observation based on the recounts was how COVID-19 impacted their work and how they had to adjust the way they worked with others. Another salient observation from the narration was how certain employees became ‘very important’ and ‘important’ to them. In particular, ‘very important’ related to crisis management and who they had to connect with to ensure that the COVID-19 situation was under control at both work locations. According to the recounts, ‘social identity’ (that is, ‘ties’, ‘feelings’,

‘belonging’ and ‘morale’) and ‘attachment’ (that is, ‘anxiety’ and ‘avoidance’) had to be adjusted to the situation.

4.3.14 Summary of Qualitative Findings and Themes

The themes discovered in the interviews provided insight to how ‘social identity’ and ‘attachment’ contributed to organization cohesion (albeit group cohesion within work related groups rather than the broader organization) and answered research question RQ 2 in this study; the summary is shown in Table 4.38. The interviews provided insight but did not deviate from concepts chosen for this study. This again indicated that the theoretical framework guiding the study was robust.

Table 4.38 Summary of Themes Extracted from Interviews with Selected Participants in the Study

No.	Theme	Item / item-question	Exploration
1.	Common ground in helping community	‘Ingroup ties’ / Q1	Feeling as a member of a team when helping community.
2.	Being a Team	‘Group ties’ / Q2 & Q3	Important how a member felt they were part of the team.
3.	Missing team	‘Ingroup affect’ / Q4	Spending / investing time to think about the team.
4.	Anxiety around rejection & separation	‘Anxiety’ / Q5 & Q6	Feeling surprised and shocked if team members said ‘no’ or were suddenly gone.
5.	Interdependence	‘Avoidance’ / Q7 & Q8	Interdependance as optimum way to achieve work goals.

4.3.15 Summary for Research Question RQ 2

The sections above discussed results and findings of quantitative (that is, social network analysis) and qualitative (that is, interviews of selected participants based on network parater scores) for research question RQ 2. Research question RQ 2, set forth to understand how 'social identity' and 'attachment' contributed the post-merger integration multi-national company in Thailand was, was answered summarily,

1) Quantitative social network analysis and qualitative findings for 'social identiy' did not suggest contribution to organization cohesion of the post-merger integration multi-national manufacturing company in Thailand. The findings instead suggested cohesion at the group level that is primarily driven by workflow. The anecdotal update on the case of interest provided another perspective qualitatively, suggesting dissention resulting from a change in executive management team.

2) Quantitative social network analysis and qualitative findings for 'attachment' did not suggest direct contribution to organization cohesion of the post-merger integration multi-national manufacturing company in Thailand. The findings instead suggested 'attachment' influenced or affected contribution to cohesion to some extent at the organization level and at the group level.

3) The bipolarity affect nature of the item-questions might have contributed to the findings.

The results and findings for esearch question RQ 3 will be discussed next.

4.4 Investigating Research Question 3

This discussion begins by re-stating the third research question of this study, RQ 3: How does social ties contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

Research question RQ 3 would consist of a review of 'weak-ties' and 'strong-ties' as bridges to closer-knit groups; this section discusses the review. Granovetter's (1973) classic 'The strength of weak ties' article (see also Granovetter, 1977) shed light on the role of acquaintances (versus close relations) within a network, as Doerfel

and Moore (2016) reminded the significance of information flow enabled by weaker ties within a network.

The notion of ‘ties’ in this section refers to links between a participant and a named individual obtained from a response to item-questions in this study. The strength of the ties is the closeness score obtained using the inclusion of other in the self (IOS) scale shown in Figure 3.6. ‘Strong ties’ are defined as links with IOS scores of six and seven while ‘weak ties’ are defined as links with IOS scores of one and two. This section discusses parts of a social network graph containing ‘weak ties’ connected to ‘strong ties’ in a network. However, single clusters or groups with ‘weak ties’ connections are excluded in this discussion. As a result, this section omits discussion for social graphs of item-questions Q8, Q9, Q10, and Q12. This section also discusses examples ‘strong ties’ in the network.

4.4.1 Weak-ties Analysis

‘Weak ties’ (e.g., acquaintances) could play important roles within a social network like bridging clusters within the network. This is the focus of understanding ‘weak ties’ in the context of how social ties contribute to organization cohesion.

4.4.1.1 Item-question Q1 weak-ties analysis

Item-question Q1 was ‘I have a lot in common with (named individual)’ intended to measure ‘ties’ under the construct ‘social identity’. Figure 4.121 shows the clusters with ‘weak-ties’ identified, excluding ‘weak-ties’ existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. Participants score degrees of agreement with the item-question in relation to each named individual. Within the network shown in Figure 4.121, there are scores that ‘agree’ and ‘disagree’ with the item-question; Table 4.39 shows the participant and named individual pairs with returned scores of ‘strongly disagree’ and ‘moderately disagree’ to the item-question; the pairs are also ‘weak ties’ as the participants returned a ‘distant’ score for closeness within each pair.

Table 4.39 Summary of Participant and Named Individual Pairs that form 'Weak Ties' within a Cluster, where the Participant has Scored 'Disagree' to the Item-Question Q1

Participant	Named Individual
EE-2803	EE-2994
EE-2803	EE-4387
EE-2803	EE-4427
EE-2803	EE-4741
EE-3201	EE-3927
EE-3201	EE-5825
EE-3201	EE-6656
EE-1812	EE-1659
EE-1812	EE-1778

By 'disagreeing' with the item-question, a participant is reflecting that he/she does not have a lot in common with the named individual. Such is the case with EE-2803 towards EE-2994, EE-4387, EE-4427, and EE-4741 in the same cluster. The same is with EE-3201 towards EE-5825 and EE-6656, and EE-3827. While this is the case, there are other members connect that the participants are in positive agreement with the item-question (e.g., EE-2803 with EE-6898, EE-2803 with EE-4704, EE-3201 with EE-2666), indicating information flow and resource sharing could continue. Whereas sustaining the weak ties though not having anything in common benefits information flow and resource sharing in the larger group.

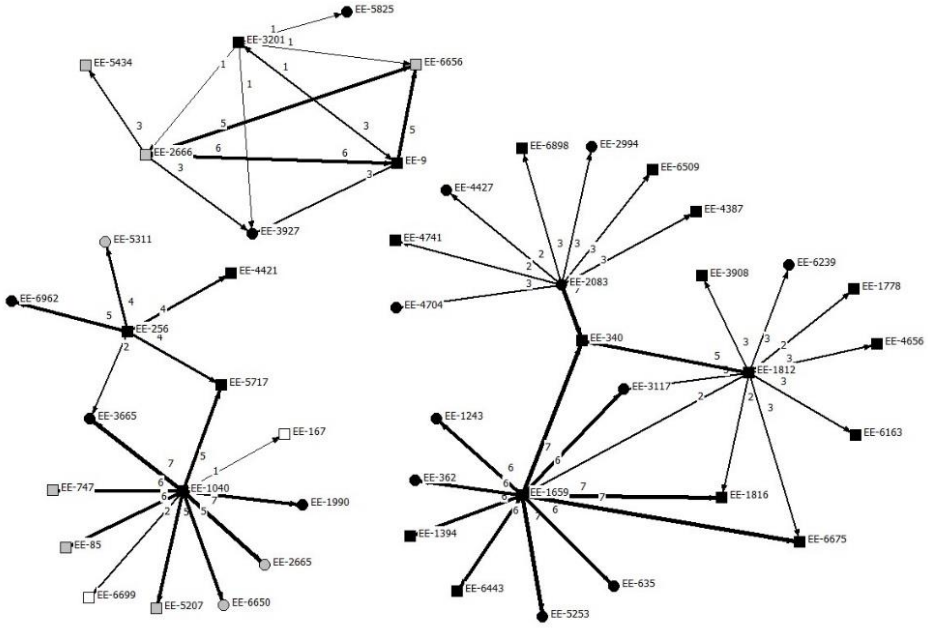

Figure 4.121 Social Network Graph for Item-Question Q1 Showing Strength of Ties between Participant and Named Individual Pairs with Low or 'Distant' Relationships Identified in Study

A relation of interest in Figure 4.121 is the weak tie between nodes EE-1812 and EE-1659. This link enables other nodes linked to EE-1812 to access nodes linked to EE-1659, which otherwise must occur through a larger number of connections (e.g., EE-1812 to EE-1816 to EE-1659, or EE-1812 to EE-6675 to EE-1659, or EE-1812 to EE-3117 to EE-1659. It is also noted that EE-1812 is reasonably close to EE-340, who in turn is reasonably close to EE-1659. The weak tie offers a pathway for two groups of employees to connect or access resources between them.

4.4.1.2 Item-question Q2 weak ties analysis

A similar approach is taken to analyze the social graph of item-question Q2. Item-question Q2 intended to measure 'centrality' under the construct 'social identity'. Figure 4.122 shows the clusters with 'weak ties' identified, excluding 'weak ties' existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. The participant and named individual pairs that scored 'strongly disagree' or

‘moderately disagree’ to the item-question are shown in Table 4.40. It is noted that the two pairs also appeared in Table 4.40 and Figure 4.121 previously discussed; they were ‘weak ties’ as the participants returned a ‘distant’ score for closeness within each pair.

Table 4.40 Summary of Participant and Named Individual Pairs that form ‘Weak Ties’ within a Cluster, where the Participant has Scored ‘Disagree’ to the Item-Question Q2

Participant	Named Individual
EE-1812	EE-1659
EE-1812	EE-1778

A weak tie between a pair does not automatically carry a ‘disagree’ response to the item-question for that pair. For example, the relation between nodes EE-1816 and EE-1812 carry a stronger agreement in response to the item-question compared to the relation between nodes EE-1812 and EE-1659.

As noted in Table 4.40, the node-pair EE-1812 and EE-1659 carried a ‘strongly disagree’ response to the item-question. However, it can be observed from Figure 4.122 that other members linked to nodes EE-1812 and EE-1659 are also linked to each other (e.g., EE-3117, EE-6239, EE-6163, EE-6675), majority carrying an ‘agree’ to ‘strongly agree’ response to the item-question. It is also interesting to note that EE-1659 considers EE-1812 ‘very close’ whereas EE-1812 considers EE-1659 ‘fairly distant’, indicating non-reciprocity.

The relation between nodes EE-1040 and EE-306 carried a ‘moderately agree’ response to the item-question although the link is classified as a weak tie. This weak tie, coupled with the positive response, could bring the two groups closer. Within the groups related to nodes EE-1040 and EE-306 are members situated at different work locations.

Amongst weak ties show in Figure 4.122 are relations between nodes EE-2083 and EE-4741, and EE-2083 and EE-4427. Both relations carry a ‘agree’ response to the item-question.

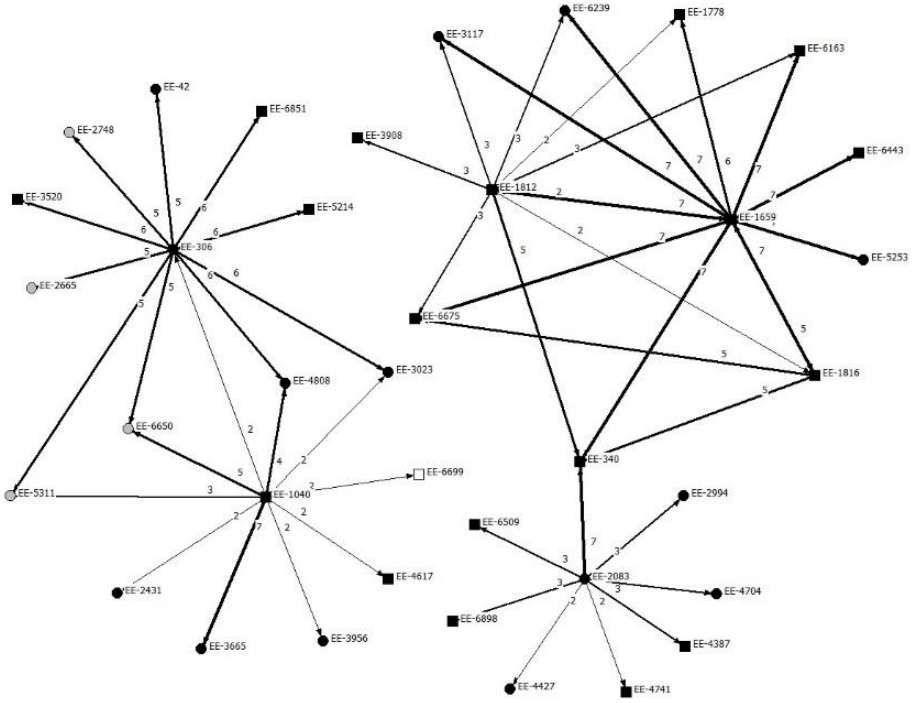

Figure 4.122 Social Network Graph for Item-Question Q2 Showing Strength of Ties between Participant and Named Individual Pairs with Low or 'Distant' Relationships Identified in Study

4.4.1.3 Item-question Q3 weak ties analysis

Item-question Q3 intended to measure 'centrality' under the construct 'social identity'. Figure 4.123 shows the clusters with 'weak ties' identified, excluding 'weak ties' existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. The participant and named individual pair that scored 'slightly disagree' to the item-question are shown in Table 4.41. All other weak ties carry a positive agreement response to the item-question.

Table 4.41 Summary of Participant and Named Individual Pair that form ‘Weak Ties’ within a Cluster, where the Participant has Scored ‘Disagree’ to the Item-Question Q3

Participant	Named Individual
EE-5969	EE-1702

Nodes EE-4785, EE-3314, and EE-2994 bridge clusters as shown in Figure 4.123, of which, node EE-4785 is a weak tie to node EE-2047. Although modes EE-2047 and EE-4785 is a weak tie, the relation carries a ‘moderately agree’ response to the item-question; a positive sign that would encourage increased interaction and maintaining the bridge between the two groups.

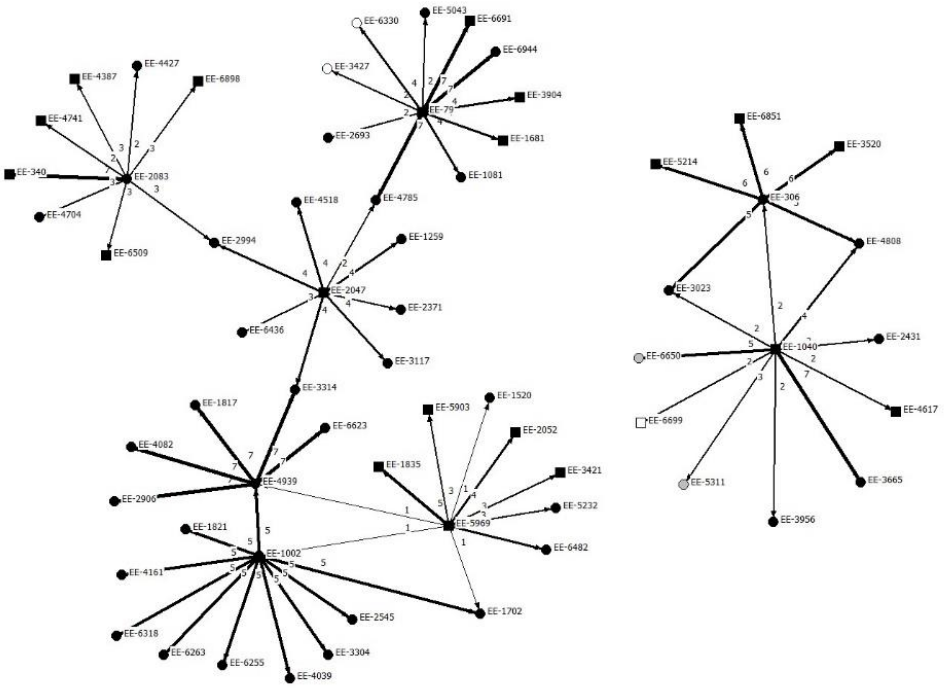

Figure 4.123 Social Network Graph for Item-Question Q3 Showing Strength of Ties between Participant and Named Individual Pairs with Low or ‘Distant’ Relationships Identified in Study

Nodes EE-4939, EE-5969, and EE-1002 form a triangular relationship. Although the relation between nodes EE-5969 and EE-4939 and EE-5969 and EE-1002 are weak ties, they carry a ‘slightly agree’ response to the item-question. This is

unlike the weak tie between EE-5969 and EE-1702 which carries a ‘slightly disagree’ response to the item-question. In this case, EE-1002 could use the stronger relation with EE-1702 and the positive approach with EE-5969 to possibly influence the relation between EE-5969 and EE-1702 so that the relations are maintained or enhanced.

4.4.1.4 Item-question Q4 weak ties analysis

Item-question Q4 intended to measure ‘ingroup affect’ under the construct ‘social identity’. Figure 4.124 shows the clusters with ‘weak ties’ identified, excluding ‘weak ties’ existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. The participant and named individual pair that scored ‘slightly disagree’ to the item-question are shown in Table 4.42.

Table 4.42 Summary of Participant and Named Individual Pairs that form ‘Weak Ties’ within a Cluster, where the Participant has Scored ‘Disagree’ to the Item-Question Q4

Participant	Named Individual
EE-5969	EE-3667
EE-5969	EE-1939
EE-5969	EE-4870
EE-5969	EE-1089
EE-5969	EE-6221
EE-5969	EE-4837
EE-5969	EE-2023
EE-5969	EE-5985
EE-5969	EE-1398
EE-5969	EE-1057

A ‘disagree’ response indicates that a participant does not feel comfortable at being identified to be part of a group with the named individual. Node EE-5969 returned a ‘disagree’ response to all actors connected, as well as indicated a

‘fairly distant’ relationship with them (see Figure 4.124 and Table 4.42). This could indicate a feeling of lack of fit with the group that EE-5969 is in or is assigned to work in. Tenure records provided indicate that EE-5969 is not a newcomer to the organization but has been at this position for some time. This could be indicative of job dissatisfaction or disengagement that require further understanding. This study merely surfaced the case from the perspective of weak ties within a network.

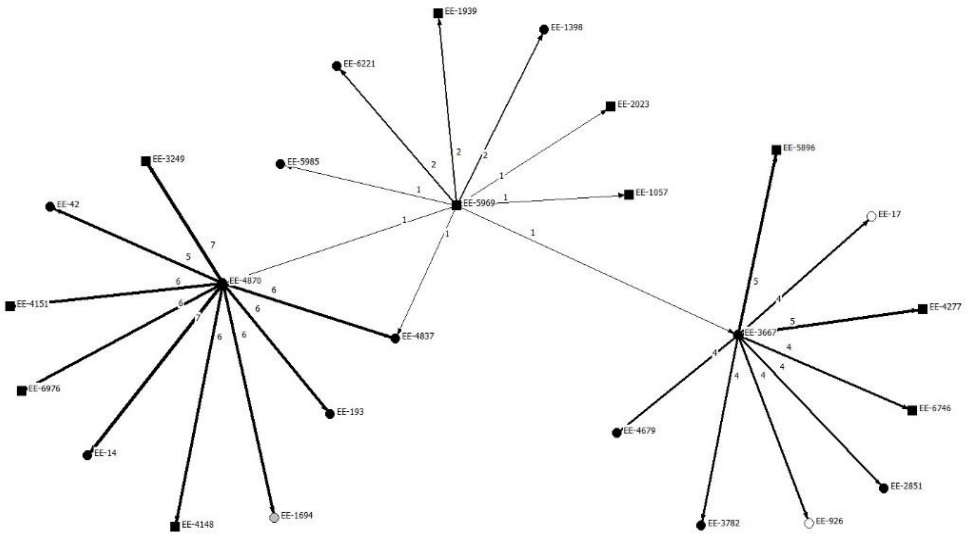

Figure 4.124 Social Network Graph for Item-Question Q4 Showing Strength of Ties between Participant and Named Individual Pairs with Low or ‘Distant’ Relationships Identified in Study

As observed in Figure 4.124, node EE-5969 connects (bridges) to nodes EE-4870 and EE-3667, which further connect to other members in their respective groups. EE-5969 responded with ‘slightly disagree’ to the item-question, indicating some form of negativity. Members of the group related to EE-3667 (e.g., nodes EE-5896, EE-6746, etc.) can be connected to members of the group related to EE-4870 (e.g., nodes EE-14, EE-4148, EE-1694, etc.) to form a larger group (see Figure 4.124). However, if node EE-5969 expresses or propagates negativity interacting with nodes EE-3667 and EE-4870, it could prohibit collaboration in a larger setting. If node EE-5969 is made award the importance of the role in this setting, negativity could possibly be averted, and collaboration enhanced.

4.4.1.5 Item-question Q5 weak ties analysis

Item-question Q5 intended to measure ‘anxiety’ under the construct ‘attachment’. Figure 4.125 shows the clusters with ‘weak ties’ identified, excluding ‘weak ties’ existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. Due to the nature of the item-question, ‘agree’ and ‘disagree’ responses need to be evaluated separately to make sense. The analysis will also focus on nodes that bridge clusters.

Participant and name-individual pairs with weak ties that carried ‘agree’ responses shown in Figure 4.125 are shown in Table 4.43. Each pair will be discussed in the context of the item-question.

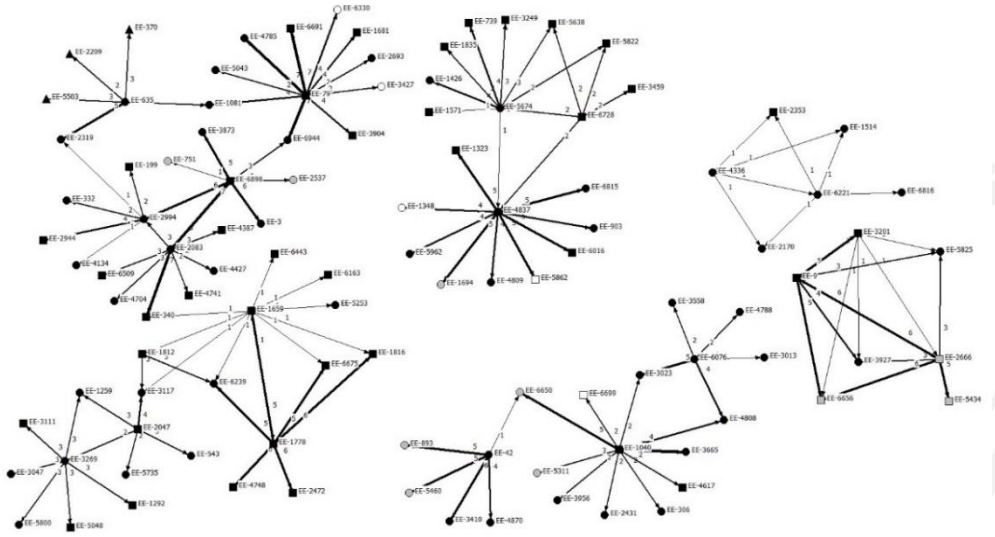

Figure 4.125 Social Network Graph for Item-Question Q5 Showing Strength of Ties between Participant and Named Individual Pairs with Low or ‘Distant’ Relationships Identified in Study

Nodes EE-2994 and EE-2319 relate together in a weak tie and carries a ‘slightly agree’ response to the item-question. Node EE-2319 bridges nodes EE-2994 and EE-635 in the network. If the ‘slightly agree’ (that is, EE-2994 is slightly worried that EE-2319 does not value EE-2994 as much) helps EE-2994 pay attention to maintain the relationship with EE-2319, the bridge would help EE-2994 gain access

to further resources in the network (e.g., EE79-centered cluster). Reciprocity is perceived by EE-2994 as positive.

Table 4.43 Summary of Participant and Named Individual Pairs that form 'Weak Ties' within a Cluster, where the Participant has Scored 'Agree' to the Item-Question Q5

Participant	Named Individual	Degree of Agreement
EE-2994	EE-2319	Slightly agree
EE-6898	EE-2537	Moderately agree
EE-6898	EE-751	Moderately agree
EE-635	EE-1081	Slightly agree
EE-42	EE-6650	Strongly agree

Nodes EE-6898 and EE-2537 and EE-751 form two weak ties. Nodes EE-2537 and EE-751 work at a different location than EE-6898 based on the color of the nodes in Figure 4.125. This could be the reason why EE-6898 is 'moderately worried' that both EE-2537 and EE-751 do not value EE-6898 as much. If this perception helps EE-6898 pay attention to maintain the relationships, the cluster centered by EE-6898 could benefit from the diversity of resources of the different work locations.

Nodes EE-635 and EE-1081 related together in a weak tie and carries a 'slightly agree' response, indicating that EE-635 is 'slightly worried' that EE-1081 does not value EE-635 as much. Node EE-1081 bridges EE-635 to the cluster centered by EE-79. If the 'slightly worried' perception helps EE-635 pay attention to maintain the relationship, the bridge could be maintained to benefit two clusters.

Nodes EE-42 and EE-6650 share a weak tie and carries a 'strongly agree' response, indicating that EE-42 is 'very worried' that EE-6650 does not value EE-42 as much. Node EE-6650 works at a different location than EE-42 and bridges EE-42 to EE-1040, who works at the same location (as EE-42). If the 'very worried' perception helps EE-42 pay attention to maintain the relationship, the groups will benefit from the bridge role of EE-6650.

In summary, the data indicates that an awareness of (a) a difference in work location, or (b) a bridging role may trigger an ‘agree’ response from a participant with a weak tie to a named individual.

Participant and name-individual pairs with weak ties that carried ‘disagree’ responses shown in Figure 4.125 are shown in Table 4.44. Each pair will be discussed in the context of the item-question.

Table 4.44 Summary of Participant and Named Individual Pairs that form ‘Weak Ties’ within a Cluster, where the Participant has Scored ‘Disagree’ to the Item-Question Q5

Participant	**Named Individual**	**Degree of Disagreement**
EE-1659	EE-340	Strongly disagree
EE-6728	EE-5674	Moderately disagree
EE-5674	EE-4837	Strongly disagree

Nodes EE-1659 and EE-340 share a weak tie and carry a ‘strongly disagree’ response. Node EE-340 bridges EE-1659 to EE-2083 and further nodes in the network as shown in Figure 4.125. It is interesting to note that immediate nodes connected to EE-1659 (e.g., EE-6443, EE-5253, EE-6163, etc.) all have weak ties and carry the same ‘strongly disagree’ response, indicating actor EE-1659 is not worried that others value him/her less. This can be perceived as confidence in the relationships or a consistent effort to maintain relationships with others regardless. EE-1659 has called out all connections (with named individuals) as ‘distant’. This could indicate an indifference attitude.

Nodes EE-6728 and EE-5674 share a weak tie and carry a ‘moderately disagree’ response (that is, EE-6728 is not too worried that EE-5674 values EE-6728 less). A closer review of the relationship that EE-6728 share with others reveal the same ‘moderately disagree’ response and the relationships tagged as ‘slightly distant’ on the relationship closeness scale. This looks like the previous case.

Nodes EE-5674 and EE-4837 share a weak tie and carry a ‘strongly disagree’ response, indicating that EE-5674 is not at all worried that EE-4837 values EE-5674 less). A closer review of the relationship that EE-5674 share with others reveal a range of ‘slightly disagree’ to ‘strongly disagree’ responses with different degrees of closeness in the relationships. This could indicate either confidence or indifference. It is noted, from Figure 4.125, that nodes EE-5674, EE-6728, and EE-4837 form a triangular relationship.

In summary, the data indicates that either a confidence in the relationship (positive) or indifferent attitude towards a relationship (negative). The positive outcomes brought about by weak ties in a network could be negated if a negative attitude affects its performance.

4.4.1.6 Item-question Q6 weak ties analysis

Item-question Q6 intended to measure ‘anxiety’ under the construct ‘attachment’. Figure 4.126 shows the clusters with ‘weak ties’ identified, excluding ‘weak-ties’ existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. This analysis will focus on the larger connected network shown in Figure 4.126. Table 4.45 summarizes the degree of agreement to the item-question for weak ties pairs of interest.

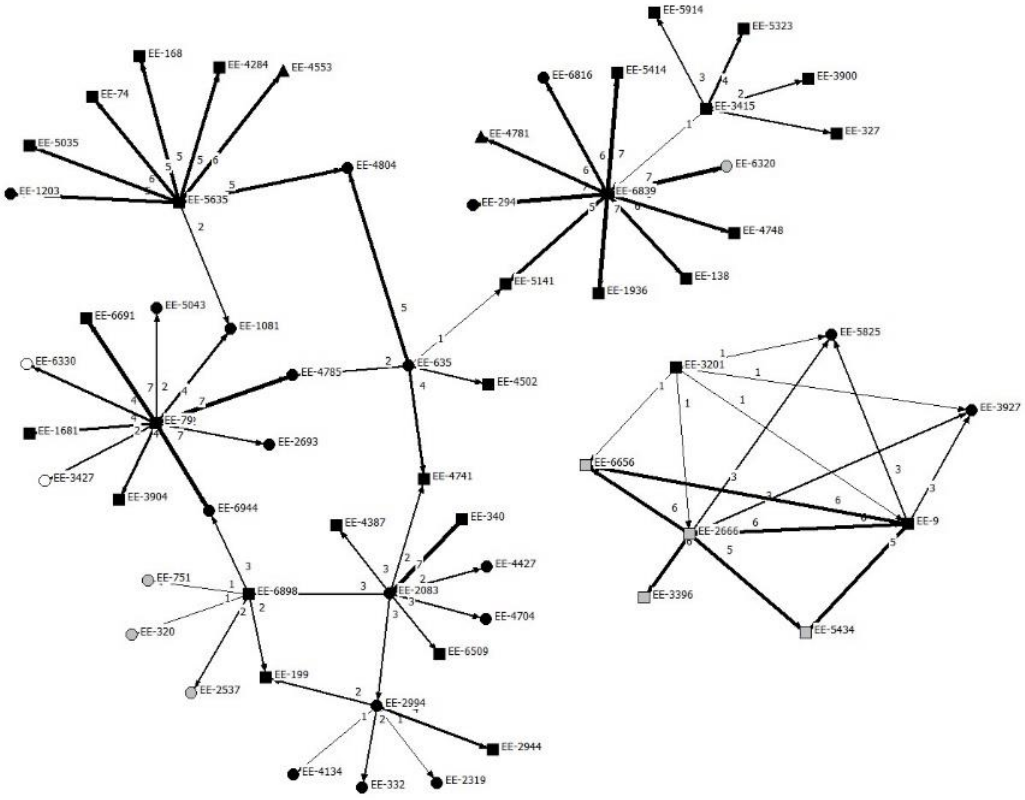

Figure 4.126 Social Network Graph for Item-Question Q6 Showing Strength of Ties between Participant and Named Individual Pairs with Low or 'Distant' Relationships Identified in Study

Table 4.45 Summary of Participant and Named Individual Pairs that Form 'Weak Ties' within a Cluster, where the Participant has Scored Degree of Agreement to the Item-Question Q6

Participant	Named Individual	Degree of Agreement
EE-3415	EE-6839	Slightly disagree
EE-635	EE-5141	Slightly disagree
EE-5635	EE-1081	Moderately agree
EE-2083	EE-4741	Moderately agree

Nodes EE-3415 and EE-6839 share a weak tie and carry a 'slightly disagree' response (that is, EE-3415 is 'slightly worried' about being alone or not accepted by EE-6839). A review of the relationship that EE-3415 share with others

reveal a range of ‘moderately disagree’ to ‘slightly disagree’ responses except for EE-5914. As the responses from EE-3415 do not seem to be tied to how close the relationships are (with the named individuals), this possibly indicates a lack of confidence in the relationships or indifference to acceptance by those named individuals. The link to EE-6839 enables access to resources further in the network. Thus, awareness on the part of EE-3415 and attention to maintain the relationship with EE-6839 would benefit the network.

Nodes EE-635 and EE-5141 share a weak tie and carry a ‘slightly disagree’ response. It is noted that node EE-5141 bridges EE-635 to EE-6839 and further resources in the network. Thus, it is beneficial that EE-635 maintains a positive relationship with EE-5141; that is, EE-635 acting on the ‘slight worry’ to maintain the relationship with EE-5141 will bring about benefits to the overall network.

Nodes EE-5635 and EE-1081 share a weak tie and carry a ‘moderately agree’ response. It is noted that node EE-1081 bridges EE-5635 to EE-79 and further resources in the network. EE-5635 not being worried could reflect a confidence or reliance on work processes to maintain the relationship, rather than a personal basis. Regardless, a link between EE-5635 and EE-1081 is expected to bring connections allowing sharing of resources in a larger network.

Nodes EE-2083 and EE-4741 share a weak tie and carry a ‘moderately agree’ response. Similarly, node EE-4741 bridges EE-2083 to EE-635, enabling resource flow in a larger network. A closer review of the relationships EE-2083 share with others reveals that EE-2083 is not too worried about being alone or not accepted by others when the relationship is not a close one; EE-2083 shares a strong relationship with EE-340 and scored a ‘slightly disagree’ response instead. This reflects an indifference attitude when the relationship is not close, and/or a reliance on processes to sustain the relationship; that is, maintaining only a work relation versus a personal relation.

In summary, the data suggests (a) a possible reliance on workflows or work relations when the personal relationship is not close, and/or (b) lack of confidence in the personal relationship.

4.4.1.7 Item-question Q7 weak ties analysis

Item-question Q7 intended to measure ‘avoidance’ under the construct ‘attachment’. Figure 4.127 shows the clusters with ‘weak ties’ identified, excluding ‘weak ties’ existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. The analysis will focus on the single weak tie that links two clusters as shown in Figure 4.127.

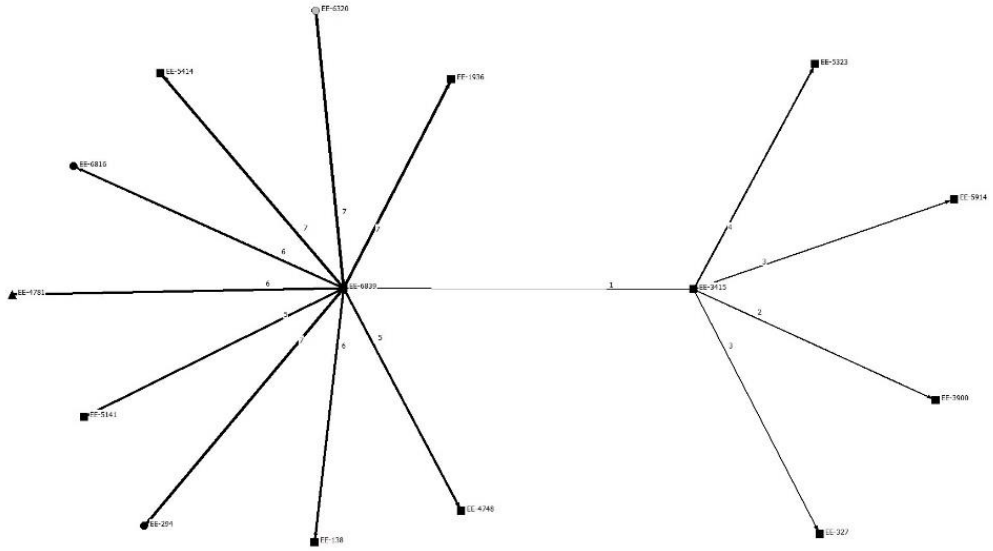

Figure 4.127 Social Network Graph for Item-Question Q7 Showing Strength of Ties between Participant and Named Individual Pairs with Low or ‘Distant’ Relationships Identified in Study

A review of the relationships that node EE-6839 share with others reveal that the relationships are close and all responses to the item-question are ‘strongly disagree’, indicating that EE-6839 has a strong preference for dependency within the cluster. Similarly, node EE-3415 indicated a preference (albeit not as strong) for dependency within the cluster except for the relationship with EE-5914. Nodes EE-3415 and EE-6839 share a weak tie and EE-3415 indicated a preference for dependency with EE-6839. This could indicate workflow or process requiring dependency.

4.4.1.8 Item-question Q11 weak ties analysis

Item-question Q11 intended to measure ‘individual attraction’ under the construct ‘cohesion’. Figure 4.128 shows the cluster with the weak ties identified, excluding ‘weak ties’ existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. This analysis will focus on the relationship between node EE-3201 and others identified as weak ties; Table 4.46 shows a summary of the relationship and responses.

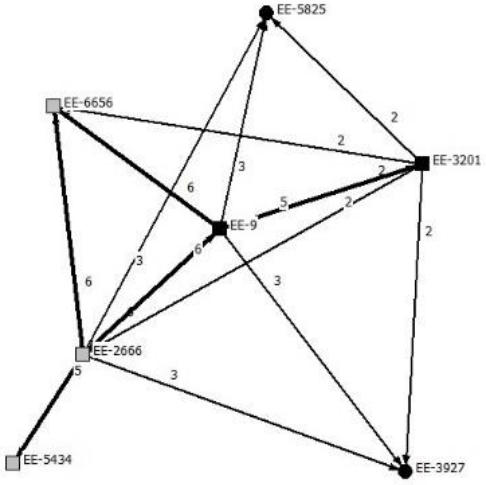

Figure 4.128 Social Network Graph for Item-Question Q11 Showing Strength of Ties between participant and named individual pairs with low or ‘distant’ relationships identified in study.

Table 4.46 Summary of Degree of Agreement with Item-Question Q11 and Relationship Closeness for All Weak Ties Identified that Connects to Other Clusters

Participant	Named Individual	Degree of Agreement	Relationship Closeness
EE-3201	EE-2666	Slightly agree	Fairly distant
EE-3201	EE-9	Slightly agree	Fairly distant
EE-3201	EE-6656	Strongly disagree	Fairly distant

Participant	Named Individual	Degree of Agreement	Relationship Closeness
EE-3201	EE-3927	Strongly disagree	Fairly distant
EE-3201	EE-5825	Strongly disagree	Fairly distant

As shown in Figure 4.128, nodes EE-2666 and EE-6656 are situated at a different work location than nodes EE-3201, EE-3927, EE-5825, and EE-9, suggesting that the responses to the item-question does not depend on work location. Instead, the dependency seems to be on workflow or work relations. The weak ties form quicker connections between actors in the network, thus possibly enhancing efficiency.

4.4.1.9 Item-question Q13 weak ties analysis

Item-question Q13 intended to measure ‘task cohesion’ under the construct ‘cohesion’. Figure 4.129 shows the cluster with the weak ties identified, excluding ‘weak-ties’ existing within a single cluster or group. The thickness of the links between nodes depicts the strength of the ties, which is also shown numerically on the graph. Analysis will be done on the two sub-networks shown in Figure 4.129.

Nodes EE-5969 and EE-6675 share a weak tie that bridges resources between a group (centered around EE-5969) and connected clusters. It is interesting to note that relationships between node EE-5969 and others are ‘distant’ (relationship closeness value of one). A review of the responses for each connection with EE-5969 show a mix of ‘slightly agree’ and ‘slightly disagree’. The response specific to node EE-6675 is ‘slightly disagree’, indicating that EE-5969 and EE-6675 are not quite united in trying to reach the organization’s goals. An enhancement in interaction between EE-5969 and connected named individuals could possibly bring benefits to the network.

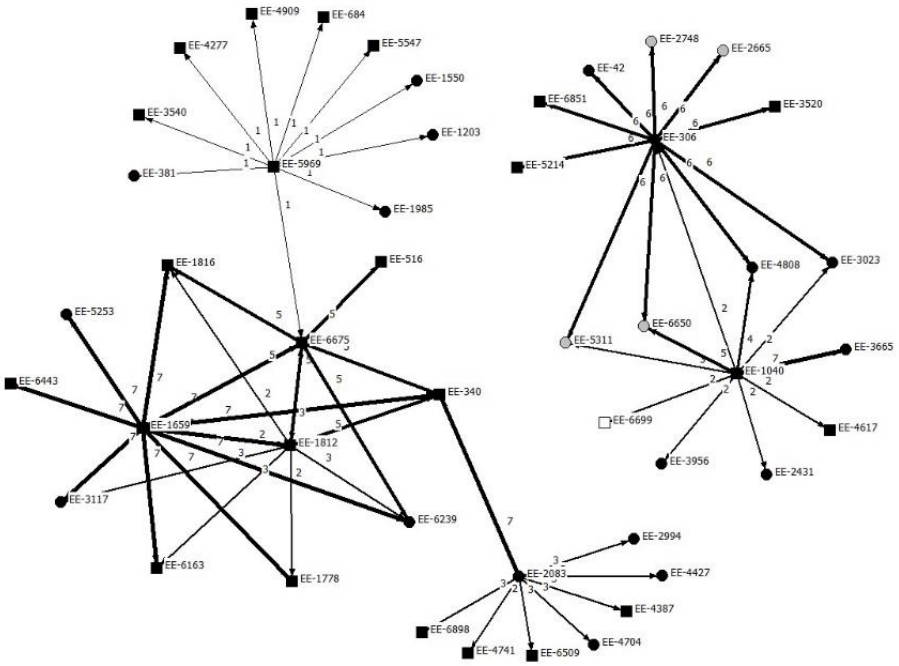

Figure 4.129 Social Network Graph for Item-Question Q13 Showing Strength of Ties between Participant and Named Individual Pairs with Low or 'Distant' Relationships Identified in Study

Nodes EE-1040 and EE-306 share a weak tie that bridges two groups of actors. EE-1040 'moderately agree' with the item-question in relation to EE-306, possibly indicating good working relations within the sub-network involving EE-1040 and EE-306. If so, the strength of a weak tie is enabling unity towards achieving organization goals.

4.4.2 Summary for Weak Ties Analysis

The analysis of weak ties in social networks formed from data collected in this study shed light to the role that weak ties play in contributing to organization cohesion. Findings are also aligned to Granovetter's (1973, 1977) thesis. Table 4.47 summarizes findings from the analysis of weak ties as answers to RQ 3.

Table 4.47 Summary of Observations from Weak Ties Analysis that Contribute to Organizational Cohesion

No.	Findings	Exemplified By
1	Reliance on a workflow relation when personal relations are lacking or confidence in personal relation may trigger attention to maintain relations	Q6, Q7, Q11, and Q13
2	Situating in a different work location or awareness of a bridging role between groups may trigger focus or attention to maintain relations	Q5 (‘agree’)
3	Confidence in relationship or possessing indifferent attitude towards the relationship may result in inaction to maintain relations, possibly generating negative impact	Q5 (‘disagree’)
4	Finding and addressing dissatisfaction or disengagement could enhance collaboration between groups	Q4
5	Enhancing sense of belonging or communicating importance of belonging may enhance weak ties	Q3
6	Enhancing reciprocity between members may enhance weak ties	Q2
7	Confirmation that weak ties offer pathway as bridge or connectors and enable access to larger resources	Q1

4.4.3 Strong Ties Analysis

‘Strong ties’ (e.g., close friends) would play important roles within a social network like bridging clusters within the network. Contribution to cohesion would be observed similarly via how actors with strong ties connect others in the network.

4.4.3.1 Strong ties analysis within ‘social identity’ construct

Item-question Q1 sought to know if the participant ‘had a lot in common’ with the named individual. An affirmative response would represent ‘social identification’ between the participant and named individual. The strength of the

relationship would also indicate a positive attitude towards connecting. Such ties would signify cohesion.

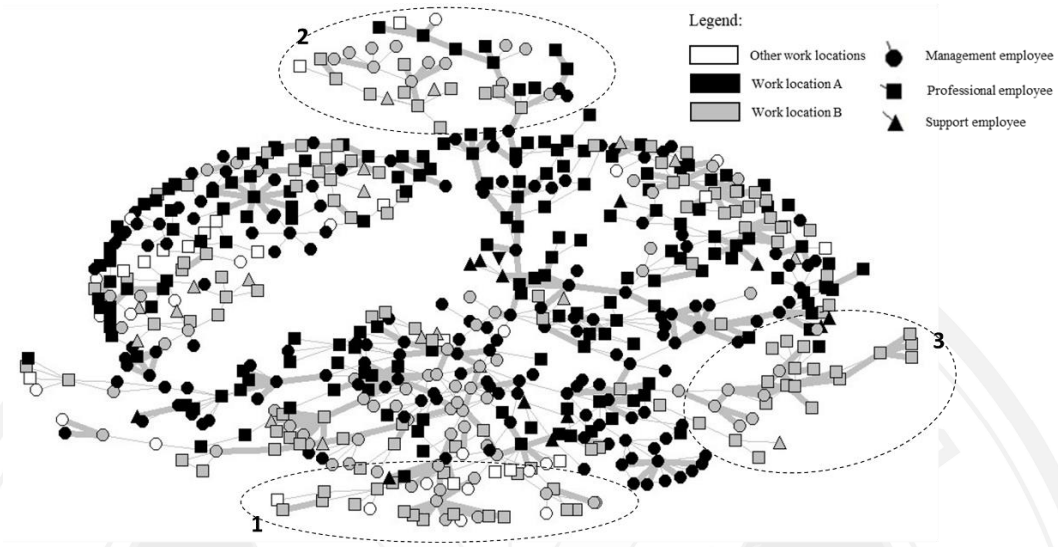

Figure 4.130 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q1

Figure 4.130 shows the social network graph containing participants and named individual pairs who have affirmed item-question Q1. Each tie (connection) would have recorded a proximity score of six or seven (upper end of scale) indicating a very close relationship. The thick 'gray' ties represent the connections with a score of seven on the proximity scale. It can be observed that the thick 'gray' ties connect to groups as shown in the areas highlighted by encirclements one, two, and three. This supports the notion that strong ties signify cohesion relations within a group.

Figure 4.131 shows the same social network graph in Figure 4.130 but with node sizes suppressed to show how the thick 'gray' ties connect the actors in the network. Here, the strong ties (thick 'gray' connections) connect members forming a chain (see encirclement one, two, and three in Figure 4.131). The actors along the chains would act as 'bridge' actors between groups. It can be observed that such strong ties connect members within between groups, supporting the notion that strong times could enhance cohesion within a group.

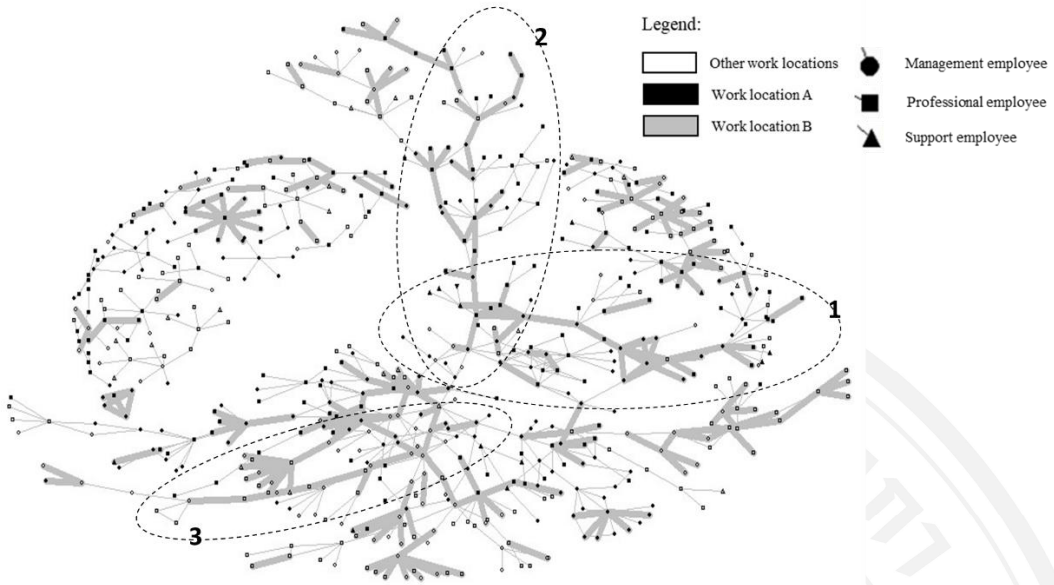

Figure 4.131 Social Network Graph from Figure 4.130 with Size of Nodes Suppressed to Highlight Thick 'Gray' Ties

Item-question Q2 sought to know if the participant though about the fact he/she was part of a group with the named individual. Like Q1, an affirmative response would indicate support for 'centrality' under the construct 'social identity'. A strong tie (a very close relationship) would indicate contribution to cohesion.

Figure 4.132 shows the social network graph containing participants and named individual pairs who have affirmed item-question Q2. Each tie (connection) would have recorded a proximity score of six or seven (upper end of scale) indicating a very close relationship. It can be observed that the thick 'gray' ties connect to groups as shown in the areas highlighted by encirclements one, two, and three. This supports the notion that strong ties signify cohesion relations within a group.

Figure 4.133 shows the same the same social network graph in Figure 4.132 but with node sizes suppressed to show how the thick 'gray' ties connect the actors in the network. Here, the strong ties (thick 'gray' connections) connect members forming a chain (see encirclement one, two, and three in Figure 4.133). It can be observed that the strong ties connect 1) members within a group, as well as 2) groups, thus contributing to cohesion.

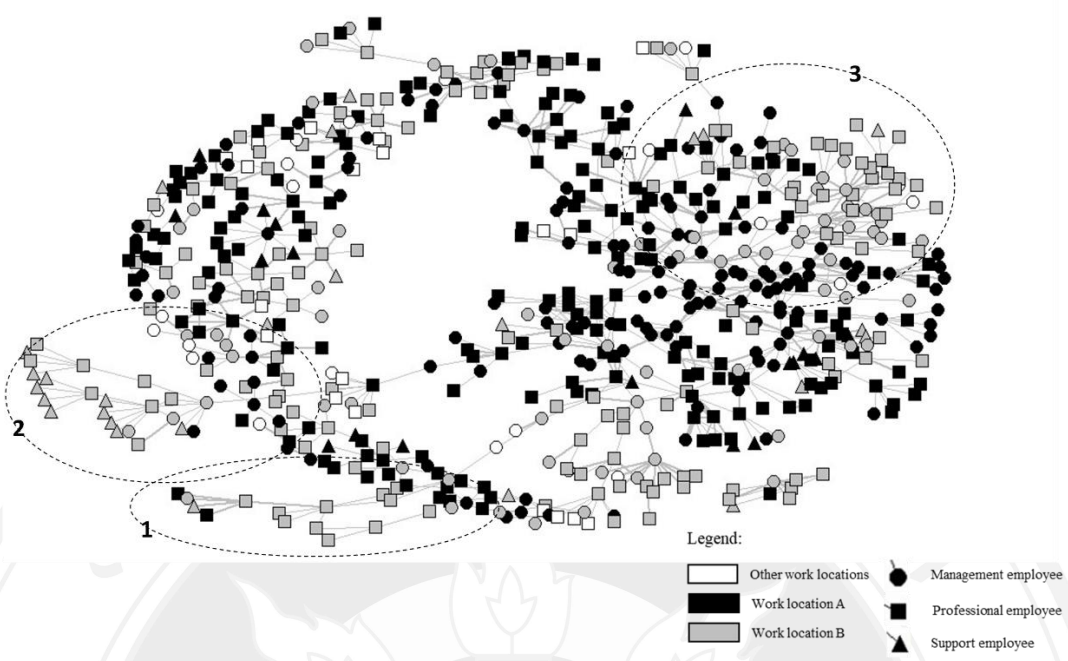

Figure 4.132 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q2

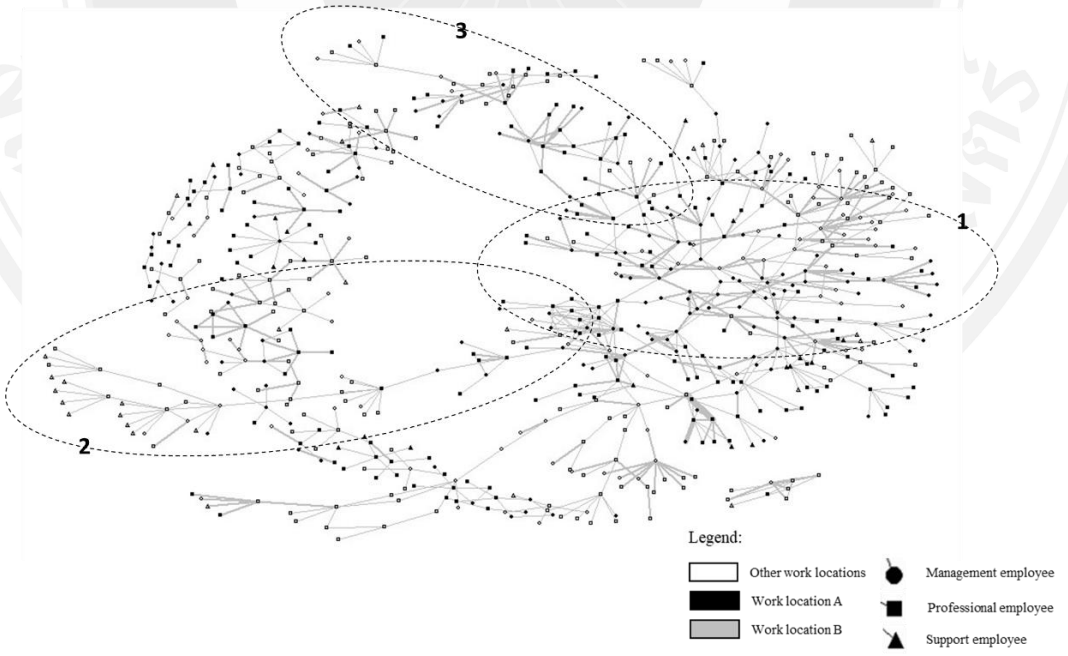

Figure 4.133 Social Network Graph from Figure 4.132 with Size of Nodes Suppressed to Highlight Thick ‘Gray’ Ties

Item-question Q3 sought to understand if ‘being part of the group with’ the named individual was ‘an important part of’ the participant’s self-image. Item-question Q4 sought to understand if the participant ‘felt good when he/she thought about himself/herself as being part of the group with’ the named individual. An affirmative response to both item-questions would indicate positive attitude towards ‘identifying’ with the group. Strong ties would indicate connections and therefore contribution to cohesion. The social network graphs eliciated for affirmative responses with strong ties (proximity scores of six or seven) recorded for item-question Q3 and Q4 are shown as Figure 4.134 and Figure 4.135 respectively. The node sizes in both figures have been suppressed to highlight the strong ties in the network, with the thick ‘gray’ lines representing proximity scores of seven.

Like the social network graphs shown for item-questions Q1 and Q2, strong ties connect 1) members within a group, and 2) groups in the network in social network graphs elicited for Q3 and Q4 (see encircled areas in Figure 4.134 and Figure 4.135 respectively).

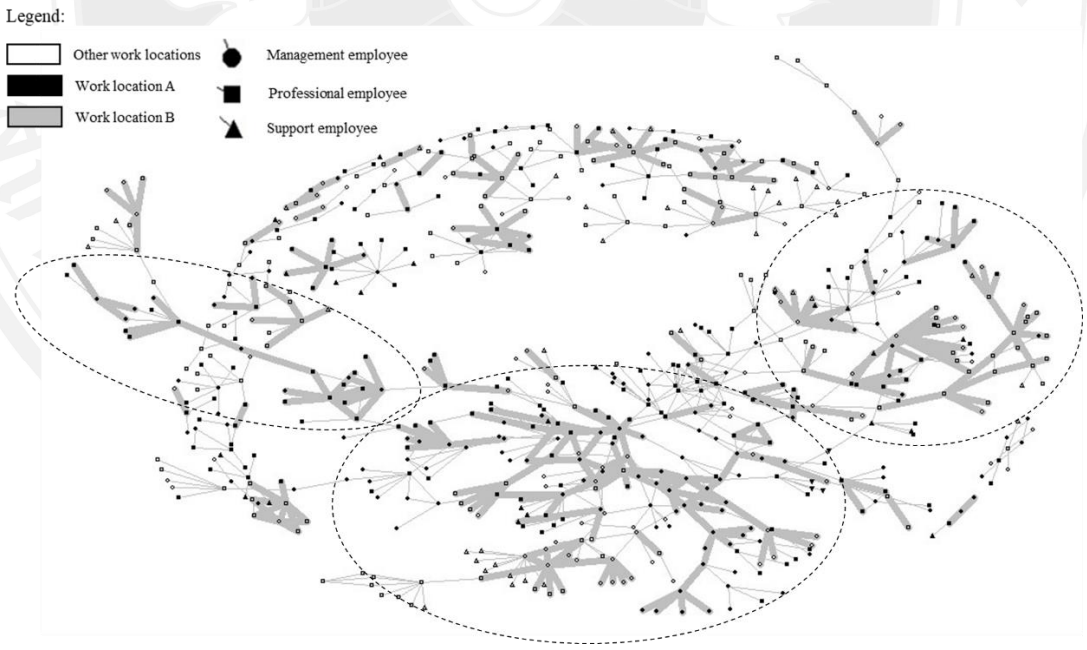

Figure 4.134 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q3; Node Sizes Suppressed to Show Thick ‘Gray’ Ties

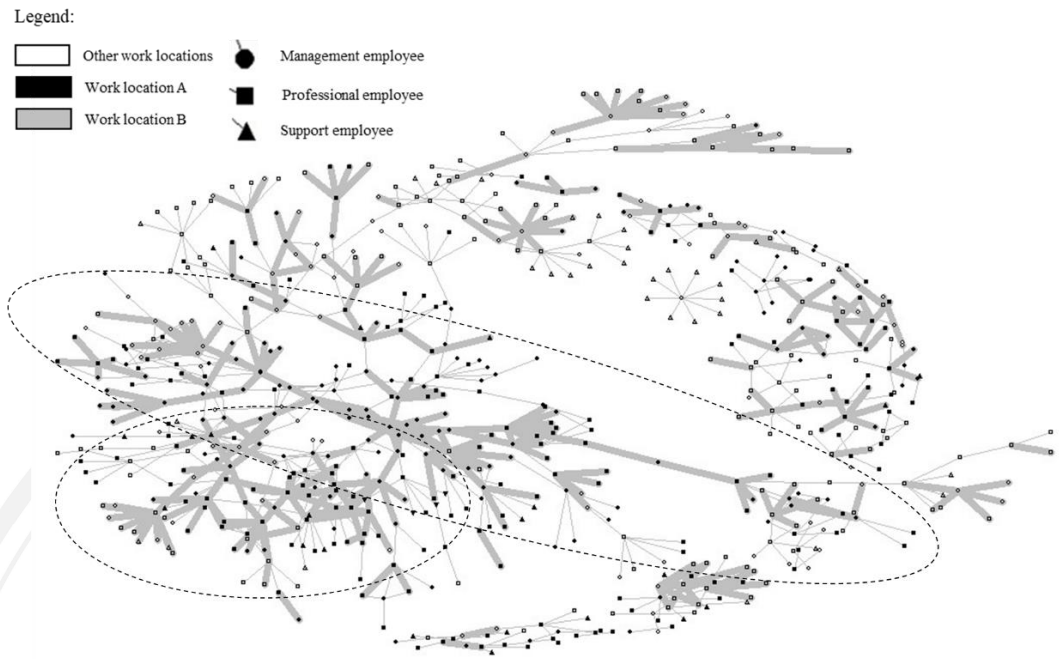

Figure 4.135 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q4; Node Sizes Suppressed to Show Thick ‘Gray’ Ties

Strong ties in social network graphs elicited for all four item-questions under the construct ‘social identity’ connected 1) members within a group, and 2) groups within the network. The social network graphs discussed were elicited from participant and named individual pairs with affirmative response to the item-questions, as well as a close relationship between the participant and named individual (that is, proximity scores of six and seven).

4.4.3.2 Strong ties analysis within ‘attachment’ construct

Two item-questions within the ‘attachment’ construct were scored positively while two others were scored negatively. Hence the analysis for strong ties for this section took the assumption an overall positive attitude in terms of attachment (that is, one that was not neither anxious about connecting, nor avoiding connecting). Therefore, the social network graphs elicited for strong ties analysis for item-questions Q5 and Q7 included negative responses with high proximity scores, while the social network graphs elicited for strong ties analysis for item-questions Q6 and Q8 included positive (affirmative) responses with high proximity scores.

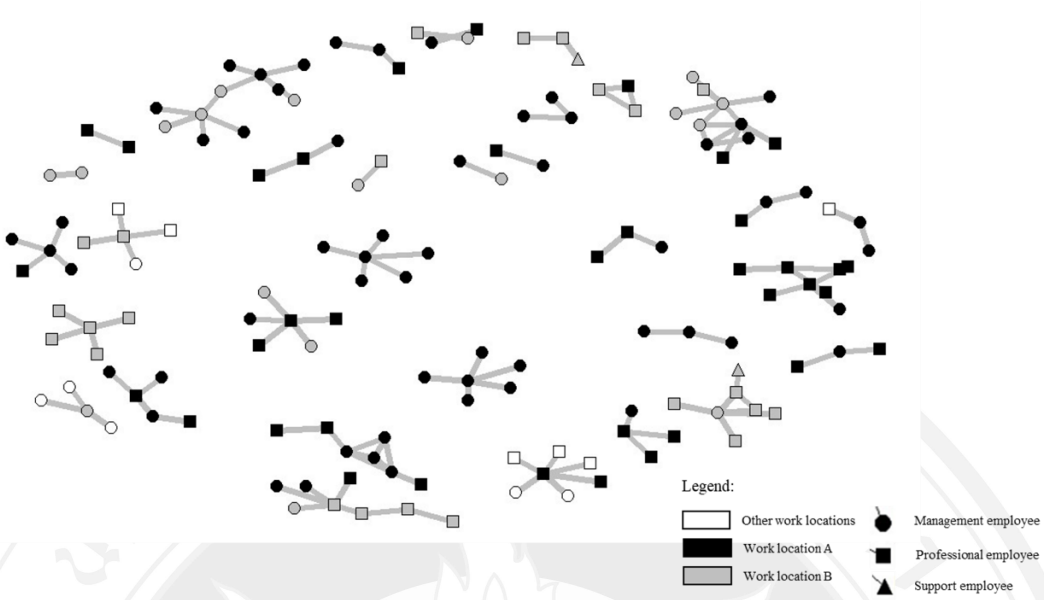

Figure 4.136 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Negative Response to Item-Question Q5

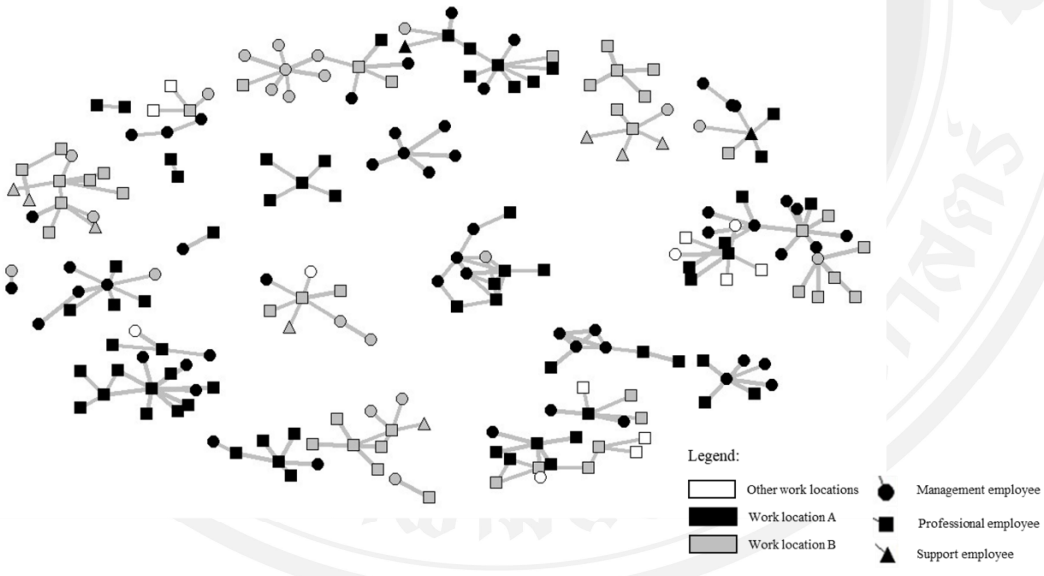

Figure 4.137 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q6

Item-questions Q5 and Q6 represent ‘attachment anxiety’ under the construct ‘attachment’. The thesis is that reduced attachment anxiety would contribute positively towards cohesion. The social network graphs depicting reduced attachment anxiety (that is, based on response to item-question and high proximity scores) are shown as Figure 4.136 and Figure 4.137 respectively. It can be immediately observed from both figures that 1) there were a smaller number of groups in the social network graph, and 2) there were no or few connections between groups in the same network. The graphs indicate that groups with no or reduced attachment anxiety existed but are few.

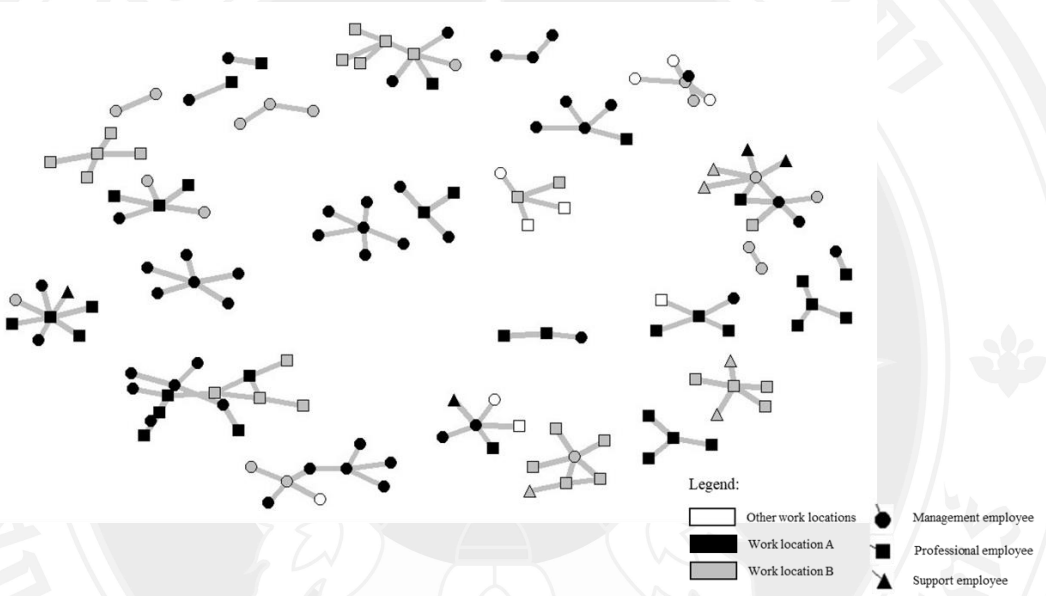

Figure 4.138 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Negative Response to Item-Question Q7

The social network graph elicited from participants and named individual paris with negative response (that is, preference for no mutual dependence or interdependence) but strong ties is shown in Figure 4.138. Like Figure 4.136 and Figure 4.137, there are a small number of groups with no inter-group connections shown in the network graph.

The responses recorded for item-questions Q5, Q6, and Q7 were individual (that is, personal) perspective of the named individuals possibly in the

same group. This could be a factor resulting in the social network graph consisting of isolated groups. The reflection of the participants could be a preference for independence. However, the strong ties with the named individuals did not suggest the participant wanting to isolate from the group.

Unlike the social network graphs shown in Figure 4.136, Figure 4.137, and Figure 4.138, the social network graph elicited from participants and named individuals with high proximity scores and affirmative response to item-question Q8 (see Figure 4.139) contained strong ties that 1) connected members in a group, and 2) connected groups. This is like previous social network graphs reviewed in the prior section. The three encircled regions labelled one, two, and three exemplify 1) strong ties connecting members in a group, and 2) strong ties connecting groups in a network. Connecting in this manner could enhance cohesion if more connections between individuals could be nurtured within the network.

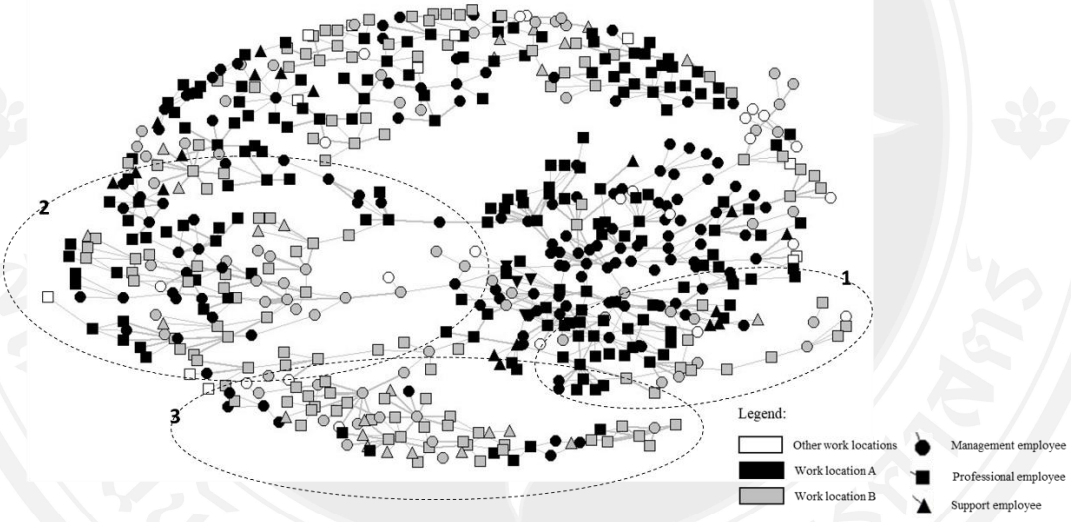

Figure 4.139 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q8

Strong ties in social network graphs elicited for three item-questions under the construct ‘attachment’ showed isolated groups disconnected from each other. The social network graph elicited for the fourth item-quesitons under the

construct ‘attachment’ showed connected (a) members within a group, and (b) groups within the network.

Two of the social network graphs discussed were elicited from participants and named individual pairs with affirmative response to the item-questions, as well as a close relationship between the participant and named individual (that is, proximity scores of six and seven). The other two were elicited from participants and named individual pairs with negative response to the item-questions, but with close relationship between the participant and named individual (that is, proximity scores of six and seven).

4.4.3.3 Strong ties analysis within ‘cohesion’ construct

The third construct, ‘cohesion’, consisted of five item-questions, namely 1) ‘belonging’, 2) ‘morale’, 3) ‘individual attraction’, 4) ‘social cohesion’, and 5) ‘task cohesion’, sought to determine the state of cohesion. An affirmative response to each of the five item-questions represented a positive attitude towards cohesion.

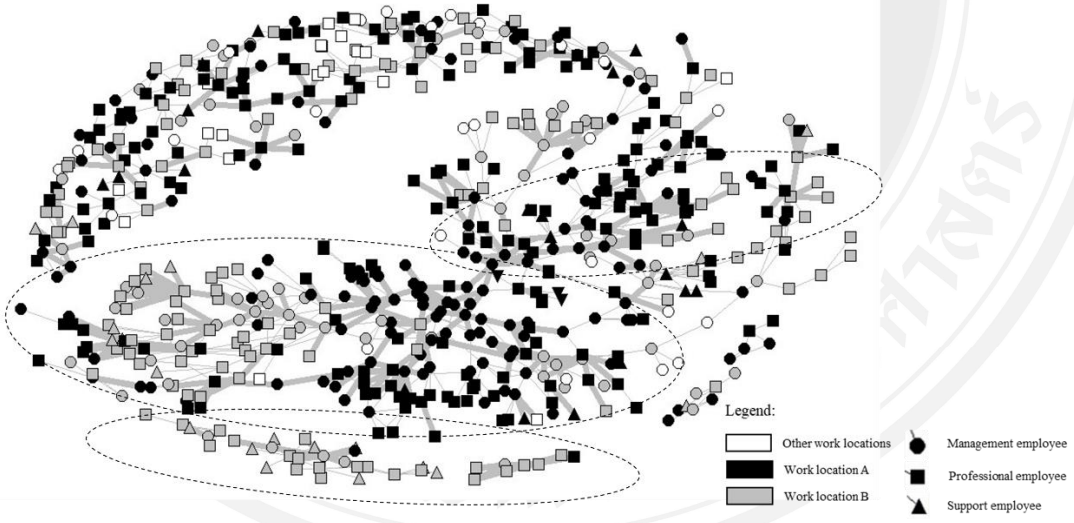

Figure 4.140 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q9

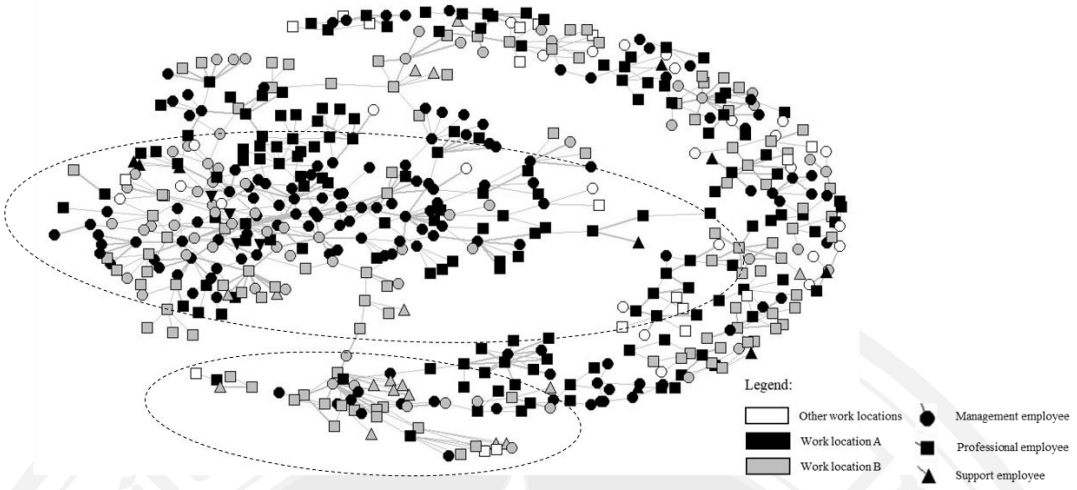

Figure 4.141 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q10

The social network graph elicited from participants and named individual pairs with high proximity scores and affirmative response to item-questions Q9 ‘belonging’ is shown in Figure 4.140. As exemplified by the encircled areas in Figure 4.140, strong ties (thick ‘gray’ connections) within the network bridged actors within a group, as well as connected groups within the network.

The social network graph elicited from participants and named individual pairs with high proximity scores and affirmative response to item-questions Q10 ‘morale’ is shown in Figure 4.141. Similarly, strong ties within the network bridged actors within a group, as well as connected groups within the network (as highlighted by the encircled areas in Figure 4.141).

The social network graphs elicited from participants and named individual pairs with high proximity scores and affirmative response to item-questions Q11 (‘individual attraction’), Q12 (‘social cohesion’), and Q13 (‘task cohesion’) are shown in Figure 4.142, Figure 4.143, and Figure 4.144 respectively.

On inspection, all three figures exhibit similar traits as the previous two social network graphs of strong ties in this section. That is, strong ties 1) connect members of a group together, as well as 2) connect groups together in the network. As highlighted in each of the encircled areas in Figure 4.142, Figure 4.143, and Figure

4.144, strong ties bridged and connected; strong ties enabled actors from one group to reach out to actors from other groups.

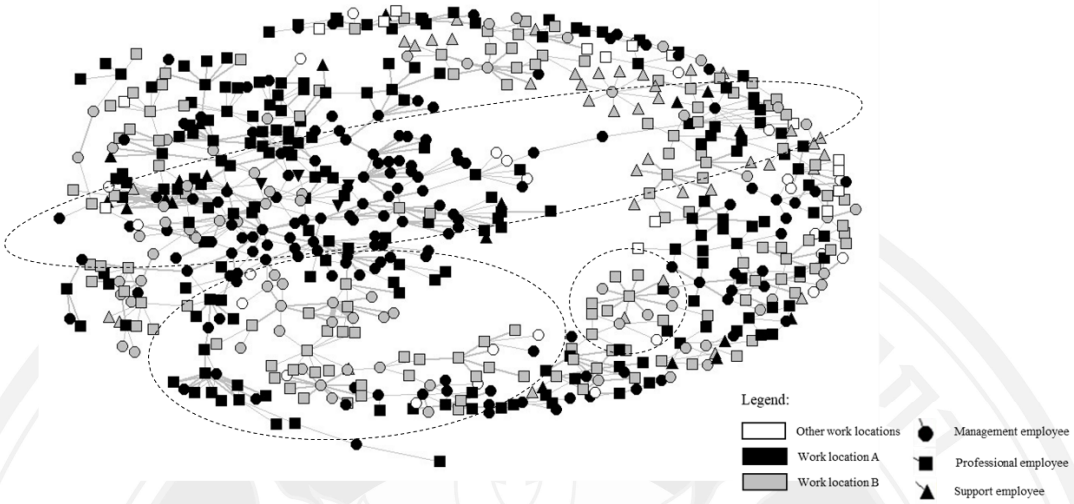

Figure 4.142 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q11

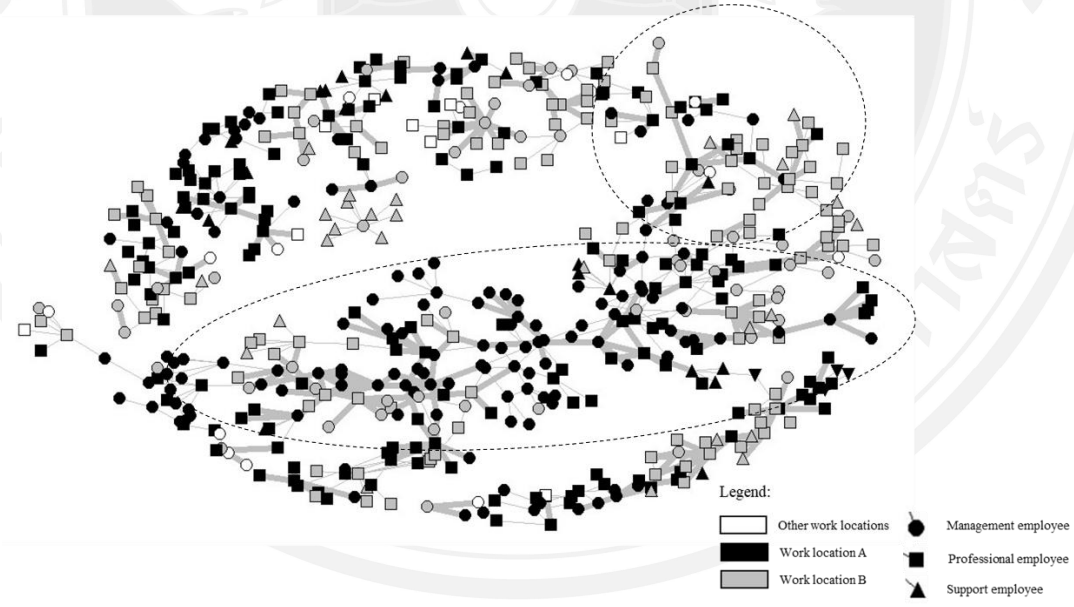

Figure 4.143 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q12

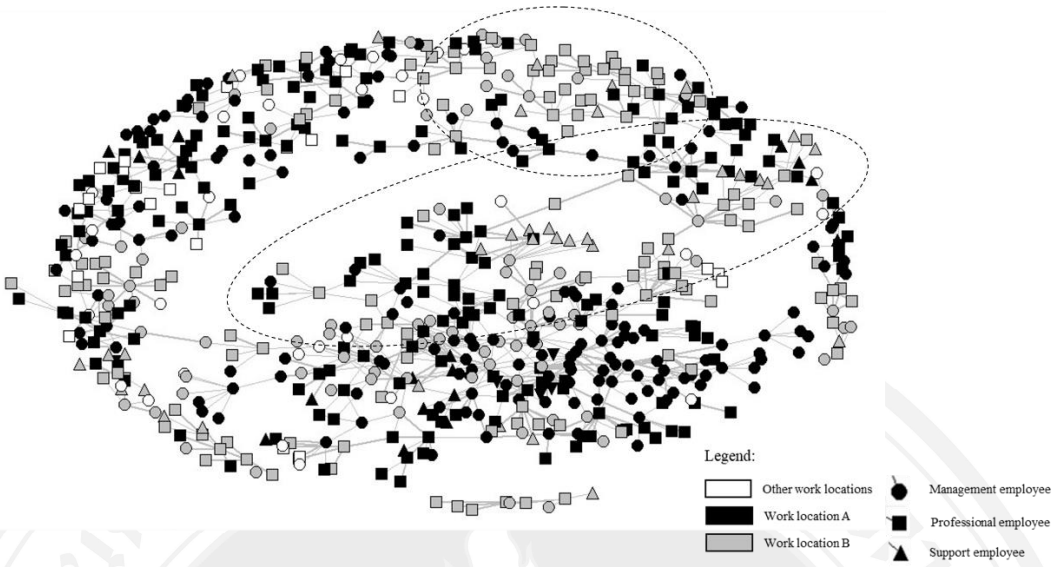

Figure 4.144 Social Network Graph Elicited from Participants and Named Individual Pairs with High Proximity Scores and Affirmative Response to Item-Question Q13

4.4.4 Summary for Strong Ties Analysis

The analysis of strong ties in social networks formed from data collected in this study confirmed the role strong ties play in bridging actors as well as connecting groups. Such connections form the basis of a social network and is essential to the function of a social network. Table 4.48 summarizes findings from the analysis of strong ties as answers to RQ 3.

Table 4.48 Summary of Observations from Strong Ties Analysis that Contribute to Organizational Cohesion

No.	Findings	Exemplified By
1	Connects members of the group and bridges two (or more) groups within the network.	Q1, Q2, Q3, Q4, Q8, Q9, Q10, Q11, Q12, and Q13
2	Connects members of the same group only.	Q5, Q6, and Q7

The weak ties and strong ties analyses presented in this section answered research question, RQ 3 which sought to understand how social ties contributed to organizational cohesion in a post-merger integration of a multi-national manufacturing company in Thailand.

4.5 Chapter Summary

This chapter reviewed key results obtained in this study. The chapter began by presenting the item-objective congruence for the survey instrument (that is, 13 item-questions) used in this study. A review of the data obtained in the study followed, with salient observations discussed. The discussion was followed by in-depth review of results and findings for each of the research questions, namely,

1) Research question RQ 1-quantitative (social network analysis) and qualitative (interviews with selected participants) results and findings were discussed. The findings did not support cohesion at the organization level but instead supported cohesion at the group level driven primarily by work and workflow.

2) Research question RQ 2-quantitative (social network analysis) and qualitative (interviews with selected participants) results and findings were discussed. Findings suggested that ‘social identity’ contributed to cohesion at the group level. However, this could inhibit cohesion at the organization level as each group ‘competes’ to project their identity. Findings suggested that ‘attachment’ could inhibit cohesion as ‘anxiety’ and ‘avoidance’ could result in behavior that inhibits connections within the network, ultimately reducing cohesion within the group.

3) Research question RQ 3-quantitative (social network analysis) results and findings for weak ties and strong ties. Findings from weak ties analysis highlighted behaviors within groups to maintain connections; findings were aligned to Granovetter’s (1973, 1977) thesis. Findings from strong ties highlighted connections within groups and bridging between groups.

This summary concludes the chapter.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

The previous chapter presented results and analyses of the data collected in this study in relation to each of the research questions (RQ) set forth in this study, namely,

1) RQ 1: How cohesive is the organization in the context of post-merger integration of a multi-national manufacturing company in Thailand?

2) RQ 2: How does social identity and attachment contribute to organization cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

3) RQ 3: How does social ties contribute to organization cohesion in the post-merger integration of a multi-national manufacturing company in Thailand?

This chapter discusses salient observations from the results and analyses presented. This chapter is arranged as follows:

1) Salient points and relevant insights to the state of organization cohesion extracted from the results obtained relating to RQ 1 is discussed.

2) Salient points and relevant insights on how the constructs ‘social identity’ and ‘attachment’ contribute to organization cohesion extracted from the results obtained relating to RQ 2 follows.

3) The importance of ‘weak ties’ and ‘strong ties’ within an organization is discussed next relating to RQ 3.

4) Implications for theory and practice are discussed next, providing a view of contribution of this study to scholarly and practical work.

5) As with any study, there are limitations. A section briefly touching on limitations of this study is presented.

6) Finally, the chapter summary closes the chapter.

5.1 Discussion on Findings for RQ 1

Research question RQ 1 explored how cohesive the organization in the context of post-merger integration of a multi-national manufacturing company in Thailand is. The quantitative (social network analysis) and qualitative (interview) results and findings answering research RQ 1 were discussed in section 4.2 in the previous chapter. Specifically, quantitative (social network analysis) for five items under cohesion were covered in detail in sections 4.2.2 (‘belonging’), 4.2.3 (‘morale’), 4.2.4 (‘individual attraction’), 4.2.5 (‘social cohesion’), and 4.2.6 (‘task cohesion’). The quantitative findings were summarized in section 4.2.7, while the qualitative findings were summarized 4.2.9 in the previous chapter.

The quantitative findings presented in the previous chapter and summarized in section 4.2.7 included the following:

1) Key network cohesion parameters presented in Table 4.7 and Table 4.8 showed low cohesion.

2) Key network centrality measurements presented in Table 4.9 (network normalized betweenness centrality), Table 4.10 (network closeness centrality), and Table 4.11 (network degree centrality) were determined to be characteristic of ‘low cohesion’ networks.

3) Visual inspection of the elicited social network graphs presented characteristics of ‘low cohesion’ networks. Whereas it was expected that actors from different work locations were well-mixed (that is, gray-colored shapers well mingled with black-colored shapes) in the networks for each of the give item-questions, elicited graphs from the data collected did not show the same. Instead, groupings were mainly actors from the same work location (that is, black-colored shapes grouping together and gray-colored shapes grouping together).

4) Visual inspection of the elicited social network graphs found connections within groups and across groups (compared with ‘cohesive’ network having all actors connected to each othe; see Figure 3.7(b) as example).

With the above salient points, the conclusion from the quantitative investigation was ‘low cohesion’ existed in the organization in the context of post-merger integration of a multi-national manufacturing company in Thailand.

The qualitative interviews (summary of themes presented in Table 4.18) did not reveal information contrary to the quantitative findings as ‘cohesion’ was limited to group or functional level rather than characteristic of the whole organization.

‘Cohesion’ in a traditional quantitative study would be performed through data collection and analysis (including structural equation modeling) using a reliable instrument around the construct ‘cohesion’. The same study could be performed in a traditional qualitative study through data collection and theme analysis with a set of interview questions structured around the construct ‘cohesion’. In this study, ‘cohesion’ was studied from a social network perspective, with analysis performed in two ways, namely, (a) the frequency of connections (or ties) calculated and presented in network cohesion parameters, and (b) interpretation of visual social network graphs for characteristics of ‘cohesiveness’ from how the connections are formed.

Recapping literature presented in prior chapter in this volume, the attempt to understand human collectivity as posed by Jenkins (2002) came to mind, specifically, Figure 2.10. The social network graphs elicited for the five item-questions showed how participants and their named individuals grouped together. The graph can be viewed as the ‘collectivity’, the directed connections as the ‘interaction order’, the groupings of black-colored shapes versus gray-colored shapes as the ‘institutional order’, and who the participants chose to name as a connection in response to the item-question as the ‘individual order’. This is especially true when reviewing item-questions Q12 (‘social cohesion') and Q13 (‘task cohesion’). As Halloran and Kashima (2006) noted, how an individual interacted with the social setting depending on how the social group perceive itself and what social identity that individual undertook. In the context of mergers and acquisitions, this depended on the sate of the ‘collectivity’ (referring to Figure 2.10) and the balance (that is, group cohesiveness) within the ‘collectivity’.

5.1.1 ‘Cohesiveness’ in Social Network Analysis

Two salient features characterize a ‘cohesive’ network, namely, (a) a ‘web’ showing connections amongst all members of the network (see Figure 3.7 as example), and (b) mixing of members from the sample population regardless of demographics. In this study, the merger and acquision integration was between work

location A and work location B of a multi-national manufacturing company in Thailand. Thus, it is expected that a ‘well-mixed’ social network graph where members from both work locations A and B are well connected to each other (that is, in the topology as shown in Figure 3.7(b)) be presented as the social network graphs to demonstrate a ‘cohesive’ post-merger integrated organization. It was also expected that cohesion measures extracted from the social network graphs statistically support organization cohesion. However, findings suggest this is not the case.

Instead, characteristics observed point to the contrary, namely, (a) connections more like the topology shown in Figure 3.7(a), and (b) of members from the same location (as characterized by the same-colored shapes in a group), and cohesion measures describe small clusters and isolation within the network. As the overall social network graphs elicited from the data collected consisted of such topologies, it was concluded that there was ‘low cohesion’ at the organization level but not at the team level.

As all the social network graphs were elicited from responses to item-questions under the construct ‘cohesion’, such ‘low cohesion’ characteristics further supported the conclusion that organization cohesion in the post-merger integration multi-national manufacturing company in Thailand was low.

This method of measuring ‘cohesion’ contrast to conventional quantitative survey techniques, which cannot tell if cohesion was at organization or team level (see section 5.2.1 later in chapter).

5.1.2 Level of Analysis

Scholars have regularly debated about changing levels of analysis in the same study (compare Moul, 1973; to Singer, 1961; for and against respectively). Singer (1961) argued that for (a) representing, (b) expounding, and (c) forecasting functionality of an analysis to be accurate, it is not advised that different levels of analysis be performed within the same study. However, social network analysis offers the means to including different levels of analysis precisely for the reasons argued. While findings and results for research question RQ 1 pointed to low cohesion from the perspective of cohesion measures (Scott, 2017; Wasserman & Faust, 1994) at the organization level, some level of cohesion is observed at the group level. In other

words, better insight could be gained from performing social network analysis at different levels of analysis (e.g., organization level versus group level).

In setting the research question the level of analysis has been set. Being able to perform analysis at both organization level and group level does not mean the focus on the research question is changed. It merely allows discussion at different levels to shed light on the phenomenon investigated.

5.1.3 Instrument Versus Level of Analysis

While the unit of measurement of the survey item-questions chosen to investigate research question RQ 1 was at the individual level, the level of analysis was directed at the organization level. Whereas it is possible to aggregate data collected at the individual level to form a composite view at the organization level of analysis (Chan, 1998), some survey instruments may not be suited for this purpose (Kimberly & Cook, 2008). One such example could be item-question Q13 utilized in research question Q13 investigation. Item-question Q13 involved finding out if the participant and the named individual were united in trying to reach the organization's goals for performance (that is, 'task cohesion' under the construct of 'cohesion'). As organization goals could be set at the functional or group level within an organization (albeit the outcomes contributing to the overarching deliverable of the corporation), the response received could represent the view at the functional or group level. Hence performing a level of analysis at the organization level (versus team level) might not yield meaningful results. This is an important point to consider at the design stage of the study.

5.2 Discussion on Findings for RQ 2

Research question RQ 2 explores how social identity and attachment contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand. The quantitative (social network analysis) and qualitative (interview) results and findings answering research RQ 2 were discussed in section 4.3 in the previous chapter. Specifically, quantitative (social network analysis) for four items under social identity were covered in detail in

sections 4.3.2, 4.3.3, 4.3.4, and 4.3.5, whereas quantitative (social network analysis) for four tiems under attachment were covered in detail in sections 4.3.7, 4.3.8, 4.3.9, and 4.3.10. The quantitative findings were summarized in sections 4.3.6 (for social identity) and 4.3.11 (for attachment), while the qualitative findings were summarized 4.3.13 in the previous chapter.

The answer to research question RQ 2 is summarily reiterated here,

1) Quantitative social network analysis and qualitative findings for 'social identity' did not suggest contribution to organization cohesion of the post-merger integration multi-national manufacturing company in Thailand. The findings instead suggested cohesion at the group level that is primarily driven by workflow.

2) Quantitative social network analysis and qualitative findings for 'attachment' did not suggest direct contribution to organization cohesion of the post-merger integration multi-national manufacturing company in Thailand. The findings instead suggested 'attachment' influenced or affected contribution to cohesion to some extent at the organization level and at the group level.

3) The bipolarity affect nature, possibly eliciting emotional responses during response to the item-questions, might have contributed to the results obtained and hence findings.

5.2.1 Data Collected for Constructs 'Social Identity' and 'Attachment'

In a traditional quantitative survey instrument, a single response would be captured per participant for each item-question except when the item-question is skipped over. In this study, the item-question response was captured for each participant and named individual pair provided for the item-question (as outline in section 0 in chapter three in this volume). A proximity score describing how close the relationship was between the participant and named individual was also captured (see outline in section 0 in chapter three in this volume). Both the data points captured enabled a modified way of constructing the social network graph for analysis.

In particular, the item-question response for each participant and named individual pair allowed the full range of the bipolar affect (Russell & Carroll, 1999) toward the item-question to be captured. That is, how the participant considered the item-question in relation to the named individual was captured. As discussed

previously, both positive (slightly agree, agree, or strongly agree) and negative (slightly disagree, disagree, or strongly disagree) responses to the item-question are possible (see section 4.1). This in turn allowed for the social network graphs to be bifurcated between the 'positive' and 'negative' responses recorded. It was also possible to review if a 'negative' response to the item-question was due to the relationship proximity (although it was shown in section 4.1.2 that no strong correlation existed in the data collected in this study). However, not affirming did not necessarily mean denial or negation (Rumfitt, 2000) as the list provided by each reflected some state of mind unknown to others; was the participant experiencing a bad event with work, or was thinking of a good moment? It was clear that affirmative responses to the item-questions (especially for the item-questions under the construct 'attachment') were opposite of negative, given the affective nature of the question. Positive affect and negative affect were not independent, according to studies (Green et al., 1993); an increment in agreement may not produce a decrement in disagreement (Green et al., 1999).

Putting possible measurement error (that could not be validated) aside, both scores enabled a different way of visualizing the social network graph. The relationship proximity score was translated to thickness of the tie between each pair. Specifically, a score of one (isolated) would result in a thin line whereas a score of seven (extremely close) would result in a thick line. The scores are also visible in each tie.

This discussion reflects the possibility of additional insights from analyses with the additional data collected in the design of this study. The implication is that the social network analysis would not have any advantage over a conventional quantitative survey with an item-question that might have driven an emotional response related to the bipolarity affect of the item-question.

5.2.2 Social Identity and Attachment Contributing to Cohesion

This study explored two constructs, 'social identity' and 'attachment' and their contribution to cohesion in the context of a post-merger integration multi-national manufacturing company in Thailand. This section discusses salient findings from the study.

5.2.2.1 Social identity construct

The salient findings were three-fold (see sections 4.3.6 and 4.3.14),

1) Social identity did not contribute to cohesion in the post-merger organization, but instead could also have inhibited cohesion.

2) Social network analysis suggested that work location or workflow could be a social identity that contributed to cohesion at work groups within a work location but inhibit cohesion at the post-merger organization.

3) Qualitative evidence suggested 'ingroup' referred to the group participants belonged to, invested time with, and found common ground with. That is, social identity was described by sense of belonging, time together, and common purpose. Hence social identity inhibited cohesion at the larger organization level.

Recapping, social identity theory (Tajfel, 1974; Tajfel et al., 1971; Tajfel & Turner, 1979, 1986) can be seen in the light of the following linked concepts, namely,

1) Social categorization, where groups of individuals act to preserve or maximize the benefit to the group; as evidenced by actors in the social network graphs elicited from the four item-questions were largely connected to actors within the same work location (that is, gray-colored shapes versus black-colored shapes) in the social network graphs.

2) Social comparison, how groups maintain or achieve higher status; evidenced again by actors in the social network graphs elicited from the four item-questions were largely connected to actors within the same work location (that is, gray-colored shapes versus black-colored shapes) in the social network graphs.

Social identity theory suggests that 1) grouping, and 2) meaning and purpose (evoked by being in the group) set up for differentiation (Spears et al., 1999); that is, being socially connected and having a sense of belonging (Cohen & Garcia, 2008; Lee & Robbins, 1998).

5.2.2.2 Attachment construct

The salient findings were four-fold (see section 4.3.11 and 4.3.14),

1) Findings for items-questions, 'attachment anxiety-1' and 'attachment avoidance-1' indicated low cohesion measures, exemplifying lesser

undesirable connections and therefore supported the thesis of contributing to cohesion in a post-merger organization.

2) Findings for items-questions, ‘attachment anxiety-2’ and ‘attachment avoidance-2’ indicated low cohesion measures, exemplifying inhibiting cohesion and therefore did not support the thesis of contributing to cohesion in a post-merger organization.

3) The review of social network graphs elicited did not suggest strong evidence supporting the thesis that ‘attachment’ contributed to cohesion in a post-merger organization but instead offered evidence supporting the thesis that ‘attachment’ influenced or affected cohesion beyond identifying with a group (Reis & Patrick, 1996).

4) Qualitative evidence suggested increased anxiety (feeling surprised and shocked towards rejection and separation; see Table 4.37) and reduced avoidance (interdependence as optimum way to achieve work goals; see Table 4.37). Recapping attachment theory (Ainsworth, 1978; Ainsworth & Bowlby, 1991; Bretherton, 1992), an increased sense of attachment anxiety or avoidance meant an insecure attachment experience, which could lead to lower levels of trust and reaching out (Albert et al., 2015; Kahn & Fellows, 2013; Richards & Schat, 2011). Individuals who are ‘anxiously attached’ could maintain a sensitive and watchful stance towards others (Fraley et al., 2006).

5.2.2.3 Perspective of mergers and acquisitions

The social network graphs elicited from the data collected is characterized mainly by actors connecting with members of the same work location (that is, gray-colored shapes versus black-colored shapes). The post-merger integration organization continued to hold separate product lines, with work location A producing different products from work location B. This could be one factor driving the relationships as depicted by the social network graphs. On the assimilation scale proposed by Pitkethly et al. (2003), the case of interest is likely to be at a score between four and five on the scale (see Figure 2.9 in chapter two of this volume) given the results and findings observed from the elicited social network graphs. The case of interest (theoretically) should be operating as an amalgamated entity of the best of work location A and B from an organization structure perspective (see

discussion in section 1.4 in chapter one of this volume). However, from the social network graphs elicited for ‘cohesion’ construct (that is, item-questions Q9 to Q13), it was observed that the case of interest operated more as two entities operating as they did before the merger and acquisition.

5.3 Discussion on Findings for RQ 3

Research question RQ 3 explored how social ties contribute to organizational cohesion in the post-merger integration of a multi-national manufacturing company in Thailand. RQ 3 was answered from the lens of ‘weak ties’ (as discussed in section 4.4.1) and ‘strong ties’ (as discussed in section 4.4.3) in the previous chapter of this volume.

5.3.1 Discussion on Weak Ties Analysis

The ‘weak ties’ analysis from the elicited social network graphs could be summarized as follows,

1) Reinforcing role as bridge or connectors and enhancing reciprocity could enhance weak ties and improve access to larger resource pools within the network.

2) Enhancing sense of belonging or communicating importance of belonging within the network may enhance weak ties.

3) Finding and addressing dissatisfaction or disengagement could enhance collaboration between groups.

4) Reliance on a workflow relation when personal relations are lacking may trigger attention to maintain relations.

5) Situating in a different work location or awareness of a bridging role between groups may trigger focus or attention to maintain relations.

Granovetter (1973, 1983) reminded researchers the subtle salience (and possible impact) of a ‘weak’ relationship. Relying on proximity information (that is, how close two actors are to each other), such ‘weak’ (e.g., acquaintances, new relationships, etc.) relations could be situated in an influential role (such as a bridging

role) between groups. The proximity information collected in the study facilitated this analysis.

Individual actors in the network who do not have many relationships but are acquaintances to other actors who are central to their closely knit cluster of actors – thereby being ‘bridges’ between close-knit clusters (Granovetter, 1982). Cultural diffusion between groups can thus take place (Fine & Kleinman, 1979; Lin et al., 1978). Social network analysis thus mirrors sociological reasoning (Emirbayer, 1997; Emirbayer & Goodwin, 1994), incorporating socially constructed meaning and definition within the context of the social relationships and is so, closely connected and aligned to cultural theories (Brint, 1992; White, 1992a, 1992b, 1993, 2008), as noted by Scott (2017).

However, findings also suggested ‘weak ties’ connected actors of different profiles (Adamic et al., 2003). Though this helps with speed of information (including the spread of rumors), influence flows, interactions, etc. (Friedkin, 1980), weak ties are not ideal for transmitting highly sensitive information due to their connection with different profile actors (Shi et al., 2007).

5.3.2 Discussion on Strong ties Analysis

The ‘strong ties’ analysis from the elicited social network graphs could be summarized as follows,

1) Playing the role of bridging and connecting groups within the network.

2) Connecting members of the same group in a closely-knit cluster.

According to Nelson (1989), the existence of strong ties translate to a reduction of conflict within an organization. Therefore, organizations with strong ties present would benefit from the absence of disruptive conflict, which would mean enhanced cohesion. In the case of interest, strong ties mainly connect actors from the same work location (see Figure 4.127 for example, gray-colored shapes versus black-colored shapes). Thus, the state of reduced conflict may only exist within the groups of the same work location. Evidence suggests some strong tie connections between groups from different work locations (see Figure 4.139, long encircled area). By token

of social identity approach, groups connected by strong ties could perceive other groups as rivals and thus inhibit cohesion.

5.3.3 Balance between Strong Ties and Weak Ties

Krackhardt (2003) brought up two salient points from the work of Granovetter (1973, 1982), namely, (a) actors in insecure positions would likely form strong ties to reduce uncertainty, and (b) weak ties could provide insight to certain network traits better than strong ties. The weak ties and strong ties analyses presented suggest that the co-existence of both types of ties within a network benefit in enhancing cohesion where 1) weak ties assist in connecting across acquaintances and resources in the network (Lin et al., 1978; Lin et al., 1981), and 2) strong ties reinforce relationships and influence in the network.

5.4 Implications of Study and Recommendations for Scholars and Practioners

This section discusses relevant ideas and recommendations for consideration by both scholars and practitoners undertaking research or practical work in mergers and acquisitions.

5.4.1 Current Methodology

Social network analysis, from visual representations presented in social network graphs to network parameters (e.g., cohesion measures, centrality measures, etc.), provided additional perspective to traditional quantitative survey and qualitative interview methods of inquiry. This is particularly useful in inquiry subjects relating to group and group relations in terms of (a) similarities (or differences), (b) interactions, and (c) how things flowed within the context (Borgatti et al., 2009; Granovetter, 1990).

The traditional quantitative survey response was also collected in this study, adding the possibility to further investigate and analyze data collected from the point of view of participants. Specifically, for each participant and named individual pair (see section 0),

1) A response to the item-question was collected.

2) A response on how close the relationship between the participant and the named individual from the point of view of the participant was collected (see Figure 3.6).

This study demonstrated that additional perspectives can be extracted as discussed in the sections presented for each research question. The current data collection methodology could boost the value of studies about group relations and measuring quality of group relations.

5.4.2 Perspective of Theory of Teams and Collectivism

Jenkins (2008) reminded us that identification can be a result of interaction (see Barth, 1998a, 1998b) or mere grouping together (see Tajfel, 1981). Referring to Figure 2.10 in an earlier chapter, Jenkins (2002) proposed the three-legged model of collectivity that could explain 1) the collectivity emancipating from the workings of the three orders (according to Barth), or 2) the collectivity driving the workings of the three orders (according to Tajfel). The findings of this study (that is, the social network graphs showing connections mainly consisting of actors from the same location) suggest that the 'collectivity' due to work location (and history of working together) outweigh the 'collectivity' due to merger and acquisition. The findings suggest that 'identity' emancipates from the work location (or work group) rather than the integrated organization.

Nair and Selvaraj (2021) reminded that social identities cannot be separately placed from culture, citing Chatman and Spataro (2005). Thailand, a high power distance and collectivistic culture, tends to respect hierarchy and trading care (of members) for allegiance (Chayakonvikom et al., 2016). Coupled with an organization's emphasis on loyalty and organization goals, the importance of in-group membership is increased (Chatman et al., 1998; Earley & Gibson, 1998); in-group messaging and ideas fuel comparison (MacKie et al., 1992; Triandis et al., 1985; Wyer, 2010) and collectivistic groups tend to try to preserve existing conditions (Topalova, 1997). Collectivism relates to the wellness of the individual and the group (Brewer & Gardner, 1996; Gelfand et al., 1996); the social network graphs elicited in

this study reminds that collectivism is not at the opposite end of individualism but perhaps orthogonal (Gelfand et al., 1996).

The results of this study (low cohesion scores, social network graphs mostly showing actors from the same work location connecting, etc.) corroborate with the collectivistic culture perspective and self-categorization (social identity approach). However, the results cannot determine if the collectivism arose due to the social identity attributed to work location or vice versa.

Team development researchers so far focused on stages or process steps relating to 1) relationship amongst members, 2) tasks deliverable, and (c) life cycle of team (see Bales, 1950; Bales & Strodtbeck, 1951; Bion, 1961; Gersick, 1988, 1989, 1991; Hurt & Trombley, 2007; Mann et al., 1967; Slater, 1966; Tubbs, 2012; Tuckman, 1965; Tuckman & Jensen, 1977). The common thought being how teams elect to behave interdependently and independently within the collective.

According to Hogg and Abrams (1988), the larger the group gets, the more group norms become dominant, at the expense of cohesiveness. This could explain the low organization cohesiveness in this study, and the collectiveness exhibited relating to each work location. This brings to question the concept of ‘belonging’ versus ‘cohesiveness’ in relation to ‘organization’ versus ‘team’ (Schwartz, 1990).

5.4.3 Perspective of Social Constructivism and Collectivism

According to Ge et al. (2022), constructivists take on an ever-changing, instantaneous, and flexible related to people and things situated with them. They also claimed that a collective culture with majority Buddhist influence (which Thailand would qualify) tend towards a constructivist way of relating to one another; see Markus and Kitayama (1991, 1994, 2003) for a comprehensive review of the concept of ‘self-construal’ (how one relates to others). How a person thinks about a situation is directed psychologically by how he/she perceives and prepares for the situation (Kelly, 2003). Even neuroscience evidence (e.g., see Han & Humphreys, 2016) suggest that an interdependent or independent perspective influences how one processes situational information. Social constructivism is akin to collectivism from the perspective of individual looking at the organization (Talja et al., 2005)

Critiques and proponents of constructivism argue the different perspectives and treatment of culture and identity (e.g., see Bader, 2001; versus Baumann, 2001). The ‘self’ does not exist totally due to the social context and relatedness to the collective (Zahavi, 2022) nor is the ‘self’ is totally devoid of community and sociality (Garfield, 2022; Mead, 1934; Zahavi, 2023).

The link tracing process (Heckathorn & Cameron, 2017) requires the participant to name next participants and assess each individual in regards to the survey question. It is not clear (nor within the scope of this study to determine) the exact perspective of how the participants would respond. It could be due to 1) current work relations, or acquaintance / friendship (that is, likely socially constructed), or 2) association / obligation to organization (that is, likely collectivistic), or 3) both. Social identity is an integral part of collectivism (Reid, 2004). Social cohesion results from social identity (Zahavi, 2023). It then follows that social identity is socially constructed (Garfield, 2022) and underpinned by social norms, beliefs, collective ideas (Agius, 2016). Results of the current study (that is, low cohesion scores, social network graphs mostly showing actors from the same work location connecting, etc.) cannot help determine if the individual’s behavior within the team could be attributed to collectivism or social constructivism; it is likely due to the interaction and intersection between both (Zahavi, 2024) and the independent and interdepent of how one views one’s surroundings (Markus & Kitayama, 2003).

5.4.4 Perspective of Relevant Theoretical Models

Taken together, the results presented in the previous chapter hint at theoretical models from the ‘social identity’ scholarship. Several models relevant to 1) explaining nuances found in this study, and 2) providing ideas for future undertakings of this study along with aspects of human resource development are summarized in Table 5.1.

Table 5.1 Summary of Theories and Related Human Resource Development Focus Relevant to the Case in this Study

Theoretical Model	Human Resource Development Focus
Common Ingroup Identity Model (CIIM; Gaertner et al., 1993)	Co-creating an overarching / higher order 'identity' to reduce intergroup bias and conflict.
Ingroup Projection Model (IPM; Wenzel et al., 2007)	Projecting a group's strength (e.g., operational excellence, business orientation, etc.) as the overarching / higher order identity to boost group value.
Social Identity model of Deindividuation Effects (SIDE; Postmes et al., 1998)	Recognizing, preventing, and/or addressing anti-social / defiant behaviors developed because of anonymity within a group's identity.
Uncertainty-Identity Theory (UIT; Hogg, 2007)	Reducing uncertainty through establishing appropriate social identity for the group.

Each of the theoretical models / frameworks are briefly discussed here:

1) Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993)-the model involved a process of 'recategorization' where interventions help groups focus on an overarching 'identity' while not reducing the importance of their own group identity thereby creating a dual identity state; see Figure 5.1 for various states. As shown in Figure 5.1, where the subgroup identity is strong, the recategorization results accommodates sub-cultures to co-exist; where the subgroup identity is weak, the recategorization results in assimilation and the creation of 'oneness' (Dovidio et al., 2010). The relevance is in recognizing the needs of the organization and rallying members with policies and interventions aimed at reducing intergroup bias and inequalities (Dovidio et al., 2016) and attaining 'cohesion' (Gaertner et al., 2001). On the flip side, focusing on the overarching common identity could marginalized efforts in highlighting inequalities in bringing about awareness from a diversity, equity, and inclusion perspective (Dovidio et al., 2012).

2) Ingroup Projection Model (Wenzel et al., 2007) – the model predicates upon the situation where a superordinate identity does not suffice to resolve intergroup conflicts (Wenzel et al., 2007). Challenging the Common Ingroup Identity Model, research has shown groups with dual identities tend to project their identity and create discrimination towards outgroups rather than creating a higher order sense of belonging (Wenzel et al., 2003). This model serves as a constant reminder to both researchers and practitioners of the fragility of intergroup relations.

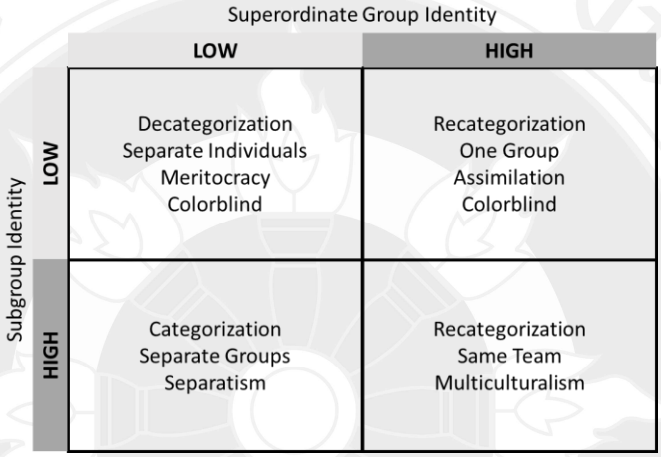

Figure 5.1 Representations within the Common Ingroup Identity Model
Source: Adapted from Dovidio et al. (2016, p. 11).

3) Social Identity model of Deindividuation Effects (Postmes et al., 1998; Postmes et al., 2001)-in discussing social identity approach, the concept of ‘depersonalization’ was discussed as part of self-categorization theory (Turner, 1982; Turner et al., 1987; Turner & Reynolds, 2012). The concept of ‘deindividuation’ involved a reduced state of ‘self’ in the group akin to losing oneself within the group, whereas, ‘depersonalization’ involved taking on the group onto oneself (Spears & Postmes, 2015). The importance and relevance of this theoretical model lies in that group polarization could occur as members adopt anonymity (Chen & Wu, 2015; Reicher et al., 1995). Where the division or demarcation between two groups are clear, ‘deindividuation’ would reduce that division and lead to reduced intergroup conflict (Spears et al., 1990).

4) Uncertainty-Identity Theory (Hogg, 2007)-the ‘social identity approach’ was extended to Uncertainty Reduction Theory (URT; Hogg, 2000, 2004), focused on reducing subjective (self-) uncertainty by associating oneself with a social group (Mullin & Hogg, 1999). Focusing on the characteristics and traits that make a group ‘a group’ (that is, 'group entitativity'; Campbell, 1958), URT was further extended to Uncertainty-Identity Theory (Hogg et al., 2007). Identification with a group reduces the feeling of uncertainty, whereas uncertainty motivates identification with a group (Hogg, 2005). This is important given that uncertainty exists in any merger and acquisition.

For researchers and practitioners designing interventions to improve cohesiveness, it is important to consider the salience of intimacy, according to Rosh et al. (2012).

5.4.5 Model Testing: Structural Equation Modeling

The previous chapter (see sections 4.2, 4.3, and 4.4) aimed at answering each research questions set in this study. Data collected could provide additional perspective. The primary quantitative work undertaken in this study uses social network analysis approach. Data collected primarily focused on participants providing named individuals to form relation pairs that could be analyzed using social network techniques. However, data collected included the agreement scores (in relation to 13 item-questions) and a relationship closeness score.

While this study is predicated upon three concepts, namely, 1) social identity, 2) attachment, and 3) cohesion, with well-established constructs, it will be interesting to seek out possible relations between constructs contained in the data to be obtained in the study through exploratory factor analysis (Fabrigar & Wegener, 2012) and validate the relations through confirmatory factor analysis (Brown & Moore, 2012; Harrington, 2009). It is hoped that these relations, possibly new, could shed better light to this study and enrich knowledge (Shah & Goldstein, 2006).

In a conventional quantitative study, a model consisting of relationships between selected constructs would be tested using data obtained. Whereas the primary quantitative analysis for this study is social network analysis, a basic model can still

be constructed and tested based on research question RQ 2 (that is, the relationship between ‘social identity’ and ‘attachment’ with ‘cohesion’).

The survey method adopted in this study is also novel and thus its redesign should consider a salient point Schrepp (2020) pointed out, as illustrated in Figure 5.2. The top illustrates a conventional method surveying a participant for the measure. The bottom illustrates a method surveying a participant for a measure that is related to a group (of persons) measuring relations. As shown in Figure 5.2, the traditional survey-questionnaire measures what the participant thinks (of a concept) directly without consideration to relationships. The method deployed in this study measures both the participant’s view on the survey-questionnaire and the perspective of the participant’s relationship with members of group(s) on the survey-questionnaire (as shown in the bottom part of Figure 5.2).

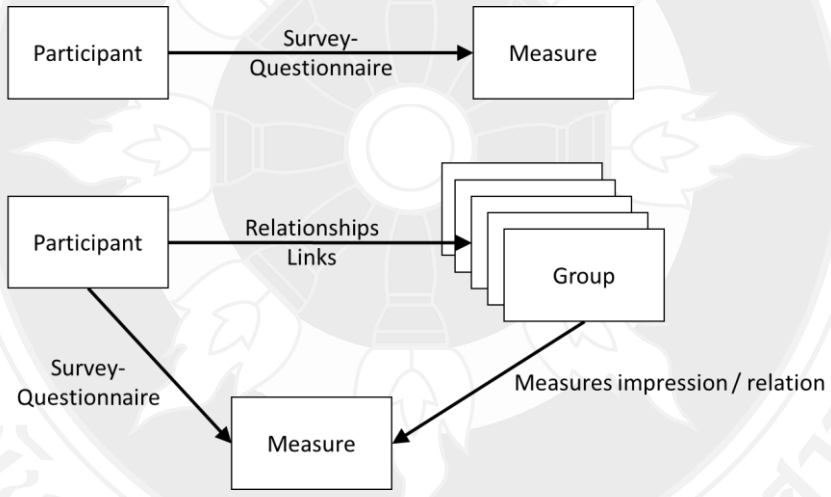

Figure 5.2 Diagram Illustrating the Difference between a Conventional Survey Questionnaire Versus the Methodology Deployed in this Study, which is Closer to User-Experience Surveys.

Source: Adapted from Schrepp (2020, p. 251).

5.4.6 The Impact of Crisis

As mentioned earlier, this study was conducted during the COVID-19 pandemic. In such an extended pandemic, it is inevitable group interactions and connections were affected and/or interrupted; some groups became ‘separated’ (Mak

& Pruetipibultham, 2022). There was no lack of scholarly articles related to COVID-19 (e.g., Bavel et al., 2020; Marčinko et al., 2020; Segal et al., 2021; Steele, 2020) to draw from, especially on identification and social identity approach (e.g., Cruwys et al., 2021; Dovidio et al., 2020; Haslam et al., 2021; Jetten et al., 2020; Steffens et al., 2021).

As mergers and acquisitions can be perceived as a crisis, it is thus relevant to review COVID-19 literature from the perspective of social identity approach.

5.4.7 Language as Social Identity

Although the relation between language and identity has been delimited in this study (see section 2.8.3 in prior chapter), it can be an important element. An exertion of influence on individuals and their corresponding reaction could exemplify the self-categorization process (Turner & Reynolds, 2012), specifically ‘depersonalization’. It might be expected that the dominant executive management team asserts influence over the larger population from a vocabulary perspective and that vocabulary assimilating as part of the current organization’s culture (Turner, 1999; Turner & Onorato, 1999). This possibly enhances social cohesion due to ‘social identity approach’ (Anastasio et al., 1997; Jetten, O'Brien, et al., 2002),

1) Social rivalry allows individual expression of their ‘selves’ in the social setting.

2) Acknowledging the existence of a different social contet between ‘self’ and ‘group’.

3) Construction of the stereotype as a communal-based representation of what the community identity is.

4) ‘Self’ being embedded in that communal context.

Further, the Communication Accomodation Theory (CAT; Giles et al., 1991) provides a framework explaining the adjustments individuals or groups make in terms of communications (including use of language) to influence social distances. From a social identity perspective, communications can be a tool used fluently in social categorization (Dhir, 2004; Giles & Ogay, 2007).

5.5 Implications of Study and Recommendations for Human Resources Professionals

This section recommends several actionscthat would help human resources professionals advance organization cohesion.

5.5.1 Surveying Person Fit

Person-environment, person-organization, person-group / person-team, person-person, person-job fit (Kristof-Brown et al., 2005; Sekiguchi, 2004; van Vianen, 2006, 2018) surveying goals, values, skills, and personality traits can help figure out interpersonal compatibility between actors and their collective entities, especially for newcomers to any establishment.

Attraction due to similarity results in better exchanges between individuals (Byrne, 1971, as cited in Meyer, 2017), as well as reduce risk of conflict due to categorization within an organization (Meyer, 2017).

5.5.2 Designing Talent Attraction Programs

Talent acquisition professionals could establish a branding campaign or design job advertisement using the Common Ingroup Identity Model (CIIM) or Social Identity model of Deindividualization Effects (SIDE) that relates to society and community giving or corporate social responsibility initiatives. Human resource development professionals could deploy the same to design interviews for selection. Employee engagement professionals could deploy the same to establish a super-identity to enhance employee experience.

5.5.3 Designing Change Management Interventions

Human resource development professionals could deploy employee dialogue or change management interventions using Ingroup Projection Model (IPM) or Uncertainty-Identity Theory (UIT) to enhance the success rate of change implementations within the organization. Regular dialogue between leaders and employees would enhance engagement and bring about better understanding, resulting in better organization cohesion.

5.6 Implications of Study and Recommendations for Case of Interest

Recapping the problem statement and purpose of this study, the purpose of this study is to fill the knowledge gap in M & As 1) regarding organization cohesion post-integration, and 2) enabling human resource professionals to better guide M & As to success with implications to Thailand. It is therefore appropriate to return to the initial discussion around the case of interest of this study.

This section recommends three interventions developed based on findings of this study that would advance organization cohesion in the post-merger integration multi-national manufacturing company in Thailand.

5.6.1 Intervention #1: Sharing Insights from this Study

The state of organization cohesion of the post-merger (that is, the findings and discussions for research question RQ 1) suggests that the organization is operating as either 1) two separate entities under an umbrella company or 2) one entity absorbs another, whereas management believes the organization is operating as either 3) mutual best of two entities or 4) integrating the best of two entities (see Schmidt, 2002a, p. 40, Exhibit 2.13) The implication is a less than optimum state from the perspective of organization cohesion and healthy organization (Matthews, 2000); see also operational definition for this study discussed in an earlier section of this volume.

The first intervention involves setting a meeting with the leadership team of the post-merger integration of the multi-national manufacturing company in Thailand to perform a deep dive into the results of this study, specifically how to improve cohesion (that is, increase cross-work location collaboration) within the organization.

5.6.2 Intervention #2: Co-Creating a Super-Identity for the Organization

Applying Common Ingroup Identity Model (CIIM; Gaertner et al., 1993) discussed in the previous section, and referencing qualitative results of ‘social identity’ around common ground in helping community (see findings in section 0 of the previous chapter of this volume), an intervention would be to co-create a super-identity related to community giving or corporate social responsibility (CSR). As the organization participates in an annual event Rise Against Hunger (Rise Against

Hunger, 2023), a different approach can be planned. Whereas separate events were held at work location A and B, future events could have a mix of employees from both work locations coming together in the annual Rise Against Hunger. The same concept could be applied to other CSR events planned all year round.

5.6.3 Intervention #3: Recognizing Influencers in the Organization

Social network analysis surfaced key players in the network who, 1) played bridging roles (that is, actors with high betweenness centrality scores; see sections 4.2 and 4.3 in the previous chapter of this volume and discussion in this chapter), or 2) were ‘weak ties’ or ‘strong ties’ (see section 4.4 in the previous chapter of this volume and discussion in this chapter). Selected key participants were interviewed (see Table 4.17 and Table 4.37 for list). A sentiment echoed by multiple participants interviewed was, “I didn’t know I was a key player in my group”. Thus, it is an opportunity to re-connect with the key participants in an intervention that would develop them as ‘influencers’ to advance the idea of co-creating a superlative ‘identity’ beyond work location A or B. Learning from Social Identity model of Deindividuation Effects (SIDE; Postmes et al., 1998); these ‘influencers’ could detect and introduce interventions to address anti-social / defiant behaviors that might develop within the organization.

5.7 Limitations of Study

As with any study, limitations exist. This study, though defended as a single case study, remains a single case study set in the context of 1) post-merger integration in a 2) multi-national manufacturing company in 3) Thailand. Obviously, this study is limited in context. The recommendation is to expand this study to other cases of mergers and acquisitions in Thailand (and other geographies).

From the exploratory discussion through the lens of structural equation modeling, refinement to the theoretical framework and/or constructs relevant to the context of mergers and acquisitions should be considered. The use of social network analysis introduced a different perspective and way of analysis that can be further

exploited in future studies, particularly exploiting analysis tools relative to negative ties (Everett & Borgatti, 2014; Kaur & Singh, 2016)

The choice of continuing this study during the COVID-19 inevitably introduced impact to the responses received without a way to decipher the extent of the influence. Convolution and confusion complicated the analysis.

Furthering the study longitudinally, albeit also deciphering the impact of COVID-19, would add invaluable insight and critical knowledge in the scholarship of mergers and acquisitions.

5.8 Chapter Summary

This chapter reviewed additional insights in this study with recommendations for future endeavour. The chapter began with an explanation of ‘cohesion’ from the perspective of social network analysis as the centerpiece of this study. Next, discussions around insights from the results and analysis of data for all three research questions, RQ 1, RQ 2, and RQ 3. A discussion around implications and recommendations of this study to scholarship and practice in the context of mergers and acquisitions followed. The chapter wrapped up with a discussion around implications and recommendations of this study to the case of interest.

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APPENDICES

Appendix A

Engagement Survey Results

Figure A.1 Summary excerpts of employee engagement survey undertaken by 'NewCo' in October 2017 ('NewCo' internal report, 22 January 2018). Exhibit showing sections for community and cultural fit. Identifiers have been redacted or replaced for confidentiality reasons.

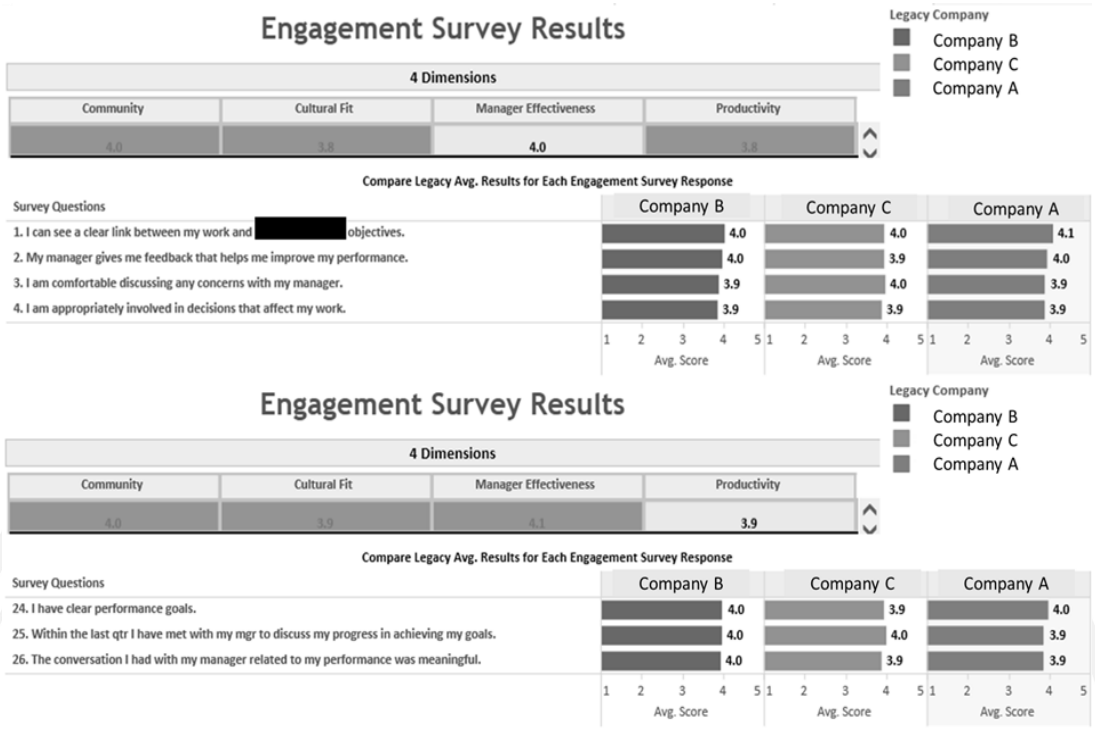


Figure A.2 Summary excerpts of employee engagement survey undertaken by 'NewCo' in October 2017 ('NewCo' internal report, 22 January 2018). Exhibit showing sections for managerial fit and productivity. Identifiers have been redacted or replaced for confidentiality reasons.

Appendix B

Macro Socio Framework of Social Identity Approach

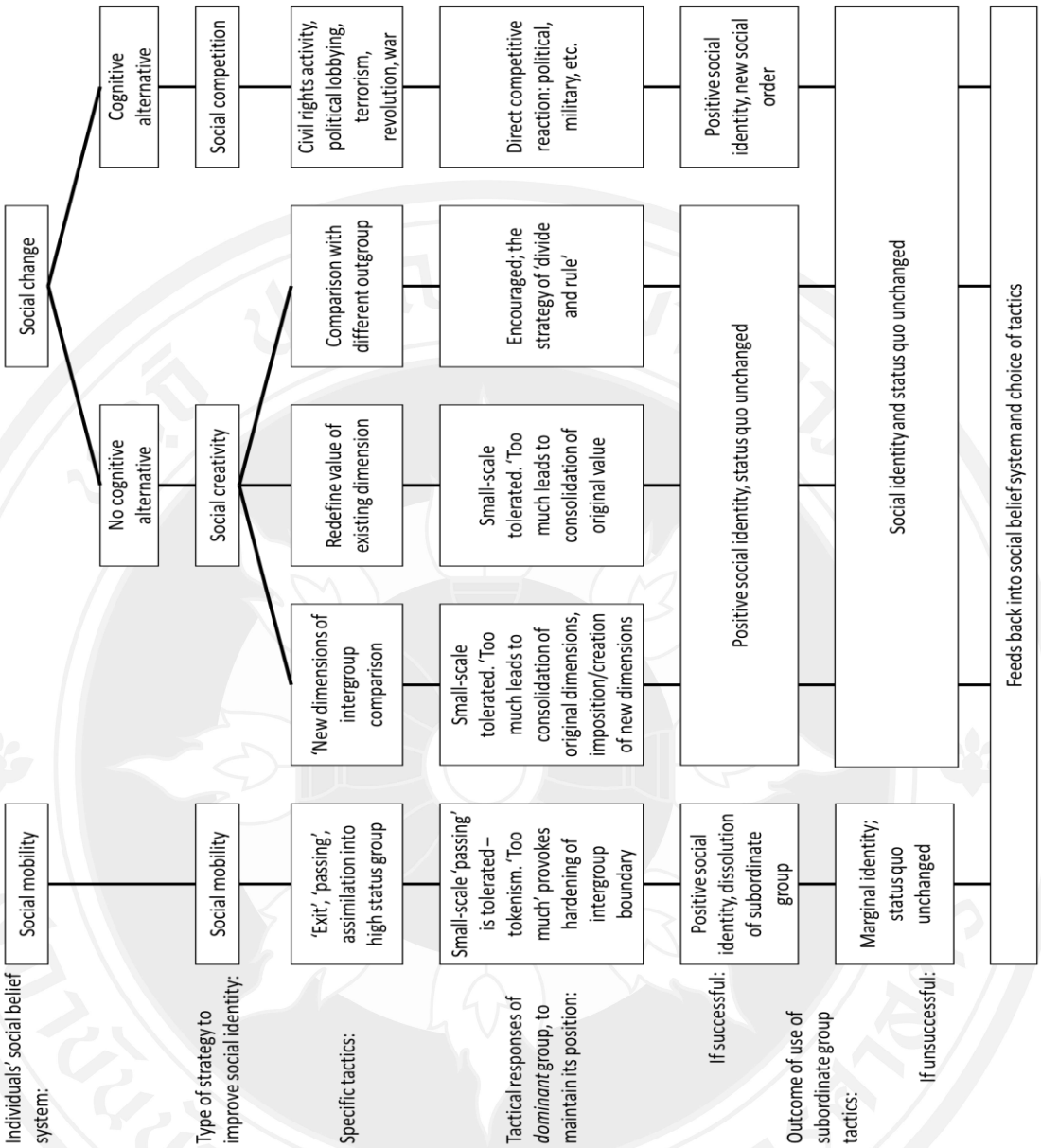


Figure B.1 Macro-social framework of social identity approach as applied to large groups

Source: Adapted from Figure 3.1 in Hogg and Abrams (1988, p. 55).

Appendix C

Ecnida Application

The required documents to be submitted with the application include:

(a) Form EC-F-01-01-EN Cover letter for ECNIDA application

(b) Form EC-F-01-00-EN ECNIDA submission form

(c) Form EC-F-08-00-EN Participant information sheet for 18 years old or older

(d) Form EC-F-08-01-EN Informed consent form to a participant in a research study for 18 years old or older

(e) Form EC-F-09-00-EN Payment form for ECNIDA submission

(f) Research questionnaire for this study (see Appendix D)

(g) Semi-structured interview questions for this study (see Appendix E)

(h) Curriculum vitae (CV) of principal investigator and co-investigator

(i) Full research protocol / thesis proposal

(j) Result of dissertation / thesis proposal examination

The ECNIDA submission form includes a description of the research procedure that is a summary of section 3.3 of this volume, including how a selection of participants is made (sampling strategy) and number of participants to form a meaningful pool for the investigation (sample size).

The ECNIDA reviews applications on a regular basis according to a calendar schedule published on their website. The process for each of the review is shown in Figure C. and includes (a) a submission period where the relevant documents as required above are submitted to ECNIDA, (b) notification of the protocol ID where the formal acceptance of the application is provided to the applicant, (c) the review meeting, and (d) notification of the result to the applicant. The research is allowed to proceed following a successful review. However, if the review requires amendments by the applicant, the applicant shall re-submit using relevant forms (form EC-F-02-01-EN for re-submission and form EC-F-02-00-EN to document the modifications in research protocol as recommended by ECNIDA) and processes accordingly. The researcher should also use the relevant forms and processes to inform ECNIDA of changes post-approval, including protocol amendment, approval renewal, research closure, and adverse events. Relevant forms found on ECNIDA website (https://ecnida.nida.ac.th/th/) include:

(a) Form EC-F-03-00 EN for approved protocol amendment request.

(b) Form EC-F-04-00 EN for progress report and approval renewal.

(c) Form EC-F-05-00-EN for protocol summary and research and research closure.

(d) Form EC-F-06-00-EN for reporting adverse events.

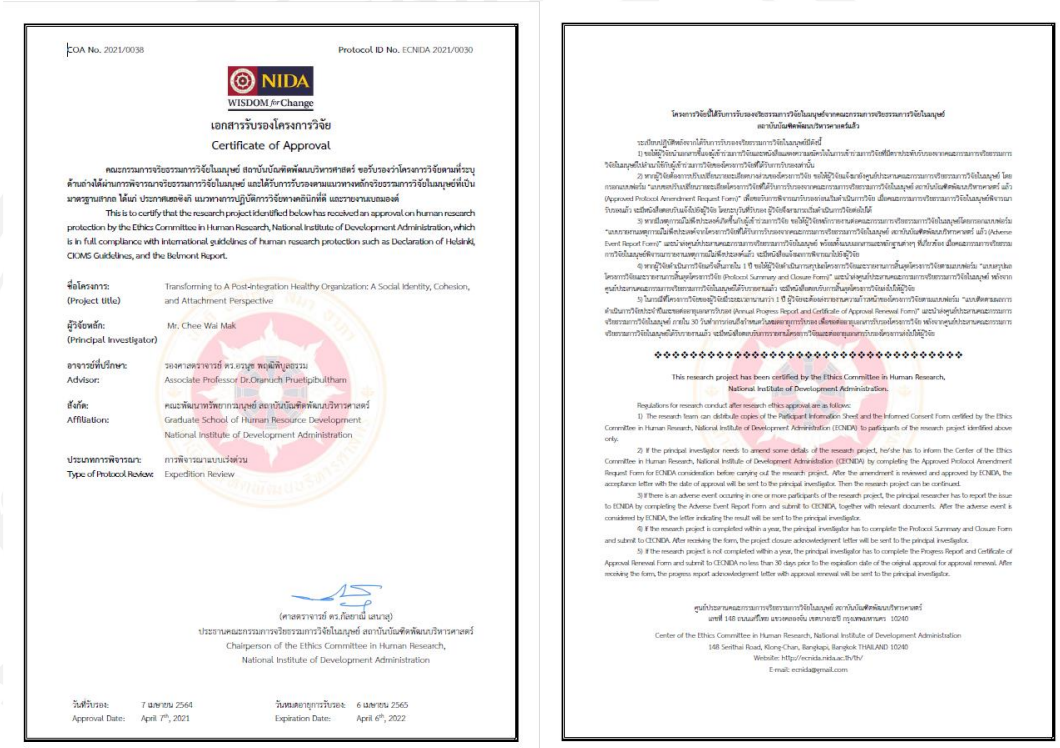
(e) Form EC-F-07-00-EN for request copy of protocol.

Figure C.1 A sample of the ECNIDA process schedule as shown on ECNIDA website (retrieved from https://ecnida.nida.ac.th/th/).

Appendix D

Ecnida Certificates of Approval for Study

Upon ECNIDA's approval of the study, the researcher will be issued a Certificate of Approval; see Figure D. for a copy related to this study. The certificate is valid for a year from the date of certificate. If there is a need to extend the study, an approval for renewal is required. As this study was extended, a renewal approval was filed and subsequently approved (see Figure D.).



COA No. 2021/0038 Protocol ID No. ECNIDA 2021/0030

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Certificate of Approval

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ ขอรับรองว่าโครงการวิจัยตามที่ระบุด้านล่างได้ผ่านการพิจารณาจริยธรรมการวิจัยในมนุษย์ และได้รับการรับรองตามแนวทางหลักจริยธรรมการวิจัยในมนุษย์ที่เป็นมาตรฐานสากล ได้แก่ ประกาศเฮลซิงกิ แนวทางการปฏิบัติการวิจัยทางคลินิกที่ดี และรายงานเบลมอนต์

This is to certify that the research project identified below has received an approval on human research protection by the Ethics Committee in Human Research, National Institute of Development Administration, which is in full compliance with international guidelines of human research protection such as Declaration of Helsinki, CIOMS Guidelines, and the Belmont Report.

ชื่อโครงการ: (Project title) Transforming to A Post-integration Healthy Organization: A Social Identity, Cohesion, and Attachment Perspective

ผู้วิจัยหลัก: (Principal Investigator) Mr. Chee Wai Mak

อาจารย์ที่ปรึกษา: Advisor: รองศาสตราจารย์ ดร.อรนุช พลพิทักษ์ธรรม
Associate Professor Dr.Oranuch Pruetipibultham

สังกัด: Affiliation: คณะพัฒนาทรัพยากรมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์
Graduate School of Human Resource Development
National Institute of Development Administration

ประเภทการพิจารณา: Type of Protocol Review: การพิจารณาแบบเร่งด่วน
Expedition Review

(ศาสตราจารย์ ดร.กัลยาณี เสนาชู)
ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์
Chairperson of the Ethics Committee in Human Research,
National Institute of Development Administration

วันที่รับรอง: Approval Date: 7 เมษายน 2564 April 7th, 2021
วันหมดอายุการรับรอง: Expiration Date: 6 เมษายน 2565 April 6th, 2022

โครงการวิจัยนี้ได้รับการรับรองจริยธรรมการวิจัยในมนุษย์จากคณะกรรมการจริยธรรมการวิจัยในมนุษย์
สถาบันบัณฑิตพัฒนบริหารศาสตร์แล้ว

ระเบียบปฏิบัติหลังจากได้รับการรับรองจริยธรรมการวิจัยในมนุษย์นี้แล้ว

1) ขณะที่ผู้วิจัยนำเอกสารชี้แจงผู้เข้าร่วมการวิจัยและหนังสือแสดงความยินยอมในการเข้าร่วมการวิจัยที่มีการประทับรับรองจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์นี้ให้แก่ผู้เข้าร่วมการวิจัยของโครงการวิจัยที่ได้รับการรับรองแล้วนั้น

2) หากผู้วิจัยต้องการปรับเปลี่ยนรายละเอียดรายส่วนของโครงการวิจัย ขณะที่ผู้วิจัยยังเก็บข้อมูลกับประชากรคณะกรรมการจริยธรรมการวิจัยในมนุษย์ โดยกรอกแบบฟอร์ม "ขอเสนอปรับเปลี่ยนรายละเอียดโครงการวิจัยที่ได้รับการรับรองจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ แล้ว (Approved Protocol Amendment Request Form)" เพื่อขอรับการพิจารณาการรับรองก่อนในลำดับการวิจัย เมื่อคณะกรรมการจริยธรรมการวิจัยในมนุษย์พิจารณาการรับรองแล้ว จะมีหนังสือแสดงการแจ้งยืนยันผู้วิจัย โดยระบุวันที่รับรอง ผู้วิจัยจึงจะสามารถเริ่มดำเนินการวิจัยต่อไปได้

3) หากมีเหตุการณ์ไม่พึงประสงค์เกิดขึ้นกับผู้เข้าร่วมการวิจัย ขณะที่ผู้วิจัยกำลังรวบรวมข้อมูลการจริยธรรมการวิจัยในมนุษย์โดยการกรอกแบบฟอร์ม "แจ้งการเกิดเหตุการณ์ไม่พึงประสงค์จากโครงการวิจัยที่ได้รับการรับรองจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ แล้ว (Adverse Event Report Form)" และนำส่งศูนย์ประสานงานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ พร้อมทั้งเอกสารรายงานและหลักฐานต่างๆ ที่เกี่ยวข้อง เมื่อคณะกรรมการจริยธรรมการวิจัยในมนุษย์พิจารณาการรายงานเหตุการณ์ไม่พึงประสงค์แล้ว จะมีหนังสือแจ้งยืนยันการพิจารณาให้ผู้วิจัยทราบ

4) หากผู้วิจัยดำเนินการวิจัยเสร็จสิ้นภายใน 1 ปี ขณะที่ผู้วิจัยดำเนินการศึกษาอยู่ในโครงการวิจัยและรายงานการสิ้นสุดโครงการวิจัย (Protocol Summary and Closure Form)" และนำส่งศูนย์ประสานงานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ พร้อมทั้งเอกสารรายงานและหลักฐานต่างๆ ที่เกี่ยวข้อง เมื่อคณะกรรมการจริยธรรมการวิจัยในมนุษย์ได้รับรายงานแล้ว จะมีหนังสือแสดงการรับทราบการสิ้นสุดโครงการวิจัยส่งไปให้ผู้วิจัย

5) ในกรณีที่โครงการวิจัยของผู้วิจัยมีระยะเวลานานกว่า 1 ปี ผู้วิจัยจะต้องส่งรายงานความก้าวหน้าของโครงการวิจัยตามแบบฟอร์ม "แบบฟอร์มขอการดำเนินการวิจัยต่อปี หรือขอต่อระยะเวลาการวิจัย (Annual Progress Report and Certificate of Approval Renewal Form)" และนำส่งศูนย์ประสานงานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ ภายใน 30 วันก่อนการต่ออายุการวิจัย เพื่อขอต่อระยะเวลาการวิจัย หลังจากศูนย์ประสานงานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ได้รับรายงานแล้ว จะมีหนังสือแสดงการรับทราบการต่ออายุโครงการวิจัยให้ผู้วิจัย

◆◆

This research project has been certified by the Ethics Committee in Human Research,
National Institute of Development Administration.

Regulations for research conduct after research ethics approval are as follows:

1) The research team can distribute copies of the Participant Information Sheet and the Informed Consent Form certified by the Ethics Committee in Human Research, National Institute of Development Administration (ECNIDA) to participants of the research project identified above only.

2) If the principal investigator needs to amend some details of the research project, he/she has to inform the Center of the Ethics Committee in Human Research, National Institute of Development Administration (CECNIDA) by completing the Approved Protocol Amendment Request Form for ECNIDA consideration before carrying out the research project. After the amendment is reviewed and approved by ECNIDA, the acceptance letter with the date of approval will be sent to the principal investigator. Then the research project can be continued.

3) If there is an adverse event occurring in one or more participants of the research project, the principal researcher has to report the issue to ECNIDA by completing the Adverse Event Report Form and submit to CECNIDA, together with relevant documents. After the adverse event is considered by ECNIDA, the letter indicating the result will be sent to the principal investigator.

4) If the research project is completed within a year, the principal investigator has to complete the Protocol Summary and Closure Form and submit to CECNIDA. After receiving the form, the project closure acknowledgement letter will be sent to the principal investigator.

5) If the research project is not completed within a year, the principal investigator has to complete the Progress Report and Certificate of Approval Renewal Form and submit to CECNIDA no less than 30 days prior to the expiration date of the original approval for approval renewal. After receiving the form, the progress report acknowledgement letter with approval renewal will be sent to the principal investigator.

ศูนย์ประสานงานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์
เลขที่ 148 ถนนเสรีไทย แขวงคลองจั่น เขตบางกะปิ กรุงเทพมหานคร 10240

Center of the Ethics Committee in Human Research, National Institute of Development Administration
148 Serithai Road, Klong-Chan, Bangkapi, Bangkok THAILAND 10240
Website: http://ecnida.nida.ac.th/th/
E-mail: ecnida@ymail.com

Figure D.1 Copy of the Certificate of Approval for this study obtained from ECNIDA allowing the study to be conducted

COA No. 2022/0027 Protocol ID No. ECNIDA 2021/0030

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เอกสารรับรองโครงการวิจัย

Certificate of Approval

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ ขอรับรองว่าโครงการวิจัยตามที่ระบุด้านล่างได้ผ่านการพิจารณาจริยธรรมการวิจัยในมนุษย์ และได้รับการรับรองตามแนวทางหลักจริยธรรมการวิจัยในมนุษย์ที่เป็นมาตรฐานสากล ได้แก่ ประกาศเฮลซิงกิ แนวทางการปฏิบัติการวิจัยทางคลินิกที่ดี และรายงานเบลมอนต์

This is to certify that the research project identified below has received an approval on human research protection by the Ethics Committee in Human Research, National Institute of Development Administration, which is in full compliance with international guidelines of human research protection such as Declaration of Helsinki, CIOMS Guidelines, and the Belmont Report.

ชื่อโครงการ: (Project title)	Transforming to A Post-Integration Healthy Organization: A Social Identity, Cohesion, and Attachment Perspective
ผู้วิจัยหลัก: (Principal Investigator)	Mr. Chee Wai Mak
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ประเภทการพิจารณา: Type of Protocol Review:	การพิจารณาแบบเร่งด่วน Expedited Review

(ศาสตราจารย์ ดร.ภัสยาณี เสนาฤ)
ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์
Chairperson of the Ethics Committee in Human Research,
National Institute of Development Administration

วันที่รับรอง: 7 เมษายน 2565 Approval Date: April 7th, 2022
วันหมดอายุการรับรอง: 6 เมษายน 2566 Expiration Date: April 6th, 2023

โครงการวิจัยนี้ได้รับการรับรองจริยธรรมการวิจัยในมนุษย์จากคณะกรรมการจริยธรรมการวิจัยในมนุษย์
สถาบันบัณฑิตพัฒนบริหารศาสตร์แล้ว

ระเบียบปฏิบัติหลังจากได้รับการรับรองจริยธรรมการวิจัยในมนุษย์มีดังนี้

1) จะมีผู้วิจัยนำเอกสารชี้แจงผู้เข้าร่วมการวิจัยและหนังสือแสดงความยินยอมไปในการเข้าร่วมการวิจัยที่มีการประทับรับรองจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์นี้เท่านั้น ไม่สามารถนำไปใช้ก่อนได้รับการรับรองเท่านั้น

2) หากผู้วิจัยต้องการปรับเปลี่ยนรายละเอียดโครงการวิจัย จะมีผู้วิจัยแจ้งมายังศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ โดยกรอกแบบฟอร์ม "แบบขอปรับเปลี่ยนรายละเอียดโครงการวิจัยที่ได้รับการรับรองจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ แล้ว (Approved Protocol Amendment Request Form)" เพื่อขอรับการพิจารณาปรับรองก่อนเริ่มดำเนินการวิจัย เมื่อคณะกรรมการจริยธรรมการวิจัยในมนุษย์พิจารณารับรองแล้ว จะมีหนังสือแจ้งกลับให้ผู้วิจัย โดยอนุโลมให้รับรองผู้วิจัยเริ่มดำเนินการเก็บข้อมูลได้

3) หากมีเหตุการณ์ไม่พึงประสงค์เกิดขึ้นกับผู้เข้าร่วมการวิจัย จะมีผู้วิจัยแจ้งการรายงานต่อคณะกรรมการจริยธรรมการวิจัยในมนุษย์โดยกรอกแบบฟอร์ม "แบบรายงานอนุพยาธิเหตุไม่พึงประสงค์จากโครงการวิจัยที่ได้รับการรับรองจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ แล้ว (Adverse Event Report Form)" และนำส่งศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ พร้อมทั้งแนบเอกสารและหลักฐานต่างๆ ที่เกี่ยวข้อง เมื่อคณะกรรมการจริยธรรมการวิจัยในมนุษย์พิจารณารายงานเหตุการณ์ไม่พึงประสงค์แล้ว จะมีหนังสือแจ้งผลการพิจารณากลับให้ผู้วิจัย

4) หากผู้วิจัยดำเนินการวิจัยเสร็จสิ้นภายใน 1 ปี จะมีผู้วิจัยดำเนินการสรุปโครงการวิจัยและรายงานการสิ้นสุดโครงการวิจัยตามแบบฟอร์ม "แบบสรุปผลโครงการวิจัยและรายงานการสิ้นสุดโครงการวิจัย (Protocol Summary and Closure Form)" และนำส่งศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ หลังจากศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ได้รับรายงานแล้ว จะมีหนังสือแสดงรับรายการสิ้นสุดโครงการวิจัยส่งให้ผู้วิจัย

5) ในกรณีที่โครงการวิจัยของผู้วิจัยมีระยะเวลามากกว่า 1 ปี ผู้วิจัยจะต้องส่งรายงานความก้าวหน้าของโครงการวิจัยตามแบบฟอร์ม "แบบขอต่ออายุการดำเนินการวิจัยประจำปีและขอต่ออายุอนุมัติการรับรอง (Annual Progress Report and Certificate of Approval Renewal Form)" และนำส่งศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ ภายใน 30 วันสำหรับก่อนสิ้นสุดอายุการรับรอง เพื่อขอต่ออายุอนุมัติการรับรองโครงการวิจัย หลังจากศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ได้รับรายงานแล้ว จะมีหนังสือแสดงการรายงานโครงการวิจัยและต่ออายุอนุมัติการรับรองโครงการส่งให้ผู้วิจัย

◆◆

This research project has been certified by the Ethics Committee in Human Research,
National Institute of Development Administration.

Regulations for research conduct after research ethics approval are as follows:

1) The research team can distribute copies of the Participant Information Sheet and the Informed Consent Form certified by the Ethics Committee in Human Research, National Institute of Development Administration (ECNIDA) to participants of the research project identified above only.

2) If the principal investigator needs to amend some details of the research project, he/she has to inform the Center of the Ethics Committee in Human Research, National Institute of Development Administration (CECNIDA) by completing the Approved Protocol Amendment Request Form for ECNIDA consideration before carrying out the research project. After the amendment is reviewed and approved by ECNIDA, the acceptance letter with the date of approval will be sent to the principal investigator. Then the research project can be continued.

3) If there is an adverse event occurring in one or more participants of the research project, the principal researcher has to report the issue to ECNIDA by completing the Adverse Event Report Form and submit to CECNIDA, together with relevant documents. After the adverse event is considered by ECNIDA, the letter indicating the result will be sent to the principal investigator.

4) If the research project is completed within a year, the principal investigator has to complete the Protocol Summary and Closure Form and submit to CECNIDA. After receiving the form, the project closure acknowledgment letter will be sent to the principal investigator.

5) If the research project is not completed within a year, the principal investigator has to complete the Progress Report and Certificate of Approval Renewal Form and submit to CECNIDA no less than 30 days prior to the expiration date of the original approval for approval renewal. After receiving the form, the progress report acknowledgment letter with approval renewal will be sent to the principal investigator.

ศูนย์ประสานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์
เลขที่ 148 ถนนเสรีไทย แขวงคลองจั่น เขตบางกะปิ กรุงเทพมหานคร 10240

Center of the Ethics Committee in Human Research, National Institute of Development Administration
148 Serithai Road, Klong-Chan, Bangkapi, Bangkok THAILAND 10240
Website: http://ecnida.nida.ac.th/th/
E-mail: ecnida@gmail.com

Figure D.1 Copy of the renewal Certificate of Approval for this study obtained from ECNIDA extending this study to present.

Appendix E

Research Socialgram Questionnaire

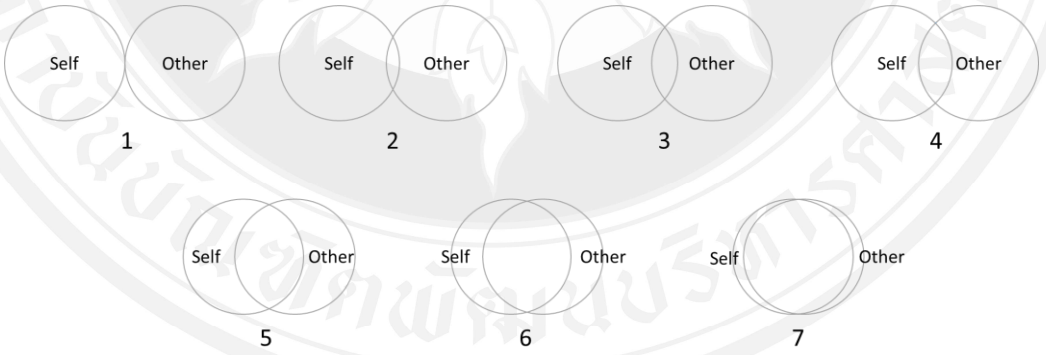
This is a survey that will help the organization understand and construct a relational map based on the perspectives of one's socially constructed identity and attachment to other members of the community. The aggregate map will show how the community thinks about a certain topic and allow influencers to be identified. Although individuals are identified (through names), only the aggregate for the community is shown. That is, the final form will only consist of connected dots without identifying who a specific dot represents.

The survey will consist of questions that require the naming of members of the community you associate with specific topics. Against each of the members you identify, there will be two scores needed, as follows:

(a) The degree of agreement with the question/statement as it relates to an identified member:

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

(b) How best you describe your relationship with the identified member indicated as follows:



As the survey is purely seeking your perspective and opinion, there is absolutely no RIGHT or WRONG answers. Interpretation is not based on individual responses but in the final aggregate mapping compiled for the organization. As your individual response contribute to building the aggregate, it is important that you provide answers based on your perspective and understanding. It is also important

answers reflect **what is** (that is what is happening now) and **NOT** what it should be (that is, desired state / futuristic / ideal case yet to be achieved).

For each of the statements, identify at least **FIVE (up to max TEN)** members of any organization that you would associate with the statement and provide a score for both (a) degree of agreement, and (b) relationship with identified member according to the score tables described earlier.

I have a lot in common with (list name below)		
Full Name of Member	Agreement	Relationship

I often think about the fact that I am part of a group with <u>(list name below)</u>		
Full Name of Member	Agreement	Relationship
In general, being part of the group with <u>(list name below)</u> is an important part of my self-image.		
Full Name of Member	Agreement	Relationship

Generally, I feel good when I think about myself as being a part of the group with (list name below)		
Full Name of Member	Agreement	Relationship
I sometimes worry that (list name below) doesn't value me as much as I value him/her.		
Full Name of Member	Agreement	Relationship

I don't worry about being alone or not being accepted by <u>(list name below)</u>		
Full Name of Member	Agreement	Relationship
I prefer not to depend on <u>(list name below)</u> or to have him/her depend on me.		
Full Name of Member	Agreement	Relationship

I want to feel completely as one with <u>(list name below)</u>		
Full Name of Member	Agreement	Relationship
I feel that I am a member of a team with <u>(list name below)</u>		
Full Name of Member	Agreement	Relationship

I am excited to be working with <u>(list name below)</u>		
Full Name of Member	Agreement	Relationship
For me, being with <u>(list name below)</u> in a team is one of the most important social groups to which I belong.		
Full Name of Member	Agreement	Relationship

I would like to spend more time with <u>(list name below)</u> outside of work.		
Full Name of Member	Agreement	Relationship
<u>(List name below)</u> and I are united in trying to reach the organization's goals for performance.		
Full Name of Member	Agreement	Relationship

Appendix F

Research Socialgram Interview Questions

Part I: Probing Perspective & Understanding

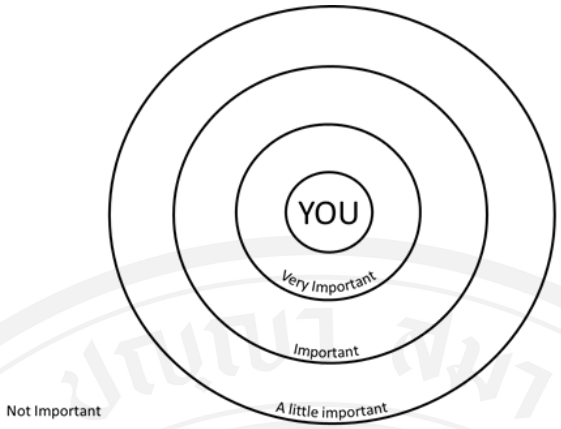
Interview questions are chosen based on the social network graph, generated based on the network survey questionnaire designed (see Section 0).

Survey Question	Interview Questions
1	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] How would you describe the relationship between you and your team? Why is that? [Tell me more.] [What are some examples?] [Can you elaborate?] Can you tell me about something you and your team have in common? [Tell me more.] [What does that mean to you?]
2, 3	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] Tell me how you feel about your team. Why is that? [Can you elaborate?] [Please explain.] [Can you give examples?] How often do you think about you being part of the team? Why is that? [Please explain.] [Can you elaborate?] How important is it to you that others see you belong to this group? Why is that? [Can you give examples?] [Tell me more.]
4	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] Tell me how you feel about your team. Why is that? [Can you elaborate?] [Please explain.] [Can you give examples?]

	How often do you think about you being part of the team? Why is that? [Please explain.] [Can you elaborate?] How do you feel when you think about them? Why is that? [Tell me more.] [Can you give some examples?] [What would you do about it?]
5, 6	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] How often do you think of your team? Why is that? [Can you elaborate?] [Tell me more.] How do you feel? How comfortable are you thinking about them? [What are some examples?] [Please explain.] [Tell me more.] How do you feel about them saying 'no' to you? Why is that? [What would you do in response?] [Tell me more.] [Can you elaborate?] How do you feel if they are suddenly gone? Why is that? [What would you do in response?] [Tell me more.] [Can you elaborate?]
7, 8	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] How close do you think you are to your team? Why is that? [Can you give examples?] [Tell me more.] [Please explain.] How do you feel about being close to them? Why is that? [Please explain.] What about being not close to them? Why is that? [Please explain.] How do you feel about having to depend on them? Why is

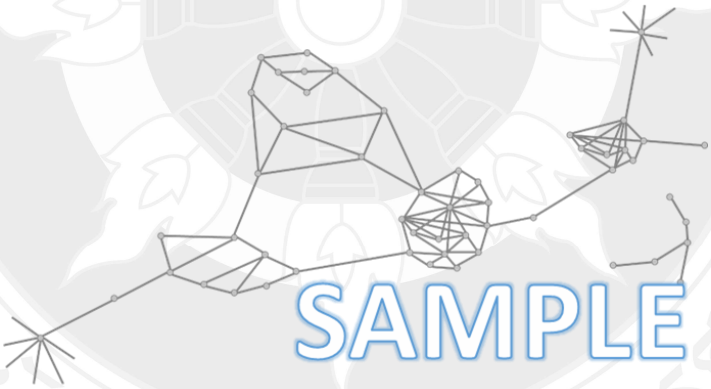
	that? [Please explain.] What about not having to depend on them? Why is that? [Please explain.]
9	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] Did you feel that everyone was a part of something? Why is that? [Tell me more.] Did you feel a sense of belonging? Why is that? [Tell me more.]
10	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] Tell me about your energy level then. [What are some examples?] [Please explain.] How did you feel about the morale with the team? Why is that? [Tell me more.]
11	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] Tell me about the goals the team set at that time. How did the team go about to achieve those goals? [What are some examples of actions?] [Please explain.] Were there times anyone avoided talking about the goals? Why is that? [Tell me more.] How often does the team talk about the goals? Why is that?
12	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the

	team behave? [What are some examples of actions?] [Please explain.] Can you tell me about the team spending time together outside of work? [What are examples of outings?] [Please explain,] How often does that happen? Why is that? How do you feel about such activities? Why is that? [Tell me more.] [Please explain.]
13	Can you remember a time when you felt that you and your team are very cohesive? Tell me about that. How did the team behave? [What are some examples of actions?] [Please explain.] How important is your team / team-mates to you? Why is that? [What are some examples?] [Tell me more.] How important do you think you are to the team? Why is that? How do you feel about it? [Tell me more.] [Please explain.]
Part II: Narrative *The interviewee will be asked re-tell the experience of an event in the last three to four years (that is, post-merger integration) that he/she remembered to demonstrate cohesion within the organization. The interviewee will be asked to write down names on post-it slips and locate those slips on a network map shown below.*	



Part III: Reflection

The interviewee will be shown the anonymized social network graph similar to the one below and asked to comment in particular, the roles that are central, bridge or peripheral. There is no right or wrong answer; this is to gather information about how the interviewee interprets the social network graph. The interviewee will then be asked a set of questions to discover factors that might have influenced the behavior from the perspective of the interviewee.



Item	Interview Question
1	Based on your experience, what do you think are important factors that would have contributed to the way the relationships are shown in the graph / map? [Please explain.] [Tell me more.]
2	Why do you think that is happening? [Please explain.] [Can you give examples?] [Tell me more.]

3	Do you think it has anything to do with Thai culture? Why is that? [Can you give examples?] [Tell me more.] [Please explain.]
4	Do you think it has anything to do with history of the organization? Why is that? [Can you give examples?] [Tell me more.] [Please explain.]
5	Do you think it is limited to Thailand? Why is that? [Can you give examples?] [Tell me more.] [Please explain.]
6	Do you think a major crisis (like COVID-19) would have influenced the way the relationships are shown in the graph / map? How do you think the crisis influenced it? Why is that? [Please explain.] [Tell me more.]
7	Do you think working from home policy in the current COVID-19 situation would have influenced the way the relationships are shown in the graph / map? Why is that? [How?] [Tell me more.] [Please explain.]
8	Do you think a long term event like COVID-19 would have long term effects on the way the relationships are shown in the graph / map? Why is that? [How?] [Tell me more.]
9	In your view, would having a confirmed COVID-19 case have made a difference or not to the way the relationships are shown in the graph / map? Why is that? [How would it have changed?] [How would it not change?] [Tell me more.]
Part VI: Closing	
'Catch-all'	Is there anything else that you would like to tell me that we have not talked about?

Appendix G

Index of Item-Objecitve Congruence Ratings

The Item-Objective Congruence ratings obtained from each of the raters engaged in the panel of lay experts are documented as Table G.1 through Table G.5 in this appendix for reference. These ratings were used to calculate the Index of Item-Objective Congruence discussed in section 4.1 in this volume. All five raters eventually participated in this study.

Table G.1 Item-Objective Congruence ratings obtained from rater #1 of lay experts panel who became a participant in this study.

Item	Question	Cohesion	Social Identity	Attachment
1	I have a lot in common with this group.	-1	**1***	-1
2	I often think about the fact that I am part of a group with them.	-1	**1***	-1
3	In general, being part of the group is an important part of my self-image.	-1	**1***	-1
4	Generally, I feel good when I think about myself as part of the group.	-1	**1***	-1
5	I sometimes worry that the group doesn't value me as much as I value them.	0	-1	**1***
6	I don't worry about being alone or not being accepted by the group.	-1	-1	**1***
7	I prefer not to depend on the group or have them depend on me.	0	-1	**1***
8	I want to feel completely as one with the group.	-1	-1	**1***
9	I feel that I am a member of a team with the group.	**1***	-1	-1
10	I am excited to be working with the group.	**1***	-1	-1

Item	Question	Cohesion	Social Identity	Attachment
11	For me, being with the group in a team is one of the most important social groups to which I belong.	**1***	-1	-1
12	I would like to spend more time with the group outside of work.	**1***	-1	-1
13	The group and I are united in trying to reach the organization's goals for performance.	**1***	-1	-1

Note: The '*' indicates the correct concept being measured by the question.

Table G.2 Item-Objective Congruence ratings obtained from rater #2 of lay experts panel who became a participant in this study.

Item	Question	Cohesion	Social Identity	Attachment
1	I have a lot in common with this group.	-1	**1***	-1
2	I often think about the fact that I am part of a group with them.	-1	**1***	-1
3	In general, being part of the group is an important part of my self-image.	-1	**1***	0
4	Generally, I feel good when I think about myself as part of the group.	-1	**1***	-1
5	I sometimes worry that the group doesn't value me as much as I value them.	-1	0	**1***
6	I don't worry about being alone or not being accepted by the group.	-1	-1	**1***
7	I prefer not to depend on the group or have them depend on me.	0	-1	**1***
8	I want to feel completely as one with the group.	-1	-1	**1***

Item	Question	Cohesion	Social Identity	Attachment
9	I feel that I am a member of a team with the group.	**1***	-1	-1
10	I am excited to be working with the group.	**1***	-1	-1
11	For me, being with the group in a team is one of the most important social groups to which I belong.	**1***	-1	-1
12	I would like to spend more time with the group outside of work.	**1***	-1	-1
13	The group and I are united in trying to reach the organization's goals for performance.	**1***	-1	-1

Note: The '*' indicates the correct concept being measured by the question.

Table G.3 Item-Objective Congruence ratings obtained from rater #3 of lay experts panel who became a participant in this study.

Item	Question	Cohesion	Social Identity	Attachment
1	I have a lot in common with this group.	-1	**1***	-1
2	I often think about the fact that I am part of a group with them.	-1	**1***	-1
3	In general, being part of the group is an important part of my self-image.	-1	**1***	-1
4	Generally, I feel good when I think about myself as part of the group.	-1	**1***	-1
5	I sometimes worry that the group doesn't value me as much as I value them.	-1	-1	**1***

Item	Question	Cohesion	Social Identity	Attachment
6	I don't worry about being alone or not being accepted by the group.	-1	-1	**1***
7	I prefer not to depend on the group or have them depend on me.	-1	-1	**1***
8	I want to feel completely as one with the group.	-1	-1	**1***
9	I feel that I am a member of a team with the group.	**1***	-1	-1
10	I am excited to be working with the group.	**1***	-1	-1
11	For me, being with the group in a team is one of the most important social groups to which I belong.	**1***	0	-1
12	I would like to spend more time with the group outside of work.	**1***	-1	-1
13	The group and I are united in trying to reach the organization's goals for performance.	**1***	-1	-1

Note: The '*' indicates the correct concept being measured by the question.

Table G.4 Item-Objective Congruence Ratings Obtained from Rater #4 of Lay Experts Panel who became a participant in this study.

Item	Question	Cohesion	Social Identity	Attachment
1	I have a lot in common with this group.	-1	**1***	-1
2	I often think about the fact that I am part of a group with them.	-1	**1***	-1
3	In general, being part of the group is an important part of my self-image.	-1	**1***	-1

Item	Question	Cohesion	Social Identity	Attachment
4	Generally, I feel good when I think about myself as part of the group.	-1	**1***	-1
5	I sometimes worry that the group doesn't value me as much as I value them.	-1	-1	**1***
6	I don't worry about being alone or not being accepted by the group.	-1	-1	**1***
7	I prefer not to depend on the group or have them depend on me.	-1	-1	**1***
8	I want to feel completely as one with the group.	-1	-1	**1***
9	I feel that I am a member of a team with the group.	**1***	0	-1
10	I am excited to be working with the group.	**1***	-1	-1
11	For me, being with the group in a team is one of the most important social groups to which I belong.	**1***	0	-1
12	I would like to spend more time with the group outside of work.	**1***	-1	-1
13	The group and I are united in trying to reach the organization's goals for performance.	**1***	-1	-1

Note: The '*' indicates the correct concept being measured by the question.

Table G.1 Item-Objective Congruence ratings obtained from rater #5 of lay experts panel who became a participant in this study.

Item	Question	Cohesion	Social Identity	Attachment
1	I have a lot in common with this group.	-1	**1***	-1

Item	Question	Cohesion	Social Identity	Attachment
2	I often think about the fact that I am part of a group with them.	-1	**1***	-1
3	In general, being part of the group is an important part of my self-image.	-1	**1***	0
4	Generally, I feel good when I think about myself as part of the group.	-1	**1***	-1
5	I sometimes worry that the group doesn't value me as much as I value them.	0	0	**1***
6	I don't worry about being alone or not being accepted by the group.	-1	-1	**1***
7	I prefer not to depend on the group or have them depend on me.	-1	-1	**1***
8	I want to feel completely as one with the group.	-1	-1	**1***
9	I feel that I am a member of a team with the group.	**1***	-1	-1
10	I am excited to be working with the group.	**1***	-1	-1
11	For me, being with the group in a team is one of the most important social groups to which I belong.	**1***	-1	-1
12	I would like to spend more time with the group outside of work.	**1***	-1	0
13	The group and I are united in trying to reach the organization's goals for performance.	**1***	-1	-1

Note: The '*' indicates the correct concept being measured by the question.

BIOGRAPHY

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M.Sc in Embedded Systems with Hard Disk Drive specialization from Asian Institute of Technology (AIT) Thailand. 2014.

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Senior Director, Global Operations People Solutions Country Enablement (APAC)
Western Digital Storage Technologies (Thailand) Ltd.; Apr 2023 - present

Senior Director, Thailand HR Delivery
Western Digital Storage Technologies (Thailand) Ltd.; May 2019 - Apr 2023

Director, HR Business Partner, HR Delivery / Transformation
Western Digital (Thailand) Ltd.; Jan 2014 - May 2019

Director, Failure Analysis
Western Digital (Thailand) Ltd.; Jun 2009 - Dec 2013

Manager, Product Engineering
Western Digital (Thailand) Ltd.; Jun 2004 - Jun 2009

Manager, New Product Introduction
Hitachi Global Storage Technologies, Singapore / IBM Singapore; Apr 2002 - Jun 2004

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Western Digital (Malaysia) Sdn Bhd; Jan 2000 - Mar 2002

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Western Digital Singapore Pte Ltd.; May 1994 - Dec 1999