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MEASURING THE POTENTIAL OF SOCIAL NETWORKS TO AFFECT RESIDENT
POPULAR BEHAVIOR IN SUPPORT OF UNITED STATES STRATEGIC ENDS

BY

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MEASURING THE POTENTIAL OF SOCIAL NETWORKS TO AFFECT RESIDENT
POPULAR BEHAVIOR IN SUPPORT OF UNITED STATES STRATEGIC ENDS

by

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A paper submitted to the Faculty of the Joint Advanced Warfighting School in partial satisfaction of the requirements of a Master of Science Degree in Joint Campaign Planning and Strategy. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Joint Forces Staff College or the Department of Defense.

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ABSTRACT

Social movements have the capacity to change their political environments through the collective and mobilized behavior of networks. And the academic disciplines of social movement theory (SMT) and social network analysis (SNA) help scientists understand the dynamics of how a social movement forms and succeeds. When combined, established academic disciplines within SMT and SNA provide useful insights that tease out systemic processes and determine network specific nodal factors that facilitate the development of successful social movements. Yet most research on the topic consists largely of case studies from successful social movements of the past. With notable exceptions, there has been a dearth of analysis or theoretical work that determines how to set conditions within the social networks of any given operating environment's population that increase the probability of a successful social movement reaching its desired ends. Furthermore, there is no known academic work that allows joint force or special operations planners and tacticians to take a scientifically based understanding of SMT and SNA and insert that knowledge into the Joint Planning Process. This thesis draws on numerous empirical studies from leading scientists in the fields of SMT and SNA to determine a prioritized set of processes and network based nodal relationships that can be used by both strategists during the planning processes and tacticians during the execution phase of campaigns that seek to achieve strategic aims of the United States government. The capacity of the joint force and special operations to successfully shape political environments through campaigns that seek to identify, build, and empower networks to behave in ways congruent with United States and allied interests in their respective environments offers the United States government a distinct advantage over rivals in the strategic environment of great power competition.

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LIST OF ACROYNYS AND ABBREVIATIONS:

ANAT	Advanced Network Analysis and Targeting Course
JPP	Joint Planning Process
OEC	Operational Environment Center
Pub.	Publication
SMT	Social Movement Theory
SNA	Social Network Analysis
SOCOM	Special Operations Command
TRADOC	US Army Training and Doctrine Command
USG	United States Government
WWI/II	World War I/II

CHAPTER I: INTRODUCTION

In the 1920's, the British scholar turned soldier T.E. Lawrence wrote his memoirs, detailing his unique contribution to the allied victory of WWI. These memoirs became the novel *Seven Pillars of Wisdom*. This book tells the story of how Lawrence, with a small contingent of British soldiers, consolidates and mobilizes tribes of indigenous Bedouins living in the Arabian Peninsula into a movement that fights the Ottoman Turkish Empire on behalf of the Allied Powers and the British Government.¹ When working with these tribes, Lawrence's ultimate goal was to convince the Bedouins to take arms and risk their lives on behalf of a government that they knew little about and had never seen. In Lawrence's own words: "A province would be won when we had taught the civilians in it to die for our ideal of freedom."² Through a seemingly intuitive process that combined learning local customs, languages, norms and values and engaging within and amongst the disparate tribes that inhabited the Arabian Peninsula, Lawrence was able to develop a network of communities that rallied behind a common message, took advantage of a political opportunity, formed a movement and actively fought as a mobilized collective toward a political end.

Lawrence's contributions to the allied victory of WWI are well documented. They also showcase the potential power of converging third party strategic interests with mass indigenous, or resident popular mobilization. Indigenous mobilization represents a resident popular decision to collectively behave in a specific way. Additionally, the decision is partially the product of an environment that consists of ideally organized

¹ Lawrence, T. E., *Seven Pillars of Wisdom: A Triumph*. New York, NY: Anchor Books, 1991.

² Ibid. 196.

social and political networks in and amongst the population. Lawrence's story provides a strategically relevant example of how appropriately managed and placed networks are capable of facilitating the mobilization of a population's behavior in ways congruent with third party strategic interests.

This work aims to explore how a sustained, collective, decision-based popular behavior like the one described above can be studied to understand ideal social and political network conditions that ultimately accomplish shared strategic objectives between previously disparate parties. Using contemporary scientific and mathematical disciplines, this work seeks to provide inputs that will contribute to shaping a joint forces' Operational Art and Design Methodology as defined in Joint Publication 5-0.³ A small example of this methodology is defining the Operational Approach, where the "commander's visualization of how the operation should transform the current conditions into the desired conditions."⁴ Ideally, inputs to the Operational Approach will involve identifying, developing or empowering social networks within and amongst relevant communities that can develop into social movements capable of behaving in ways that realize a third party's desired environmental condition. A third party's desired conditions are synonymous with the desired conditions outlined in JP 5-0, and are exemplified in the effects of the mobilized Bedouin's popular behavior upon the operating environment that Lawrence witnessed in WWI. Also similar to WWI, the linkages between strategic ends and tactical missions will establish effective social networks capable of transforming their societies and challenging collective behaviors in ways that can relate to identified

³ U.S. Joint Chiefs of Staff, *Joint Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, June 16 2017), pp. IV 1-17.

⁴ *Ibid* p. 16.

“military objectives,” codified in the “Strategy and Campaign Development” process of the Joint Staff’s campaign planning doctrine.⁵ Ultimately, planners and tacticians within the Joint Force will be able to harness the potential power of social movements to shape the contemporary strategic environment of today. This utility will prove instrumental in the recently asserted geopolitical environment of “Great Power Competition,” by the National Security Strategy and the National Defense Strategy.⁶ These strategic guiding documents demand the use of sound strategies and tactics that allow the U.S. Government (USG) and its allies to sustain the world order that has been in place since the end of WWII.⁷ The power of social movements promises to shape the political environment congruent with this demand.

This research develops new ideas about the utility of social movements in strategic planning and operations. By informing strategists and tacticians within the Joint Force of key scientific and mathematical theories that allow for a social movement to take place, and their utility in accomplishing strategic outcomes, strategists could incorporate new ideas into the Joint Planning Process.⁸ Incorporating new ideas into the planning process allows for existing scientific and mathematical theories that explain the

⁵ U.S. Joint Chiefs of Staff, *Joint Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, June 16 2017), p III-9.

⁶ U.S. Department of Defense, *Summary of the 2018 National Defense Strategy, Sharpening the American Military’s Competitive Edge*, 2018 (Washington DC: Department of Defense).

<https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf> (accessed 21JAN2019). See Also, President Donald J. Trump, *National Security Strategy* (Washington DC: Government Printing Office, December 2017), p. 27. <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf> (accessed 21JAN2019).

⁷ Thomas J. Wright, *All Measures Short of War, The Contest for the 21st Century and the Future of American Power* (New Haven, CT: Yale University Press, 2017), pp 152-158. See Also: Anne-Marie Slaughter, *The Chessboard and the Web, Strategies of Connection in a Networked World* (New Haven, CT: Yale University Press, 2017). pp 1-26.

⁸ U.S. Joint Chiefs of Staff, *Joint Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, June 16 2017). Chapter V.

formation of social movements to inform 21st Century doctrinal based planning processes designed to shape strategic ends and military objectives. Therefore, the research question is: How can existing scientific knowledge about social movements be leveraged to influence resident popular mobilization efforts that support the long-term strategic goals of joint forces such as the US Joint, and Theater Special Operations Commands? The answer to this question involves looking into the existing social science discipline of social movement theory (SMT) and the mathematics discipline of Network Analytics in order to determine how both of these disciplines can complement each other in unique ways that would be useful for planners and tacticians. My thesis is that: The application of tenets within SMT, as measured through social network analysis (SNA), or network analytics, can assist both planners and warfighters develop strategies, campaigns, operations and tactics that leverage indigenous methods of popular mobilization to affect the operational environment. The convergence of SMT and SNA will also have an effect on the Joint Planning Process (JPP), especially in the Operational Art and Design Phase of the JPP.⁹

Through the Operational Art and Design Methodology within the JPP, informed strategic joint planners can shape the power of resident social networks, focusing network outlook and direction congruent with environmental conditions that give U.S. and allied partners a comparative advantage within any operating environment. In terms of strategic planning, this option translates into accomplishing political ends through alternative ways by utilizing unconventional means, articulated in the form of a

⁹ U.S. Joint Chiefs of Staff, *Joint Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, June 16 2017). Chapter IV.

mobilized resident or indigenous population's potential to change its political climate. Additionally, this method also gives 21st Century strategic options without the need for massive investments of troops or treasure. This effort also instills a common language between planners and tacticians. It connects tasks such as identifying, empowering, or engaging a social network within any given area with the purposes of assessing its potential to conduct social appropriation that inspires a mobilized population to behave in ways congruent with USG interests. Furthermore, it explains why it's important to identify Measures of Effectiveness (MOEs) that would indicate the utility of any given social network within an identified area of responsibility.

The research methodology used in this study includes merging very specific subsets of both existing scientific and mathematical disciplines to develop useful inputs to the JPP. social movement theory (SMT) is a branch within the social sciences that studies how social movements form and behave in their communities to change their political environment in accordance with desired ends. Through an analysis of prominent and seminal works on the subject, two distinct processes emerged as being both integral to the formation of a social movement and applicable to the JPP as well as the connection between strategy and tactics. Chapter II of this thesis links the SMT processes of social investment and social appropriation to better understand how operations, activities and investments¹⁰ identified by planners and executed by tacticians can be shaped to realize desired environmental conditions.

This study employed Network Analysis as the mathematical discipline. This discipline involves the quantitative measurement of weights assigned to network nodes

¹⁰ U.S. Joint Chiefs of Staff, *Joint Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, June 16 2017). p. II-4

and links in an attempt to determine relationships between types of nodes in a network. In Chapter III, the processes of social appropriation and social investment are further correlated with SNA concepts of centrality. Nodes that serve as key brokers between networks and other more central nodes within dense networks play pivotal roles that allow networked organizations to execute the process of social appropriation described in Chapter II. If planned for and executed accordingly, strategists and tacticians can use a deeper understanding of the roles that these nodes play to shape popular behavior in ways more congruent with USG and allied interests.¹¹ Shaped through an analysis of several empirically based studies on the subject, this thesis uses two distinct types of centrality (brokerage and in-degree centrality) that prove useful for increasing the probability that a social network can transform through the process of social appropriation into a social movement that mobilizes collective popular behavior.¹²

Chapter IV joins the themes of social investment and social appropriation with the nodal analysis of brokerage and in-degree centrality. Taken holistically, social investment and social appropriation form concepts that can be incorporated into the JPP by planners to develop executable options. The traditional military assignments of task and purpose take on new and broader meanings, as tacticians are tasked with identifying, empowering and developing environments within relevant areas that are characterized by networks containing a number of heavily weighted nodes of in-degree centrality connected through brokerage ties.

¹¹ Anne-Marie Slaughter, *The Chessboard and the Web, Strategies of Connection in a Networked World* (New Haven, CT: Yale University Press, 2017). pp 168-170.

¹² Wei Wei, Jurgen Pfeffer, Jeffery Reminga and Kathleen M. Carley, *Handling Weighted, Asymmetric, Self-Looped, and Disconnected Networks in ORA* (no. CMU-ISR-11-113), Pittsburgh, PA: Carnegie Mellon University, 2011.

Finally, the relationship that salience plays to affect an individual's decision to join or participate in a movement is critical in shaping an overall social movement, comprised of networks of individuals. Consequently, solely understanding the roles that appropriately organized and connected networks play in accomplishing strategic ends leaves room for legitimate criticism. Chapter V addresses the value that salience plays, and addresses the potential criticism of strategies that do not account for salience, and may therefore suffer from the oversight.

As a closing comment, this work seeks to develop inputs that can be used in established planning processes of the Joint Force. Additionally, the scientific and mathematical disciplines described in this thesis are very broad. This work takes small parts of much larger disciplines in order to gain insight into how these more focused aspects allow planners to approach complex environments in new ways. Using the connection between networks and movements to recommend future employment of U.S. resources in support of strategic goals has and is being explored by others in the field of both social movement scientists and strategists. For example, D.W. Lee similarly writes about the need for strategists to identify brokers by stating, "the United States must learn how to identify and assess the potential of organic brokers in order to facilitate bloc recruitment. Learning about relational dynamics among and across existing networks is critical and is not a trivial matter."¹³ Similarly, in her pivotal book titled: "The Chessboard and the Web," Anne-Marie Slaughter explores how networks can be used for strategic purposes in the 21st Century. Slaughter challenges strategists to see the world in terms of networks and connections, and apply network centric logic to execute

¹³ D.W. Lee, "Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects," *Journal of Strategic Study* Vol. 10, Number 4 (2017): 42-63.

contemporary strategies.¹⁴ This thesis explores the relational dynamics that Lee and Slaughter identify and applies them to strategic options for the Joint Force of the 21st Century. The discussion begins with an analysis of the social movement concepts of social investment and social appropriation.

¹⁴ Anne-Marie Slaughter, *The Chessboard and the Web, Strategies of Connection in a Networked World* (New Haven, CT: Yale University Press, 2017). p 26.

CHAPTER II: SOCIAL MOVEMENT THEORY: THE PROCESSES OF SOCIAL INVESTMENT AND SOCIAL APPROPRIATION.

This chapter seeks to identify how social networks transform from their originally intended purpose into movements designed to change their political environments by mobilizing the population. The purpose of this chapter is to establish a scientifically grounded understanding of several key processes that can suggest how to identify and assess key influencers in a social system. These key processes stem from network analytics in the form of unique nodal characteristics that are both essential to these social movement processes and can be quantitatively measured. This synthesis will ultimately form a common understanding between strategists and tacticians. This common understanding can be used in strategies and campaigns that seek ways to shape popular environments, through collective popular behavior and in accordance with USG strategic interests. Harry Yarger discusses the relationship between the effects, policy, strategy, and the political environment when he states: “The true purpose of strategy is to create favorable effects in support of policy goals for the advancement or protection of national interests. Strategic effects are the impact that *the accomplishment* of strategic objectives has on the environment.”¹ When planners and tacticians understand how social movements form, and how the successful ones are structured at the nodal level, they can begin to form campaigns and operations around this understanding, and conduct distinct operations that seek to adjust their environment to strategic effect. SMT identifies key

¹ Harry R Yarger, *Strategic Theory for the 21st Century: The Little Book on Big Strategy*. Carlisle, PA: Strategic Studies Institute of the U.S. Army War College, 2006. www.strategicstudiesinstitute.army.mil/, p. 45.

processes that can impact the environment in ways congruent with USG and allied goals. This thesis develops connections between several identified processes within the formation of a social network and its development into a social movement in order to assist the planner conceptualize, and the operator execute.

The study of SMT assists in the understanding of what Doowan Lee calls: “the process of resistance,”² or the environmental conditions and developmental course a group of people take to become a resistance movement. This research will focus on very finite aspects of the transformative process in order to glean purposeful meaning of distinct nodes within a network capable of successfully conducting this process. These aspects include the existence of requisite nodes within a network that allow the network itself to take advantage of what Lee terms as: “Antecedent Conditions, Mechanisms and Effects,” or the required environmental conditions, actions, and outcomes of successful resistance movements.³ For the purposes of this study, resistance movements and social movements are synonymous terms. Mario Diani’s definition of social movements bridges the two synonyms. According to Diani, social movements are: “networks of informal interactions between a plurality of individuals, groups, or associations, engaged in a political or cultural conflict, on the basis of a shared collective identity.”⁴ This chapter explores Diani’s use of network, plurality and collective identity as they pertain to a process of a social network’s transformation to movements and defined more broadly through the scientific discipline of SMT.

² D.W. Lee, “Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects,” *Journal of Strategic Study* Vol. 10, Number 4 (2017). p. 44

³ D.W. Lee, “Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects,” *Journal of Strategic Study* Vol. 10, Number 4 (2017). p. 45

⁴ Mario Diani, “The Concept of Social Movement,” *The Sociological Review* Vol. 40 No 1 (FEB 1992) p. 13

Diani's use of the term network is useful because it correlates a social movement with a series of interacting nodes. When organized in a particular way, the cumulative interaction of these nodes forms a process. Diani corroborates this assertion when he states: "Social movements are in other words, complex and highly heterogeneous network structures."⁵ The relationship between the cumulative interaction of nodes and the formation of processes is described by Doug McAdam in the book *Dynamics of Contention*. McAdam writes that processes are: "regular sequences of such mechanisms [relations among specified elements] that produce similar transformations of those elements."⁶ The transformations, or outputs, of processes serve a required need of the movement. Diani and Bison further corroborate the relationship between social movements and networks by stating: "Networks and organizations are either the precondition or the outcome of a movement – or both... a specific type of network processes – *are the movement*."⁷ In summary, social movements become powerful when multiple networks coalesce through interacting nodes, facilitated by key narratives of mobilization and enabling political opportunities. The existence of particular nodes, covered in the next chapter, allows for specific and requisite interactions to take place based on the characteristics of the nodes themselves. The cumulative effect of these interactions forms a process. Processes become distinct based on their outputs. These distinct outputs are ultimately a product of the characteristics of the original nodes that worked to form a process and deliver outputs.

⁵ Mario Diani, "Introduction: Social Movements, Contentious Actions and Social Networks: 'From Metaphor to Substance'?" In *Social Movements and Networks: Relational Approaches to Collective Action*, edited by Mario Diani and Doug McAdam, 1-21. New York: Oxford University Press, 2003. p. 1

⁶ Doug McAdam, "What Are They Shouting About?" In *Dynamics of Contention*, edited by Doug McAdam, Sidney Tarrow and Charles Tilly, 3-38. New York: Cambridge University Press, 2001. p. 24

⁷ Mario Diani, Ivano Bison, "Organizations, Coalitions and Movements," *Theory and Society*, Vol. 33 No. 3/4 (JUN-AUG 2004). p. 303.

As the next chapter covers the particular nodes, this chapter discusses the processes, the outputs of those processes, and the value of these processes and outputs upon the movement. The two distinct and essential processes covered in this thesis include social investment and social appropriation. Social investment is a process that shapes and configures existing networks with the intention that they will eventually be useful.⁸ Social appropriation is the process where a social actor utilizes the existing relationships between particular nodes both within and outside of the network to increase its influence or affect the behavior of elements outside of the network in accordance with the internal network's intended aims.⁹ Both of these processes are essential to the transformation mentioned in the introduction, when a social group or network develops into a movement with designs to change its political landscape that are divergent from the intention of the original group. Furthermore, although the processes of social investment and social appropriation are distinct, they are also interrelated.

THE PROCESS OF SOCIAL INVESTMENT

The process of social investment is predicated on the theory that social movements do not form by fate or chance, but are a product of processes of social investment and social appropriation. Social investment sets the network, and social appropriation uses the network as a mobilizing structure to facilitate a social movement. Therefore, an existing social network is required for the transformation process to occur.¹⁰

⁸ John Campbell, "Where Do We Stand? Common Mechanisms: Organizations and Social Movements Research." In *Social Movements and Organization Theory*, edited by Gerald F. Davis, Doug McAdam, W. Richard Scott and Mayer N. Zald, 41-68. New York: Cambridge University Press, 2005. pp 62-3.

⁹ Doug McAdam, Sidney Tarrow and Charles Tilly, *Dynamics of Contention*. New York: Cambridge University Press, 2001. pp38-71. See also Charles Tilly and Sidney Tarrow, *Contentious Politics*. (Boulder, CO: Paradigm Publishers, 2007), p. 217.

¹⁰ Doug McAdam and Richard Scott, "Organizations and Movements." In *Social Movements and Organization Theory*, edited by Gerald F. Davis, Doug McAdam, W. Richard Scott and Mayer N. Zald, 4-40. New York: Cambridge University Press, 2005. p. 7. The authors quote the following extensively:

At their outset, social movements rarely have the size or influence to affect the behavior of any population. Therefore, they typically rely upon existing networks to form their base and then branch out. McAdam describes the reliance of movements on appropriate existing networks when he states: “It is a challenger’s capacity to appropriate sufficient organization and numbers to provide a social/organizational base – and not that organization itself – which makes mobilization [of the population] possible.”¹¹ Lee acknowledges these claims when he states: “It is no coincidence that most robust resistance movements emerge from pre-existing ties and networks. These pre-existing ties typically have built-in mechanisms to coordinate information and action across civil society.”¹² These authors conclude that social movements develop from preexisting networks within communities that have built trust amongst those same communities. That makes those preexisting networks an essential part of popular mobilization, and a social movement. It also establishes priority of work for both the planner and the tactician to develop or discover, if they wish to utilize the power of social movements and mobilized popular behavior as a means to accomplish desired effects within the environment. Therefore, the formation of the network itself is the goal, not necessarily its purpose.

Numerous case studies and quantitative analyses validate the importance of pre-existing networks in successful social movements. For example, in 1964 Civil Rights activists in Greenwood Mississippi built networks of people centered on voter

Charles, Louise, and Richard Tilly. *The Rebellious Century: 1830-1930*, London: J. M. Dent & Sons, 1975. And Charles Tilly, *From Mobilization to Revolution*. Reading, MA: Addison-Wesley Publishing. 1978.

¹¹ McAdam et. al., “Lineaments of Contention.” In *Dynamics of Contention*, edited by Doug McAdam, Sidney Tarrow and Charles Tilly, 39-71. New York: Cambridge University Press, 2001. p. 47

¹² D.W. Lee, “Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects,” *Journal of Strategic Study* Vol. 10, Number 4 (2017). p. 49.

registration, with the ultimate intention of transforming that network and assimilating it into the larger Civil Rights movement.¹³ When planners and tacticians develop campaigns and execute operations built around the process of social investment, the purpose of the network becomes important later and only after a network rooted in local legitimacy has been identified or formed. John Campbell corroborates the method of investing in networks by stating: “In this case, the creation of networks is an investment in the future, rather than a means for obtaining specific payoffs in the present.”¹⁴ However, few have systemically investigated preexisting networks, or forming them if none exist, for the purposes of augmenting the political effectiveness of social movements.¹⁵ Despite a lack of systemic investigation, enough evidence exists to generate insightful operational implications. The first is that the process of social investment entails the identification or formulation of existing networks that are not originally intended to become social movements. Instead, the value of these initial networks is twofold. First, these networks build or retain the ability to gain the trust of, and legitimacy within, the population that the planner and tactician intends to shape the behavior of. Trust and legitimacy are synonymous with what Doug McAdam calls “social capital.”¹⁶ Therefore, social capital is a product of the benefits produced from interactions between the network and the population that are congruent with the “routine and traditional patterns of life.”¹⁷ That is, they are valued by the population as the

¹³ Doug McAdam, “What Are They Shouting About?” In *Dynamics of Contention*, edited by Doug McAdam, Sidney Tarrow and Charles Tilly, 3-38. New York: Cambridge University Press, 2001. p. 19-20.

¹⁴ John Campbell, “Where Do We Stand? Common Mechanisms: Organizations and Social Movements Research.” In *Social Movements and Organization Theory*, edited by Gerald F. Davis, Doug McAdam, W. Richard Scott and Mayer N. Zald, 41-68. New York: Cambridge University Press, 2005.p. 62.

¹⁵ Ibid, p. 63

¹⁶ McAdam, Doug and W. Richard Scott. *Social Movements and Organization Theory: Organizations and Movements*. Edited by Gerald F. Davis. New York, NY: Cambridge University Press, 2005, 6-7.

¹⁷ Interview with Professor Doowan Lee on 4th December, 2018

transactions between the social network and the society conform to the norms and value systems unique to that population. Secondly, through their engagement, actors conducting network investment ensure that they develop or identify critical nodes within the network structure. Therefore, the intended output from the process of social investment is twofold. The first intended output from social investment is appropriate network structure, and the second is the indigenous legitimacy, or social capital, that the network has accrued as a product of its originally formed intention. The network structure is important to the degree that nodes with unique characteristics are a part of it. These nodal characteristics are described in detail in the following chapter but for the purposes of this chapter these nodes allow for a future and essential transformative process to occur. That process is social appropriation.

THE PROCESS OF SOCIAL APPROPRIATION

Authors Doug McAdam and W. Richard Scott detail how SMT has developed over time. Their research represents the convergence of two fields of study, social network analysis of collective action and social movements. Through this synthesis, new conceptual understandings emerged that describe how social movements are formed and take shape.¹⁸ Through their works, several key terms evolved. For example, McAdam and Scott define the term mobilizing structures as social pathways into a varying number of social levels that: “promote communication, coordination, and commitment within and among potential actors.”¹⁹ Mobilizing structures are the connective tissue that bond

¹⁸ Doug McAdam and W. Richard Scott, “Organizations and Movements.” In *Social Movements and Organization Theory: Organizations and Movements*. Edited by Gerald F. Davis, Doug McAdam, w> Richard Scott and Mayer N. Zald, 4-40. New York, NY: Cambridge University Press, 2005. pp. 6-19

¹⁹ Doug McAdam, “What Are They Shouting About?” In *Dynamics of Contention*, edited by Doug McAdam, Sidney Tarrow and Charles Tilly, 3-38. New York: Cambridge University Press, 2001. pg. 16

normally functioning social networks. However, when these normally functioning networks become the vehicles of popular mobilization, this connective tissue is a critical piece that allows the process of social appropriation to occur.

Social appropriation's importance stems from proponents of SMT who argue that mobilizing structures form the inroads that elements of existing networks work within and through to effectively develop new movements or mobilize large numbers. The processes of working through mobilizing structures to ultimately affect collective resident behavior is called social appropriation. According to McAdam et al.: "Mobilizing structures can be preexisting or created in the course of contention but in any case, need to be appropriated as vehicles of struggle."²⁰ The social scientist John Campbell corroborates McAdam when he states: "Students of social movements have recognized that in order for collective action to occur activists must utilize mobilizing structures to recruit members, obtain other resources, and disseminate information."²¹ Charles Tilly further defines social appropriation as a process where: "nonpolitical groups transform into political actors by using their organizational and institutional bases to launch movement campaigns."²² These authors use the process of social appropriation through mobilizing structures as a way to qualitatively evaluate effective social movements capable of realizing political change. McAdam's book on the U.S. African American civil rights movement is an example of social appropriation at work. In this example, civil rights organizers in the 1950s and 60s utilized the existing structures, or networks of

²⁰ Ibid, 45.

²¹ John Campbell, "Where Do We Stand? Common Mechanisms: Organizations and Social Movements Research." In *Social Movements and Organization Theory*, edited by Gerald F. Davis, Doug McAdam, W. Richard Scott and Mayer N. Zald, 41-68. New York: Cambridge University Press, 2005. p. 61.

²² Charles Tilly and Sidney Tarrow, *Contentious Politics*. (Boulder, CO: Paradigm Publishers, 2007), p. 34.

Southern Baptist Churches and universities to mobilize a population's collective behavior that ultimately and permanently changed the U.S. political environment.²³ Additionally, Tilly's definition further corroborates the important relationship between networks as mobilizing structures and social appropriation. Similar to Lee's works, Tilly also claims that initially, social networks are not intended to seek the aims of the social movement. All of these authors and scientists conclude that existing original networks are instrumental to the process of social appropriation. While the process of social appropriation is certainly instrumental in mobilizing popular behavior, it is still only one process within a complex system of processes. Relevance lies in the convergence between the two processes of social investment and social appropriation in order to better understand how popular behavior is mobilized at both the initial stages and towards the latter stages of a network's development into a social movement that mobilizes popular behavior for its political end.

UTILITY OF THE CONVERGENCE BETWEEN NETWORK INVESTMENT AND SOCIAL APPROPRIATION

Understanding the key processes of how social movements form is important for the planner trying to harness the potential power of a social movements' impact upon the political environment, and find congruence between that impact and USG interests.²⁴ The tactician must be equally versed if they are to conduct activities and investments in and amongst the networks and populations in order to allow for desired processes to occur. This study has discussed the processes of both social investment and social appropriation.

²³ Doug McAdam, *Political Process and the Development of Black Insurgency, 1930-1970*, (Chicago: University of Chicago Press, 1982).

²⁴ D.W. Lee, "Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects," *Journal of Strategic Study* Vol. 10, Number 4 (2017).

But to make them more useful, the next section of this thesis describes how each of these processes are complementary, when considered as part of a larger whole. Furthermore, this thesis will connect the idea that these processes are a derivative of the organizational construct of the movement itself, as analyzed through the typology of distinct nodes within the organization.

The convergence of the two aforementioned processes describes a unique aspect of a comprehensive process that Tilly calls mobilization. Tilly describes mobilization as: “how people who at a given point in time are not making contentious claims start to do so.”²⁵ As discussed in the introduction chapter, mobilization involves more processes than social investment or social appropriation. However, the relationship between these two processes prove to be both interrelated and integral to the planners and tacticians that seek to wield them in the pursuit of conditions congruent USG strategic goals. Taken in a greater context, and when combined with a working knowledge of network analytics, these two processes deserve greater attention and relative weight.

Social investment serves as the foundation of the movement. As the planner conceptualizes, and the tactician acts, they are both initially focused on the identification or the formulation of a network that is organized not only to add value, but also gain social capital, both to and from a population. But that original network goes beyond these initial aims, and must ultimately be developed to the extent that it is capable of conducting social appropriation. Therefore, the planner and the tactician are acting like social entrepreneurs, and should behave in a similar way. The process of social investment involves actions rooted in the idea that the network being invested in will

²⁵ Charles Tilly and Sidney Tarrow, *Contentious Politics*. (Boulder, CO: Paradigm Publishers, 2007), p. 35.

yield a profit. To the entrepreneur, the ultimate profit yield is the product of his or her vision of what is possible. Furthermore, the possibility of future mass mobilization does not have to be an intended goal of the original network. However, that vision also cannot become a reality without the existence of the network, combined with its organizational characteristics, that make it capable of conducting social appropriation. In this case that profit will be a political end that the forthcoming social movement seeks. Furthermore, just like any other financial investor, the tactician conducting social investment is looking to identify or shape a network in specific ways that will yield the highest ultimate profit margins. These actions are purposeful and deliberate, and may not be known to the network that is being invested in because they are done with future yield in mind, not immediate gain. John Campbell also discusses the potential yield of behaving as a social entrepreneur when he states: "Organization theorists also have found that networks are formed sometimes in the hope that they will generate resources and innovation in the medium to long term."²⁶ For the strategist the organization of a network can become a planning consideration, and a means of achieving a strategic end. Therefore, the strategist can conceptualize future environments that are shaped by mobilized popular behavior from social movements. Social Movements are preceded by networks with particular organizational characteristics and the presence of social capital. Likewise, the tactician can develop and maintain these social networks through the process of social investment, with an entrepreneurial understanding that they must contain certain nodes, and be valued by the population in order to be able to conduct social appropriation.

²⁶ John Campbell, "Where Do We Stand? Common Mechanisms: Organizations and Social Movements Research." In *Social Movements and Organization Theory*, edited by Gerald F. Davis, Doug McAdam, W. Richard Scott and Mayer N. Zald, 41-68. New York: Cambridge University Press, 2005. p. 62.

The following chapter(s) describe the nodes and requisite nodal capacity that allows social appropriation to take place. Social appropriation occurs as a product of two simultaneously existing and concurrently behaving types of nodes, operating within and amongst centralized networks. The first type are nodes that influence the behavior of networks from within. These nodes are characterized by having high values of in-degree centrality. The second type influences behavior by loosely connecting the network(s) themselves to sources that can introduce new ideas and themes. The new ideas and themes allow for the network(s) to behave in new and alternative ways, yet are congruent with cultural norms and values of the existing networks. The new ideas and themes effectively shape the behavior of the network, yet only when processed through the aforementioned centralized nodes that can leverage their influence upon the network through their social capital and relationships. Nodes with the capacity to connect between networks and introduce new ideas and themes are called brokers. Through their actions, in-degree centrality and brokerage allow for ideal high yield processes such as social appropriation to occur. Chapter III will describe these nodes in further detail, and Chapter IV describes a desired common understanding amongst military planners and tacticians that can replicate the process in the field in order to serve USG strategic goals.

CHAPTER III: NETWORK ANALYSIS: THE UTILITY OF CENTRALITY AND BROKERAGE

Chapter II's analysis of the transformative process between social networks and social movements developed the importance of social investment and social appropriation as distinctly important processes that planners can incorporate and tacticians can execute. However, translating these qualitative processes into empirically defined and quantitatively measurable strategies and operations requires a more detailed understanding of how these networks and their concurrent movements are formed and organized. Strategic level planners will require a greater structural comprehension of the network typologies and nodes within them in order to ensure that these networks are more inclined to develop into movements capable of redefining their political environment. And tacticians that execute the plans must have a more detailed foundational and organizational understanding of the distinct nodes and scientifically rooted theories about the relationships between characterized nodes that support the transformative process. It would not be possible for a tactician to simply execute social investment as part of a campaign or operation without an idea of what that process looks like in real terms. Chapter II makes clear connections between movements and networks and explains that without first identifying, or outright forming, the latter, the former cannot exist. Therefore, both the planner and tactician need a clear understanding of ideal network typology that facilitates transformative processes identified in Chapter II. This chapter takes a deeper look into the networks themselves through the study of network analysis. The social scientist Mario Diani describes network analysis as: "developed with a reference to a 'realist' view of social structure as networks which

linked together concrete actors through specific ties, identifiable and measurable through reliable empirical instruments.”¹ Informed by Diani’s assertion, the tactician conducting an operation designed around social investment must therefore identify nodes and networks with characteristics that make them amenable or likely to aid in the process of social appropriation. This chapter intends to identify these characteristics and their measurable qualities. Likewise, Diani’s assertion also benefits the strategist, who must visualize and incorporate strategic ends, exemplified in the effects of a mobilized population’s collective behavior on the operating environment, and requisite ways that would allow desired conditions to emerge. Through an analysis of existing network analytical studies, this chapter identifies distinct and quantitatively definable nodal properties or characteristics that allow for social appropriation to occur. Nodal characteristics can be further identified or developed through the process of social investment, and are found within the discipline of SNA.

SNA is important to the planner and tacticians’ attempts to harness the power of social movements because of the way that network analysts approach the subject of collective behavior. When describing SNA, author Barry Wellman states that social network analysts: “argue that their social structural explanations have more analytic power than individualistic analyses that do not take relational patterns into account.”² Wellman’s explanation gives preference to network organization, nodal analysis and the impacts of relationships between nodes in networks as a method to determine network

¹ Mario Diani, “Introduction: Social Movements, Contentious Actions, and Social Networks: From Metaphor to Substance?” In, *Social Movements and Networks: Relational Approaches to Collective Action*, 1-17. Edited by Mario Diani and Doug McAdam. p. 5.

² Barry Wellman, “Social Network Analysis.” In *The Blackwell Encyclopedia of Sociology* Vol. IX, SE-ST, ed. George Ritzer. Blackwell Publishing: Malden, MA 2007. p. 4490

capacity and capability. When combined with SMT, SNA is used to determine the capacity and capability of a requisite social network to conduct social appropriation and form or feed a social movement. In order to determine the specific nodes and their characteristics, the remainder of this chapter describes the findings of organizations and scientific works that specialize in nodal analyses applicable to social investment and social appropriation.

The U.S. Army Training and Doctrine Command's (TRADOC) G2 Operational Environment Center (OEC) studies and teaches the application of SNA within the Army's targeting model. The OEC's training program is called the Advanced Network Analysis and Targeting Course (ANAT).³ The ANAT model applies multiple nodal variables within the discipline of SNA to a targeting framework. The result is a model that feeds a process originally designed to attrite, defeat, or disrupt enemy networks. Like the ANAT training model, this chapter also explores pertinent applications of contemporary network analysis. In fact, the ANAT course has evolved over the past several years to include network-based targeting frameworks that support friendly, influence neutral, or neutralize threat networks.⁴ This chapter, and ultimately this study, builds on the current ANAT utility in terms of purpose. Like the more contemporary ANAT frameworks, this study aims to identify processes and relationships between unique nodes that can build network capacity and capability. And OEC/ANATs identified SNA variables designed around centrality can be used just as effectively for

³ US Army TRADOC G2. Operational Environment Center. *Advanced Network Analysis and Targeting Course: Using Social Network Analysis to Support Targeting*. TRADOC G27 Operational Environment Training Support Center. Ft. Eustis, VA, 2017

⁴ Interview with Bob Hays ANAT instructor from US Army TRADOC G2, Operational Environment Center, March 6th 2019.

building effective networks as they are for defeating or destroying them. But this application is only useful if nodes of centrality are placed within appropriate network context, and in accordance with the methods described in SMT.⁵ A corroborating supplementary study conducted at Carnegie Mellon University's School of Computer Science identifies the same centrality measures as OEC, and highlights subsequent measurements that determine network effectiveness through the utilization of uniquely designed software.⁶ This study, combined with several others mentioned below, highlight two distinct nodal types that are most prominent in the vast majority of the literature that link SNA with SMT. These nodes are in-degree centrality and brokerage. The following paragraphs describe both of these nodes in detail.

THE RELEVANCE OF IN-DEGREE CENTRALITY:

The term in-degree centrality is a subset of the larger classification of network degree centrality. The author Maryjane Osa provides essential context and purpose of network degree centralization through her analysis of the Solidarity movement and its capacity to affect political change in Poland during the 1970s-1980s. Among her findings, Osa asserts that: "mobilization is facilitated when the network is relatively centralized, and hard to sustain when it is not."⁷ Osa's argument is that the connectivity of nodes in the network and the capacity of highly centralized networks to mobilize network behavior are essential to successful movement outcomes. Osa's description of

⁵ Interview with Bob Hays ANAT instructor from US Army TRADOC G2, Operational Environment Center, October 1st 2018.

⁶ Wei Wei, Jurgen Pfeffer, Jeffery Reminga and Kathleen M. Carley, *Handling Weighted, Asymmetric, Self-Looped, and Disconnected Networks in ORA* (no. CMU-ISR-11-113), Pittsburgh, PA: Carnegie Mellon University, 2011.

⁷ Maryjane Osa, "Linking Organizations Through Activists in the Polish People's Republic." In *Social Movements and Networks: Relational Approaches to Collective Action*, 75-105. Edited by Mario Diani and Doug McAdam. p. 83.

highly centralized networks fits with Wei's (et al.) description of in-degree centrality as: "the number of nodes that point to the entity."⁸ In-degree centrality is measured from the number of in-coming links that draw direction, influence or gain benefit from a relationship with a centralized node. This description suggests that when trying to assess the potential for network mobilization, nodes with high values of in-degree centrality are ranked higher in importance compared with other nodes in the network. This suggestion is corroborated by U.S. Army TRADOC OEC/ANAT course. According to the ANAT course, nodes with high values of in-degree centrality are: "higher in the food chain." This would suggest that they have control over resources and knowledge.⁹ Mario Diani has also studied the role that in-degree centrality plays in social networks. Through his studies, nodes with high values of in-degree centrality consolidate attitudes and formally or informally provide direction to the network through leadership and access to resources. Diani attributes this capability to "a combination of organizational properties and social capital."¹⁰ Diani's use of the term social capital plays an important role in relation to in-degree centrality and the capability of nodes with high values of in-degree centrality to influence and direct behavior within a network. Social capital and the connection between popular attribution of trust and a social network that generates requisite social capital was discussed in Chapter II. However, the term social capital takes on new meanings when connected with nodes possessing high values of in-degree centrality.

⁸ Wei Wei, Jurgen Pfeffer, Jeffery Reminga and Kathleen M. Carley, *Handling Weighted, Asymmetric, Self-Looped, and Disconnected Networks in ORA* (no. CMU-ISR-11-113), Pittsburgh, PA: Carnegie Mellon University, 2011.

⁹ "Understanding Centrality Handout," In ANAT 102 course: *Social Network Analysis*. US Army TRADOC G2 Operational Environment Center's Attack The Network Division. Fort Eustis, VA. MAR 2017

¹⁰ Mario Diani, "Leaders' or Brokers? Positions and Influence." In, *Social Movements and Networks: Relational Approaches to Collective Action*, 105-122. Edited by Mario Diani and Doug McAdam. p. 119.

Congruent with Diani's description, nodes with high values of in-degree centrality have the ability to influence other nodes in the network through their accumulation of social capital.

In their research testing the seeding of contagions within a network of approximately twenty-seven million nodes, Sinan Aral, Lev Muchnik and Arun Sundararajan studied the forces that shape network adoption of new ideas and products. They called these forces contagions, and their study concluded that seeding contagions efficiently involved the introduction of new ideas into a network from exogenous sources through endogenous nodes in the network that facilitated network adoption through persuasion, and influence from within the network. Seeding of ideas through existing endogenous nodes makes the network more susceptible to accept the new ideas being seeded. Both exogenously sourced ideas and network diffusion of these ideas through endogenous means are important. However, when the product has been seeded into the network itself, endogenous influence that creates susceptibility ultimately creates the greatest probability of diffusion and product adoption.¹¹ This study does not discount the importance of exogenous ideas. In fact, their relevance and the nodes that are most likely to transport them are covered in the second half of this chapter. However, to facilitate diffusion within a network, nodes of in-degree centrality are essential to direction, diffusion and (formal or informal) leadership within the network itself. As such they become critical in the process of social appropriation.¹² Therefore, because their

¹¹ Sinan Aral, Lev Muchnik and Arun Sundararajan, "Engineering Social Contagions: Optimal Network Seeding In The Presence of Homophily." *Network Science* August 2013, pp 1-29. p. 23.

¹² Charles Tilly and Sidney Tarrow, *Contentious Politics*. (Boulder, CO: Paradigm Publishers, 2007), p. 34.

properties are relevant to the processes outlined in Chapter II, nodes of in-degree centrality have relative importance to planners and tacticians.

Given the importance of in-degree centrality and its relationship with endogenous sources of network influence, planners and tacticians need to understand both the value of in-degree centrality and its utility to the greater processes outlined in Chapter II. Social investment takes on new meanings given the importance of in-degree centrality. Planners will place important emphasis on the initial phases of campaigns, ensuring that operations centered on social investment of existing or newly formed networks occur. Meanwhile, the tactician executing the operations now has distinct focus on nodal characteristics to invest in. When developing new networks designed to generate social capital or identifying existing networks focused on the same capital, the tactician can now begin to generate or identify nodes with high values of in-degree centrality. Given his role as a social entrepreneur, the tactician engages the environment with an eye towards social investment, conducting operations that seek a return on that investment. In this frame, nodes with high values of in-degree centrality are or have become the currency that is invested in this process. However, like any good investment portfolio, diversification is key. Therefore, other forms of currency are required that complement in-degree centrality. Likewise, the process of social appropriation needs complementary actions to occur and these actions rely on other distinct nodes. In-degree centrality has been identified as a node that can consolidate attitudes and behaviors within a network. However, an in-degree node's value to social appropriation is limited to the mobilization of nodal behavior internal to a network. In order to get new ideas into a network that would facilitate mobilization and increase solidarity across a wide range of networks,

nodes with high values of brokerage are required.¹³ If positioned appropriately, nodes with high values of brokerage provide a wide dispersion of ideas and themes across networks. Consequently, the capacity to broker between networks and the impact of brokerage is discussed in greater detail below.

THE RELEVANCE OF BROKERAGE

Social movement theorists have attributed value to brokerage because of its ability to infuse new ideas into networks from exogenous sources. Yet because of their organizational position, these nodes also have some nascent affinity or relation to the network that they brought their new ideas into. In one of the seminal works on the subject, Mark Granovetter describes the relationship between “marginal” and “central” nodes and how marginal nodes have a disproportionate tendency to inject new ideas or contagions into more centralized networks. Granovetter described these marginal nodes as “liaison persons”¹⁴ These nodes were integral to the affected network, yet they did not necessarily hold centralized positions in that network. In fact, their marginality became their strength, because it allowed these nodes to interact with other nodes that were also on the margins of, yet still integral to, their respective networks. Similarly, Doug McAdam links these brokers to popular contentious mobilization. While describing a subset of social appropriation, McAdam coins the term “innovative contentious action.”¹⁵ The innovative portion of McAdam’s term is most relevant because according to

¹³ D.W. Lee, “Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects,” *Journal of Strategic Study* Vol. 10, Number 4 (2017). p. 57.

¹⁴ Mark Granovetter, “The Strength of Weak Ties,” *American Journal of Sociology* Vol. 78 No. 6 (MAY 1973), 1360-1380. p. 1367.

¹⁵ Doug McAdam, “Beyond Structural Analysis,” In *Social Movements and Networks: Relational Approaches to Collective Action*, 281-298. Edited by Mario Diani and Doug McAdam. p. 293.

McAdam it: “departs from previous collective routines and signals to other parties a fundamental change in the action, orientation of, and relationship to, the group in question... such action is a contingent accomplishment [within the process of social appropriation] in its own right.”¹⁶ McAdam describes the necessity of innovation as a new idea within a group that effectively alters the attitudes and ultimately the behavior of that group and makes that behavior congruent in both nature and purpose with a wider movement. Like Granovetter, McAdam attributes a social movement’s innovation, diffusion of ideas and societal adoption to nodes that have links which transcend network boundaries. McAdam writes: “It is reasonable to assume that many, if not most, instances of strictly local contention involve groups whose members are also linked to others beyond their local context.”¹⁷ Diani further corroborates these assertions through his study of social movements in Northern Italy focused on environmental activism. While assessing the role of activists in mobilizing populations, Diani concludes that: “By creating new bridges through their multiple personal involvements, either directly or indirectly, movement activists facilitate the spread of solidarity (and plausibly, mutual trust) among different groups and organizations.”¹⁸ Furthermore, Diani asserts that through their actions and position within the larger movement, brokers facilitate collaboration between networks that would otherwise be nonexistent.¹⁹ These authors conclude that brokers add legitimate value to the process of social appropriation. Brokers bring new ideas into networks and provide essential links between these same networks,

¹⁶ Doug McAdam, “Beyond Structural Analysis,” In *Social Movements and Networks: Relational Approaches to Collective Action*, 281-298. Edited by Mario Diani and Doug McAdam. p. 293.

¹⁷ Ibid.

¹⁸ Mario Diani, “Leaders’ or Brokers? Positions and Influence” In, *Social Movements and Networks: Relational Approaches to Collective Action*, 105-122. Edited by Mario Diani and Doug McAdam. p. 118.

¹⁹ Mario Diani, “Leaders’ or Brokers? Positions and Influence” In, *Social Movements and Networks: Relational Approaches to Collective Action*, 105-122. Edited by Mario Diani and Doug McAdam p. 119.

thereby facilitating the transformative process of social network into a social movement through the process of social appropriation.

The challenge with brokerage is that, unlike in-degree centrality, the term broker does not conform with or correspond to the named and quantitatively measurable nodes in SNA. However, given the description of brokerage's nodal characteristics there are some reasonable conclusions and connections between network analytical studies and SMT. Given the descriptions in the literature, the two most likely nodes that convey brokerage are betweenness centrality and eigenvector centrality. Betweenness centrality measures the degree to which one node connects disparate other nodes. Likewise, eigenvector centrality takes the secondary connections into account. When assessing a value according to eigenvector centrality, the previously disparate nodes connection to other nodes within their respective network is included in the value score.²⁰ This study does not distinguish which measurement is the most preferred. In fact, trying to do so may not be productive, because each network and the diffusion patterns within them are unique to themselves.²¹ Therefore, studying the network itself and the locations of central nodes capable of affecting the network's behavior may require one or the other type of brokerage, or a combination of the two.²² Research has concluded however, that when attempting to introduce new ideas and behaviors from exogenous sources into dense networks connected and influenced by nodes with high values of in-degree centrality, the social investor should focus on nodes conducting brokerage. And that those brokerage

²⁰ Wei Wei, Jurgen Pfeffer, Jeffery Reminga and Kathleen M. Carley, *Handling Weighted, Asymmetric, Self-Looped, and Disconnected Networks in ORA* (no. CMU-ISR-11-113), Pittsburgh, PA: Carnegie Mellon University, 2011.

²¹ Interview with Professor Doowan Lee on 4th December, 2018

²² Thomas Valente, "Network Interventions" *Science* Vol. 337, No. 49 (JUL2012).

nodes should focus their ideas on endogenous nodes within the network that can both persuade others to adopt the ideas and behavior as well as increase overall susceptibility of network adoption.²³ The existence of brokerage nodes increases the probability of successful resident mobilization. Therefore, planners and tacticians need to incorporate the relevance of brokerage into plans and operations in order to benefit from brokerage's potential benefits.

Research concludes that brokerage is instrumental when assessing popular mobilization potential within a given social environment. In fact, Granovetter argues that the absence or removal of the "weak ties" between networks and developed through brokerage would inhibit diffusion of ideas and behavior within a network far more than the removal of a "strong tie" within a network.²⁴ The diffusion of ideas and behavior, especially from exogenous sources is a key element in social appropriation.

Granovetter's conclusion is that nodes of brokerage are instrumental to the process of social appropriation to the degree that they are weighted more heavily than nodes and links that generate internal influence within the network. Likewise, campaign planners should take into consideration how susceptible a population is to collective mobilization based on its ability to converge ideas and behaviors through indigenous, or resident brokerage.²⁵ And through their actions, tacticians need to identify, reinforce or develop nodes with high values of brokerage based on the assessments of and intended outcomes developed by the campaign plan. In this sense both planners and tacticians would have to

²³ Sinan Aral, Lev Muchnik and Arun Sundararajan, "Engineering Social Contagions: Optimal Network Seeding and Incentive Strategies." *Network Science* August 2013

²⁴ Mark Granovetter, "The Strength of Weak Ties," *American Journal of Sociology* Vol. 78 No. 6 (MAY 1973), 1360-1380. p. 1366.

²⁵ D.W. Lee, "Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects," *Journal of Strategic Study* Vol. 10, Number 4 (2017). p. 57.

work under a common understanding of what the environment currently holds, what it is capable of holding and what level and type of brokerage is necessary to accomplish the intended strategic aim. Furthermore, a likely combination of identified or developed nodes with high degrees of betweenness or eigenvector centrality would have to be identified, empowered or developed. Finally, the convergence between the utility of in-degree centrality and brokerage should be invested holistically within campaigns that seek to mobilize populations through the process of social appropriation.

THE MERGER OF IN-DEGREE CENTRALITY AND BROKERAGE

While Chapter II discusses the relevance of distinct processes involved in the development of social movements, Chapter III discusses the nodal interplay that increase the probability for successful procedural outcomes. The relationship between in-degree centrality and brokerage are instrumental in social appropriation. Both of these nodes have unique roles to play, both within social networks and between them. Nodes with in-degree centrality offer leadership, direction and persuasion while concurrently increasing the susceptibility of the network to assimilate ideas and conduct collective behavior. Concurrently, nodes along the margins of networks that have multiple affiliations between networks offer the organization, and ultimately the environment with the capacity to transfer new and innovative ideas across and into networks. Therefore, social appropriation is more probable when new themes and messages enter into networks that have nodes with high values of in-degree centrality that can provide direction and consolidate collective network behavior.²⁶ The convergence between processes and

²⁶ Mario Diani, "Leaders' or Brokers? Positions and Influence" In, *Social Movements and Networks: Relational Approaches to Collective Action*, 105-122. Edited by Mario Diani and Doug McAdam. p. 119.

nodes that facilitate popular mobilization become increasingly important when applying them holistically as strategic options for the U.S. and its allies to compete in the cognitive domain. As the United States faces a new era of challenges codified in the term “great power competition,”²⁷ it will need increasingly effective and inventive strategies to overcome gaps in capacity while capitalizing on our strengths and our adversaries’ weaknesses.

²⁷ U.S. Department of Defense, *Summary of the 2018 National Defense Strategy, Sharpening the American Military's Competitive Edge*, 2018 (Washington DC: Department of Defense). <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf> (accessed 21JAN2019). See Also, President Donald J. Trump, *National Security Strategy* (Washington DC: Government Printing Office, December 2017), p. 27. <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf> (accessed 21JAN2019).

CHAPTER IV: CONVERGENCE AND APPLICABILITY

Chapters II and III developed the critical information and relationships between SMT and SNA that allow strategists and tacticians to execute USG policy objectives through the mobilization of collective popular behavior. This chapter develops the requisite interaction of the key tenets from both SMT and network analysis described in the aforementioned chapters. In order to be considered a serious option for USG policy and strategy, the application of popular mobilization needs to be rooted in scientific and mathematical foundations that inform the aforementioned conceptual framework. Substantiating future strategies and operations with scientific and mathematical studies provides two distinct benefits. First, it allows for quantitative and qualitative measurements to determine progress. SMT offers qualitative modeling of a procedural framework that assesses a social network's transformation into a social movement. Concurrently, network analysis offers methods to quantitatively measure the value and number of in-degree centrality, betweenness centrality and eigenvector centrality nodes. Secondly, it affords new ideas to address the challenges and provide opportunities to maintain both USG and allied primacy within the new era of great power competition of the 21st Century.

In his book titled: *The Utility of Force: The Art of War in the Modern World*, General Rupert Smith describes what wars are and are likely to entail in the 21st Century. Smith discusses the validity of framing problems and solutions that are both pertinent to their contemporary time and similarly rooted in science. Smith goes on to compare the successful U.S. and allied strategies of the 20th Century with the need to develop

contemporary strategies that allow for similar outcomes in the 21st Century.¹ Smith continues to describe the contemporary concept of the current operating environment as war amongst the people by stating: “War amongst the people is different: it is the reality in which the people in the streets and houses and fields – all the people, anywhere – are the battlefield.”² This thesis’ conclusions are congruent with Smith, that wars of the 21st Century utilize mobilized populations to achieve political outcomes. Therefore, the USG needs campaigns and operations that can harness the power of mobilized populations to create environments congruent with U.S. and allied interests and values. 21st Century campaigns and operations would have qualitative and quantitative metrics that assess the probability of successful outcomes. When linked together globally, their collective effects will be just as successful as the 20th Century strategies that allowed the USG and its allies to emerge victoriously from the Cold War.

This thesis offers a new perspective and utility for USG operations that seek effect in an operating environment through popular behavior. Adhering to the organizational tenets of SMT and measuring network capacity through network analytics has the potential to ultimately generate a new set of inputs into the JPP operational design and approach. New inputs are derived from the utility of mobilized populations and the effects of their collective behavior on the operating environment. Doug McAdam’s seminal work on social movements argues that social movements formulate from a balanced mixture of themes and messages that: frame the environment and the struggle appropriately, seize upon opportunities that movement organizers feel that they can act

¹ General Rupert Smith, *The Utility of Force: The Art of War in the Modern World*. New York: Vintage Books, 2007. p. 5.

² Ibid. p. 6.

upon, and rely on resident networks to access the population and gain social capital.³ McAdam's assertion is shared by Maryjane Osa during her analysis of the Solidarity movement in Poland. According to Osa: "movement emergence depends on three broad factors: political opportunity, organizational networks, and cultural framing or other interpretative processes."⁴ The deliberate focus of this study is to assess the impacts of existing social networks on social movements seeking political change. Furthermore, this study works upon the documented theory that social movements have a higher probability of achieving successful political outcomes because they are able to access a very diverse, powerful and existing social network. Yet these movements do not initially form that network, they access networks that possess appropriate social capital and a requisite number of interacting in-degree and brokerage nodes. Provided they are organized accordingly, the existing networks allow the process of social appropriation to occur. Furthermore, the original network was not movement related but service related, meaning it was valued by a population, and therefore able to accrue social capital. McAdam and Scott borrow from several existing works by Tilly when they conclude: "In many situations, the seedbed of collective action is to be found in the preexisting social arrangements that provide social capital critical to the success of early mobilizing processes."⁵ Therefore, when developing or executing campaigns that seek popular mobilization it is imperative to identify, empower, and develop effective networks built around in-degree centrality, connected by brokerage and in possession of social capital.

³ Doug McAdam, *Political Process and the Development of Black Insurgency: 1930-1970*. Chicago: The University of Chicago Press, 1982. p. 2.

⁴ Maryjane Osa, "Linking Organizations Through Activists in the Polish People's Republic." In *Social Movements and Networks: Relational Approaches to Collective Action*, 75-105. Edited by Mario Diani and Doug McAdam. p. 77.

⁵ McAdam, Doug and W. Richard Scott. *Social Movements and Organization Theory: Organizations and Movements*. Edited by Gerald F. Davis. New York, NY: Cambridge University Press, 2005, 6-7.

These types of networks are effective, however they may not initially be associated with a congruent USG/indigenous political purpose. It is also important to avoid the assumption that popular behavioral support will form around purpose driven networks, especially when that purpose is externally supported from sources outside the operating environment more than it is internally supported from inside the operating environment.⁶

Potential danger exists when external forces support a network or movement because of its purpose, with little regard to the network's social capital or capacity to effectively mobilize the collective behavior of the population. In Afghanistan for example, the International Security Assistance Force's attempts of network construction in the Pashtun tribal belt built around the rule of law⁷, or Che Guevara's attempts to establish an insurgent network in Bolivia⁸ share the same deterministic flaw. Both of these network building attempts are predicated on the assumption that the purpose of the network will attract the required behavioral popular support. At its core, an effective network does not assume popular behavioral support. Instead it seeks that support as a goal, by operating and conducting transactions within a population congruent with normative patterns of life, and builds social capital. Furthermore, a social investment process identifies or builds network structure through diversified social strata. By building network structure, the social investment process shapes an operating environment capable of potentially shaping behavior internal to networks and

⁶ Stephen L. Battle, *Lessons in Legitimacy: The LTTE End-Game of 2007-2009*. Naval Postgraduate School, Monterey CA Defense Analysis Dept, 2010.

⁷ Kilcullen, David, *The Rule of Law in Afghanistan: Missing in Action* "Deiokes and the Taliban: Local Governance, Bottom-Up State Formation and the Rule of Law in Counter-Insurgency." Edited by: Whit Mason. Cambridge, UK: Cambridge University Press, 2011.

⁸ Moreno, Jose A. "Che Guevara on Guerrilla Warfare: Doctrine, Practice and Evaluation." *Comparative Studies in Society and History* Vol. 12 No. 2 (1970), 114-133.

concurrently accepting as well as effectively transmitting new ideas about acceptable behavior across those networks. This ultimately builds an environment capable of, but not necessarily intended to affect political change. Political change comes after the formation of the requisite network effectiveness, benefits greatly from the existing structure and numbers of the networks, and generally adheres to the process of social appropriation defined through the tenets of SMT.⁹

The introduction chapter of this thesis mentions that merging very specific subsets of both SMT and network analytics would develop useful inputs to the JPP. Chapters II and III detail the merger of SMT and SNA, and its subsequent utility in mobilizing popular behavior. Inserting relevant information from the merger of SMT and SNA into the JPP can assist planners develop campaigns and assessments that seek to shape the power of social mobilization, and are congruent with the need to compete against adversaries in the 21st Century. Consequently, these plans will also call for specialized tacticians to execute unique missions that support the Joint Force in the new 21st Century strategic and competitive environment. For example, Chapter IV, Section B of Joint Pub 5-0, titled “Operational Design” gives a categorized set of instructions on how the Joint Force should approach the development of a strategically focused campaign plan. Within these instructions are steps to: “Understand the Operational Environment, Define the Problem, and Develop Operational Approaches.”¹⁰ In Chapter V, Joint Pub 5-0 provides

⁹ For specific references to this process see:

McAdam, Doug, Sidney Tarrow and Charles Tilly. *Dynamics of Contention*, 30, 44, 47. and Chenoweth, Erica and Maria J. Stephan, “Drop Your Weapons, When and Why Civil Resistance Works.” *Foreign Affairs* Vol. 93, Issue 4 (JUL/AUG 2014). and D.W. Lee, “Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects,” *Journal of Strategic Study* Vol. 10, Number 4 (2017): 42-63.

¹⁰ U.S. Joint Chiefs of Staff, *Joint Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, June 16 2017), pp IV-6 – IV-16.

instructions for converging the information gathered in Chapter IV with the Joint Planning Process that ultimately develops plans or orders for tacticians to execute.¹¹

With the information provided in Chapters II and III of this thesis, joint planners and strategists can now understand different aspects of the operational environment through a comprehension of the aforementioned patterns of routine life, or social norms and values that can be leveraged by a network to generate social capital. Also, while defining the problems within the operating environment (a necessary step in Operational Design), strategists and planners can focus on the lack or presence of effective networks. Problems can be further defined through an existing network's potential to mobilize a population's behavior in ways that are either antithetical to or congruent with USG strategic interests in the operating environment. Similarly, potential operational approaches that seek a change in the operating environment (as part of the Operational Approach) can now capitalize upon the potential effects a mobilized population's collective behavior will have on the environment. Further examples of plans and orders whose production has been informed by theories of SMT and SNA involve operations focused on social investment and provide tasks to identify, empower or build effective networks that generate social capital, and have the potential to mobilize collective behavior through social appropriation. Furthermore, a network's mobilization potential can be quantitatively measured through in-degree centrality and brokerage.

The above examples showcase how the Joint Force or Theater Special Operations Command strategists and tacticians can utilize the conclusions and convergence of SMT

¹¹ U.S. Joint Chiefs of Staff, *Joint Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, June 16 2017), pp v-1 – v-49.

and SNA outlined in this thesis. However, while establishing and measuring effective networks capable of executing the process of social appropriation is significant, it is not absolute. Network and nodal decisions to collectively mobilize also take salience of existing and potential ties into consideration. The following chapter examines the role salience plays within and amongst networks that are well positioned to mobilize into a movement capable of changing their environment.

CHAPTER V: THE IMPORTANCE OF SALIENCE

One of the potential criticisms of this thesis is the lack of analysis into the human decision-making process and its potential effects on popular mobilization. A flaw in the logic would be that humans do not solely make decisions because the network organization surrounding them has a certain number of characterized nodes within it.¹ While one should not dismiss the behavioral decision-making process, it can be argued that the convergence of human behavioral modeling and network analysis is outside the scope of this study. Behavioral modeling is certainly something that warrants attention and deserves to be included into strategic and tactical considerations. However, behavioral decision making models deserve their own thesis and are therefore outside the parameters of this work. But existing research on the subject offers initial points of consideration, especially when determining ideal network environments and how they facilitate or detract from collective mobilization.

Several prominent social scientists and social movement theorists have advanced the understanding of nodal relationships since Granovetter's founding document on the relationship between nodes that make up networks and the human behavioral decision-making process that results in a corresponding action. In fact, Granovetter himself concluded with the idea that the strength of ties should be considered in future research. Furthermore, Granovetter introduces the idea of negative ties that dissuade or deter a node from mobilizing with the network.² In the end, Granovetter does not offer

¹ Roger V. Gould, "Why Do Networks Matter? Rationalist and Structuralist Interpretations." In *Social Movements and Networks: Relational Approaches to Collective Action*, 233-256. Edited by Mario Diani and Doug McAdam.

² Mark Granovetter, "The Strength of Weak Ties," *American Journal of Sociology* Vol. 78 No. 6 (MAY 1973), 1360-1380. p. 1367.

conclusions on these subjects, only questions. However, several other prominent scientists have added empirical analysis to this subject.

In their analysis of social ties and the contributing factors those ties serve within activism, Doug McAdam and Ronnelle Paulsen make several conclusions with regard to salience of network ties and their effects on human decision making within networks. This study takes into account both positive factors, or relationships that attempt to influence mobilization, and negative relationships that attempt to dissuade or deter a person from mobilizing. They conclude that there must be a strong, dense network of salient ties that continually reinforce positive influences towards mobilization and insulate the individual from negative influences that detract from mobilization. McAdam and Paulsen offer a unique perspective about individual decision-making criteria within a network. They also argue that persuasion to act through direct links, or person-to-person engagements is weighted more heavily than simply providing information.³ The social scientist Gemma Edwards makes similar conclusions in her network analysis behind the militant Suffragette movement of early 20th century England. Through her network analysis of several members of the movement, Edwards makes similar conclusions as McAdam and Paulsen, that diffusion and adoption of movement ideals and behaviors are a product of not only network organization but also the qualitative salience of network ties.⁴

³ Doug McAdam and Ronnelle Paulsen, "Social Ties and Activism," *American Journal of Sociology*. Vol. 99 No. 3 (NOV 1993) 640-667. p. 655.

⁴ Gemma Edwards, "Infectious Innovations? The Diffusion of Tactical Innovation in Social Movement Networks, the Case of Suffragette Militancy." *Social Movement Studies*: Vol. 13 No. 1 (2014), 48-69. p. 66.

These scientists conclude that there is more to the process of social appropriation and collective mobilization than simple network organization. However, these studies also do not dismiss the assertion that in-degree centrality and brokerage are essential aspects to the process of social appropriation, and therefore must be invested in. In fact, they admit that the network and necessary nodes within it are instrumental to the design of successful social movements. Therefore, their conclusions would validate a social investment campaign designed around the identification or empowerment of nodes within and between networks that have high values of in-degree centrality and brokerage. However, they also offer that the entrepreneur cannot assume that all nodes, and the links between them, have equal value. Additionally, their persuasive capacity must be taken into consideration when investing into the societies that they operate in. Therefore, an understanding of salience coupled with an understanding of the relationship between network analysis and SMT offers significant options for planners and new forms of operating guidance to the tactician seeking lasting effects congruent with USG policy.

CHAPTER VI: CONCLUSION

In early 2018, USSOCOM published research topics designed to stimulate masters level investigation into the relevant challenges that Special Operations Forces (SOF) and the Joint Force face on a global scale. Topics included inquiries about methods of assessing the strategic effectiveness of special operations missions.¹ SOCOM is interested in understanding new ways to address the relationship between tactical operations and strategic effect.² Specific inquiries from SOCOM's research topics included: "How Will SOF Evolve its Shaping Operations to Enable Joint Force Success in Modern and Future Large-Scale Combat Operations? [and] The 'Indigenous Approach,' Measuring the Effect of SOF Operations. What Metrics are Relevant for Operations in the Human Domain?"³ The following paragraphs address these questions through a social movement and network analytical model as they concurrently surmise the arguments in the preceding chapters.

This thesis argues that the input of information derived from the convergence of SMT and SNA into the JPP allows SOF and the Joint Force to develop campaigns and execute operations that can be quantitatively measured as well as qualitatively validated.

¹ US SOCOM Research topic, *RESEARCH TOPIC: Priority Topics (A1): Measuring the Effectiveness of SOF Campaigning: Converting Tactical Effects into Strategic Impacts and (C11) How Will SOF Evolve its Shaping Operations to Enable Joint Force Success in Modern and Future Large-Scale Combat Operations*, found in National Defense University Scholars program AY 2018-19. Information can be found at: <http://www.ndu.edu/Students/NDU-Scholars-Program/>

² Colin S. Gray, *Tactical Operations for Strategic Effect: The Challenge of Currency Conversion*, The JSOU Press, (2015): 3.

³ US SOCOM Research topic, *RESEARCH TOPIC: Priority Topics (A1): Measuring the Effectiveness of SOF Campaigning: Converting Tactical Effects into Strategic Impacts and (C11) How Will SOF Evolve its Shaping Operations to Enable Joint Force Success in Modern and Future Large-Scale Combat Operations*, found in National Defense University Scholars program AY 2018-19. Information can be found at: <http://www.ndu.edu/Students/NDU-Scholars-Program/>

Campaigns and operations that seek to capitalize on the power of social movements would aim at harnessing the potential power of mobilized collective popular behavior to change their environment in ways more congruent with the USG and allied interests. Collective mobilization is predicated on the existence of networks that have accrued social capital. Additionally, the research demonstrates that networks more likely to execute the process of social appropriation and facilitate social movements are also centralized, consisting of nodes with heavily weighted values of in-degree centrality and connected laterally and vertically through brokerage ties. Nodes of in-degree, betweenness and eigenvector centrality can be quantitatively measured. By measuring the weights of these nodes within the networks of the operating environment, SOF and the Joint Force can establish quantitative metrics for tacticians to achieve, ultimately increasing the probability of a successful social movement to occur.

Coupled with the process of social investment, tacticians executing campaign plans can therefore engage social networks with an eye for developing ideal structures predicated on the concepts of in-degree centrality and brokerage, while concurrently accounting for salience between nodes. These tactical actions can have greater strategic effects because they ultimately shape an environment more likely to take advantage of strategic framing, opportunities, and internal networks to form social movements. These social movements have the power to shape their environment, sometimes in ways that completely change the political landscape.⁴ The strategist Harry Yarger argues that: “strategy seeks to cause specific effects in the environment – to advance favorable

⁴ Roger Cohen. "Who really Brought Down Milosevic?" *New York Times Magazine* NOV 26 (2000): 43-47.

outcomes and preclude unfavorable ones.”⁵ Armed with the knowledge of how social movements form, future campaigns that prioritize social investment, and subsequent social appropriation can help to shape environments more congruent with US and allied goals and objectives.

Likewise, network focused operations that shape an environment conducive to the formation of social movements also could provide a unique answer to SOCOM’s inquiry involving the evolution of shaping operations. Joint Publication 5-0 defines shaping operations as an activity (combat or non-combat related) that alters the conditions within the environment. Ideally, the altered conditions and subsequent changed environment are more congruent with US interests.⁶ Network focused operations assist strategic planners attempting to develop population centric campaigns and strategies through the planning process and assist tacticians conducting the subsequent operations by giving them specified tasks that focus on and develop an inherently indigenous option. Network focused operations also ultimately shape the operating environment by identifying, building or empowering social networks. Examples throughout this thesis describe how social movements that were built on social networks have significantly altered the operating environment.

As the US government emerges from the Global War on Terrorism and enters into great power competition, opportunities exist to take lessons from the former and apply them to the latter. The knowledge of how a social networks’ structural organization

⁵ Harry R Yarger, *Strategic Theory for the 21st Century: The Little Book on Big Strategy*. Carlisle, PA: Strategic Studies Institute of the U.S. Army War College, 2006. www.strategicstudiesinstitute.army.mil/, p. 17

⁶ U.S. Joint Chiefs of Staff, *Joint Planning*, Joint Publication 5-0 (Washington DC: Joint Chiefs of Staff, June 16 2017), p III-2.

influences its potential to affect the mobilization of a population promises to be one of these valuable lessons that can apply to great power competition. Part of the challenge behind great power competition is to promote the development of capabilities, strategies, plans, and operations that give the U.S. and our allies a marked advantage. Exploration into shaping social environments promises to address this challenge.

Bibliography

- Battle, Stephen L. *Lessons in Legitimacy: The LTTE End-Game of 2007-2009*. Naval Postgraduate School, Monterey CA Defense Analysis Dept, 2010.
- Burt, Ronald S. *Brokerage and Closure: An Introduction to Social Capital*. Oxford University Press, 2005.
- Centola, Damon, Macy, Michael, "Complex Contagions and the Weakness of Long Ties," *American Journal of Sociology*. Vol. 113 No. 3 (NOV2007): 702-734.
- Chenoweth, Erica, and Maria J. Stephan. "Drop Your Weapons: When and Why Civil Resistance Works." *Foreign Aff.* 93 (2014): 94.
- Cohen, Roger. "Who really Brought Down Milosevic?" *New York Times Magazine* 26 (2000): 43-47.
- Davis, Gerald F., Doug McAdam, W. Richard Scott, and Mayer N. Zald. *Social Movements and Organization Theory*. Cambridge University Press, 2005.
- Diani, Mario and Doug McAdam (eds.). *Social Movements and Networks: Relational Approaches to Collective Action*. New York: Oxford University Press, 2003.
- Diani, Mario. "The Concept of Social Movement." *The Sociological Review* Vol. 40, No. 1 (1992): 1-25.
- Diani, Mario, Bison, Ivano. "Organizations, Coalitions, and Movements." *Theory and Society* Vol. 33, No. 3-4 (2004): 281-309.
- Dobson, Charles. *The Troublemaker's Teaparty: A Manual for Effective Citizen Action*. New Society Publishers, 2003.
- Edwards, Gemma. "Infectious Innovations? The Diffusion of Tactical Innovation in Social Movement Networks, the Case of Suffragette Militancy." *Social Movement Studies* Vol. 13, No. 1 (2014): 48-69.
- Freeman, Linton C. "Visualizing Social Networks." *Journal of Social Structure* Vol. 1, No. 1 (2000): 4-19.
- Granovetter, Mark "The Strength of Weak Ties," *American Journal of Sociology* Vol. 78 No. 6 (MAY 1973), 1360-1380.
- Gray, Colin S., *Tactical Operations for Strategic Effect: The Challenge of Currency Conversion*, The JSOU Press, (2015).

- Grusky, David, McAdam, Doug and Reich, Rob (eds.) *Occupy the Future*, Cambridge: MIT Press, 2013.
- Hoffman, Frank G. "Complex Irregular Warfare: The Next Revolution in Military Affairs." *Orbis* Vol. 50, No. 3 (2006): 395-411.
- Lawrence, Thomas Edward. *Seven Pillars of Wisdom: A Triumph*. 3 ed. New York, NY: Anchor Books, 1991.
- Lee, Doowan. "Resistance Dynamics and Social Movement Theory: Conditions, Mechanisms, and Effects." *Journal of Strategic Security* Vol. 10, no. 4 (2017): 42-63.
- Mason, Whit (ed.). *The Rule of Law in Afghanistan: Missing in Inaction*. Cambridge University Press, 2011.
- McAdam, Doug. *Political Process and the Development of Black Insurgency, 1930-1970*. Chicago: University of Chicago Press, 1982.
- McAdam, Doug, Sidney Tarrow, and Charles Tilly. *Dynamics of Contention*. New York, NY: Cambridge University Press, 2001.
- Moreno, Jose A. "Che Guevara on Guerrilla Warfare: Doctrine, Practice and Evaluation." *Comparative Studies in Society and History* Vol. 12, no. 2 (1970): 114-133.
- National Defense University Scholars Program AY 2018-19: US SOCOM Research topic, Priority Topics (A1): "Measuring the Effectiveness of SOF Campaigning: Converting Tactical Effects into Strategic Impacts" and (C11): "How Will SOF Evolve its Shaping Operations to Enable Joint Force Success in Modern and Future Large-Scale Combat Operations." National Defense University. Washington DC, 2018.
- Sinan, Aral, Muchnik, Lev and Sundararajan, Arun. "Engineering Social Contagions: Optimal Network Seeding in the Presence of Homophily." *Network Science* Vol. 1, no. 2 (2013): 125-153.
- Slaughter, Anne-Marie. *The Chessboard and the Web: Strategies of Connection In A Networked World*. New Haven: Yale University Press, 2017.
- Smith, Rupert. *The Utility of Force: The Art of War in the Modern World*. New York: Vintage, 2008
- Snow, David A., Zurcher, Louis A. Jr, and Eklund-Olson, Sheldon. "Social Networks and Social Movements: A Microstructural Approach to Differential Recruitment." *American Sociological Review* Vol. 45 No. 5 (OCT 1980): 787-801.

- The Blackwell Encyclopedia of Sociology*, rev. ed. (Malden, MA: Blackwell Publishing, 2007).
- Tilly, Louise, Tilly, Richard. *The Rebellious Century, 1830-1930*. Cambridge, Mass: Harvard University Press, 1975
- Tilly, Charles C. *From Mobilization to Revolution*. Reading, Mass: Addison-Wesley Pub. Co., 1978
- Tilly, Charles, and Sidney G. Tarrow. *Contentious Politics*. Oxford University Press, 2015.
- Touraine, Alain. "The Importance of Social Movements." *Social Movement Studies* 1, no. 1 (2002): 89-95.
- TRADOC, G27. *Advanced Network Analysis Ad Targeting Course: Using Social Network Analysis to Support Targeting*. Ft. Eustis, VA: TRADOC G27 Operational Environment Training Support Center, 2017.
- President Trump, Donald J. "National Security Strategy of the United States of America." Washington DC: US Government Printing Office, December 2017. Available from <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.
- Tzu, Sun. *The Art of War*. Translated by Griffith, Samuel B. New York: Oxford University Press 1963.
- U.S. Department of Defense, "Summary of the 2018 National Defense Strategy, Sharpening the American Military's Competitive Edge," Department of Defense. Washington DC, 2018.
- US Joint Chief's of Staff. *Joint Planning*. Joint Publication 5-0 Department of Defense. Washington DC, JUN 16, 2017.
- Valente, T. W. "Network Interventions." *Science* Vol. 337, No. 6090 (Jul 6, 2012): 49-53.
- Van Dyke, Nella, and Holly J. McCammon. *Strategic Alliances: Coalition Building and Social Movements*. U of Minnesota Press, 2010.
- Wei, W., J. Pfeffer, J. Reminga, and KM Carley. "Handling Weighted, Asymmetric, Self-Looped, and Disconnected Networks in ORA" Pittsburgh: Carnegie Mellon University (2011) no. CMU-ISR-11-113
- Wright, Thomas J. *All Measures Short of War: The Contest for the Twenty-First Century and the Future of American Power*. New Haven: Yale University Press, 2017.

Yarger, Harry R. *Strategic Theory for the 21st Century: The Little Book on Big Strategy*.
DIANE Publishing, 2006.

Vita

Lieutenant Colonel (LTC) Stephen Battle (USA) is a Senior Service College graduate of the National Defense University's Joint Advanced Warfighting School (JAWS) in Norfolk, VA. Throughout his 24-year career, he has served in a multitude of assignments and deployed to support many named operations. LTC Battle began his career as an enlisted Infantryman in 1992. He exited active service in 1995 to attend the University of Dayton and was commissioned through their ROTC department into the Infantry Branch in 1998. As an Infantryman and Infantry Officer, LTC Battle served in various assignments at Ft. Drum, Ft. Bragg, Joint Base Lewis McChord and Ft. Hood. LTC Battle assessed into the Civil Affairs (CA) Branch in 2005 and served as a CA Team Leader and Civil Military Support Element in the 97th CA Battalion. As a Major, he served as a Brigade Combat Team S9 for 4th Brigade 101st ABN DIV (AASLT), the Company Commander of D Co. 98th CA Battalion and Executive Officer (XO) for the 98th CA Battalion. After promotion, LTC Battle was assigned to the 1st Special Forces Command - Office of Special Warfare, where he served as the Operations Officer and XO. LTC Battle was selected for Battalion Command in 2016 and served as the Commanding Officer of the 83rd Civil Affairs Battalion. During his tenure, the 83rd Civil Affairs Battalion expanded mission sets to support operations in 29 countries across five Global Combatant Commands and US Forces Korea. His operational and combat experience includes deployments to Somalia, Kosovo, Iraq, The Republic of the Philippines, Bangladesh, Thailand, Afghanistan, and Latin America. LTC Battle's Civilian Education includes a BA in History from the University of Dayton, an MS in Defense Analysis from the Naval Postgraduate School and an MS in Strategy and Operational Planning from the National Defense University. LTC Battle is married to the former Maureen Murphy of Cambridge, Ontario. They have one daughter, Mackenzie Battle - The Citadel class of 2022.