**The A, B, C's of Self-reinforcing Processes in Network Resiliency:
Adapting, Bouncing Back, and Coping**

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Introduction

What is the relationship between an interorganizational network's self-reinforming dynamics and

the resilient capacity of its relational processes to adapt (i.e., modify yet retain core

characteristics), bounce back to its original form, or cope (i.e., barely survive at a subsistence

level) in response to diminished external financial resources? Examining how networks respond

to resource contraction provides a way to highlight self-reinforcing dynamics because such

conditions bring to light those processes that are most deeply-rooted and capable of withstanding

external pressures. Understanding how to manage network resiliency to endogenous change (e.g.

entropy) or exogenous shocks remains a relatively under-studied problem in studies of networks

involving governmental, non-governmental, and for-profit organizations. Research on network

responses to disasters and crisis is especially rare in public sector management (Moynihan

2008a, 2008b). This is a problem because the public sector is often expected to coordinate

resilient networks in response to predicted and unexpected natural and man-made breakdowns in infrastructure (e.g., energy, water, transportation), public health, environmental protection, civil/national security, as well as economic financial systems.

To date, few studies examine the relationship between network coordination strategies and the self-reinforcing processes of public network resiliency. Researchers have focused on how public network structures evolve over time (Isett and Provan 2005; Provan, Isett, and Milward, 2004) as well as the coordination of public networks as complex adaptive systems (Comfort 2002, 2007). The little research that does exist on change in public networks tends to emphasize their evolution and flexibility to adapt. However, research has not yet fully addressed whether and how different network self-organization coordination processes influence network resiliency. In particular, little is known about whether there are differences among the self-reinforcing coordination logics of the public, private, and nongovernmental sectors. Less is known about whether and how these organizational logics interact with one another in multisectoral settings.

This paper proceeds in three parts. The first section provides the theoretical rationale by reviewing the literature on change in public networks. In particular, the paper builds upon and extends recent research examining different logics of network coordination among multisectoral networks of government, nonprofit, and for-profit organizations (Herranz 2008, 2009). The next section presents the methodology and cases used in the analysis. The analysis is based on a quasi-natural experiment of three workforce development networks in Boston between 1997 and 2001. The first time period of 1997, 1998 and 1999 encompasses three years of economic boom and governmental munificence. The second time period of 2000, 2001, and 2002 reflects three

years of economic contraction including a formally identified economic recession as well as governmental austerity. Source data for the analysis were collected via a multi-method approach combining qualitative and quantitative data from organizational documentation including strategic business plans, customer surveys, and annual monitoring reports. Each of the three cases illustrates different strategies related to network resilience. The paper examines how differences in network coordination among three networks were related to the self-organizing processes of network resiliency between eras of resource munificence and austerity. Initial findings suggest that each network was coordinated by a distinct logic of self-organization that was associated with one of three types of resiliency. An entrepreneurial-oriented logic of self-organization was associated with an adapting network (i.e., variation that included recognizable core features). A bureaucratic-oriented logic of self-organization was associated with a network bouncing back to the previously established processes of the network's initial state. A community-oriented logic of self-organization was associated with a network coping by barely surviving at a subsistence level. In the final section, the paper discusses the implications of the findings and the limitations of the study. This final section highlights how the paper contributes to both research and practice by clarifying and categorizing the relationship between three network self-organizing coordination processes and a network's resilient capacity to adapt, bounce back, or cope. The paper discusses the implications of the findings for strategically cultivating, facilitating, and steering a network's self-organizing processes to develop resilient multisectoral networks for high reliability operations.

Theoretical Rationale

An important feature of public networks is their potential for both agility and stability in allocating resources and providing services as compared to traditional government bureaucracies

(Agranoff and McGuire 2001, 2003; Milward and Provan 2000; Bardach 1998; Kickert, Klijn, and Koppenjan 1997; O'Toole 1997). Unlike single government agencies, public networks are presumed to be responsive to changing service demands as well as to be able to withstand external resource shocks. However, despite increased attention to public networks, relatively little is known about network stability. Less is known about whether and how services delivered through public networks are resiliency in the face of exogenous shocks such as resource contraction. Most public network research tends to emphasize static analysis, structural descriptions, or dyadic ties. Some network studies identify how some types of network ties change over time (Provan et. al. 2009; Isset and Provan 2005; Provan, Isett, and Milward 2004; Provan, Milward, and Isett 2002).

Much less is known about what strategic processes are related to network stability and resiliency (Van Nuenen 2007; Goessling et. al., 2007; Knoben, et. al., 2006; Isset and Provan, 2005). The few studies that offer longitudinal analysis of strategic concerns focus on business alliances— such as the long-term role of legitimacy in network evolution (Human and Provan 2000) or the co-evolutionary processes of strategy adaptation related to a network's morphology and its environment (Koza and Lewin 1998; 1999). Most of this research focuses on "for-profit (economically oriented) inter-firm alliances where each of the participating firms is an independent agent" (Koza and Lewin 1998, 256). Much less is known about the interaction between strategy and network development in public networks, especially those coordinated by a network administrative organization (NAO) with whom some network members have legislatively mandated or contracted relationships. Unlike a decentralized network of independent firms that is self-organizing, or a centralized network that is managed by a pre-

existing single organization, a network formed around a new entity—network administrative organization (NAO)—is considered by network researchers to be especially important in networks of with many small organizations because they often lack the resources to form or manage the network (Provan, Isett, and Milward 2004; Human and Provan 2000; Provan and Milward 1995). Despite this importance, relatively little is known about whether different strategies matter in NAO resiliency. A NAO is itself an especially interesting and relevant subject for studying network strategies because—as a network hub—it serves as a focal lens onto the interconnecting relationships and inter-organizational processes that are otherwise challenging to collect and analyze for a whole network. Better understanding the strategic orientations of NAOs therefore provides a window for analyzing coordination strategies for full networks. Toward this purpose, this article provides a conceptual framework for understanding how different strategies among NAOs relate to the coordination and resiliency of their respective networks. This framework is derived from a synthetic integration of two strands of organization theory regarding organizational distinctions associated with government, nonprofit, and for-profit sector-based differences, as well as three basic types of organizational coordination.

According to theorists from economics, sociology, political science, there are important organizational differences among governmental, nonprofit or for-profit entities. In contrast to business firms, government and nonprofit organizations are characterized by property distribution constraints as well as by distinctively different legal authority and political relationships that distinguish them fundamentally from business firms (Hansmann 1986; Frumkin 2002; Weisbrod 1986). In addition, Herranz (2008) suggests that governmental, nonprofit, and for-profit organizations are also archetypical representations of three basic

mechanisms of organizational coordination: hierarchies, clans, and markets (Ouchi 1995; Wilkins and Ouchi 1983; Ouchi 1980). According to Herranz (2008), these coordination mechanisms manifest themselves as strategic coordination processes—bureaucratic, entrepreneurial, and community—in multisectoral networks comprised of public, nonprofit, and for-profit organizations. Herranz (2008) finds that networks with predominantly bureaucratic coordinating processes are analogous to many traditional government agencies that are characterized by high degrees of formalized procedures involving written procedures, standardized information collection and reporting, and routine processes and services. Likewise, networks with entrepreneurial coordinating processes analogous to market-based firms that are characterized by high degrees of quid-pro-quo contracts and agreements, strategic data analysis, and profit-based fee-based services. Networks with community coordinating processes are analogous to mission-drive nonprofit organizations that are characterized by high degrees of agreements based on informal social relationships, sense-making information, and particularisticly personalized services. Following Herranz (2008), this article uses sector-based characteristics of inter-organizational relationships as way to distinguish different network coordination strategies. From this perspective, bureaucratically-coordinated networks tend to have more formal than informal processes, entrepreneurially-coordinated networks tend to have a mix of formal and informal processes, and community-coordinated networks tend to have more informal than formal processes. This approach is subsequently used to specify that each of the self-reinforcing dimensions of network resiliency may be analyzed according to the relative mix of formal and an informal mechanisms that characterize different network coordination strategies (see table 1). Table 1 provides clear distinctions between the formal and informal mechanisms

that characterize a network's inter-organizational inter-relationship processes of network resiliency.

INSERT TABLE 1 ABOUT HERE

 Analyzing formal and informal relationships is a well-established approach to understanding networks. In network studies, researchers find that the mix of formal and informal ties changes over time in business alliances, with formal (i.e., contract-based) ties decreasing and informal ties increasing due to the long-term development repeated informal trust-based relationships (Gulati 1995; Uzzi 1997). In contrast, Isett and Provan (2005) find that public and nonprofit relationships evolve differently than for-profit relationships because government agencies continue using formal contracts for stability and accountability. Unlike business networks that may eventually forgo formal contracts in lieu of trusted informal social relationships, public networks usually continue to use formal mechanisms such as contracts because of the legal, financial, and political accountability relationships that distinguish the public and private sectors.

Unlike structuralist approaches that emphasize counts, types, and centrality of inter-organizational ties as a means for assessing network change, this article focuses on changes in the processes of inter-organizational interaction. Consequently, Herranz's (2008) framework enables an investigation of whether differences in network coordination strategy are related to differences in the self-reinforcing processes of network resiliency. Little research explicitly focuses on the variety of strategic behaviors exhibited by organizations in responding to the external institutional processes that affect them (Oliver 1991). In one study of this issue

involving public and nonprofit agencies, Provan, Isett, and Milward (2004) found that organizations formed a network that strategically balanced the expectations of multiple constituents as a response to the conflicting institutional pressures brought about by a shift in government funding from fee-for-service to managed care. However, little is known about how differences in a network's strategic response would affect its resiliency.

Comparatively examining changes in inter-organizational processes provides an opportunity to study whether network coordination strategy is related to network resiliency. The research question that emerges is whether and how there is a relationship between network coordination strategy and network resiliency. Such an analysis requires comparing networks that have distinctive coordination approaches with the stability of these networks over time relative to changed external conditions. In order to highlight whether network management matters, it is necessary to attempt to control for other factors besides network coordination approach. And, it is necessary to then examine how these comparable networks respond to the same kinds of changed exogenous conditions. The following sections present such research subjects, describe the qualitative methods used in data collection, specify the key dimensions and variables under examination, identify the exogenous conditions and time periods of the investigation, and provide an analysis and discussion.

Research Setting

To address the research question, this paper provides a quasi-natural-experimental comparative case study analysis of three multisectoral workforce development networks in Boston, Massachusetts. Boston's workforce development networks are appropriate research subjects because these networks are comprised of governmental, nonprofit, and for-profit organizations

involved in improving labor exchanges between job-seekers and employers by providing integrated employment support services and job-matching information. The centerpiece of federal 1998 Workforce Investment Act (WIA) legislation and of regional workforce systems are One-Stop Career Centers that are centralized points of access to networks of federal, state, and local employment programs as well as the primary hubs for coordinating a mix of public, nonprofit, and for-profit organizations involved in local workforce development. Boston's One-Stops offer basic services, targeted customized services, and fee-based services. Most jobseeker customers receive a core set of job-search services such as access to free internet computers (e.g., online job search and email accounts) and fax machines, as well as access to occupational employment trends (e.g., trade journals and government reports), computerized job listings (e.g., local and national databases), and informational workshops on such topics as job-search strategies and resume preparation. Many jobseekers are also eligible for intensive services such as career counseling, resume assistance, and job interview coaching. Jobseekers may also be referred to a variety of public and nonprofit agencies for other supportive and social services. Some One-Stops also arrange industry-specific employer panels or multi-industry job fairs to facilitate information exchange and networking introductions between job-seekers and employers. One-Stops also provide a range of services to business employers such as postings to local and national jobs databases, information on labor market trends, consultation on finding workers, and direct referrals and job brokering with jobseeker customers. A One-Stop Career Center functions as a network administrative organization that manages the activities of the network. Federal WIA legislation allows One-Stops to be operated by individual or collaborating government, nonprofit, or for-profit organizations. In Boston, a competitive bidding and operating process resulted in designating three One-Stops with different managerial approaches

for establishing and innovating workforce services. This process resulted in the formation of three new organizational entities that were created as collaborations between different types of organizations emphasizing different strategic approaches to providing services and coordinating networked institutional relationships. Boston's three One-Stop Career Centers are The Work Place, Boston Career Link, and JobNet. Each of the One-Stop Career Centers serves as the functional network administrative organization (NAO) for its respective network. In this article's subsequent analysis, the term NAO designates the One-Stop Career Center and the network refers to the larger set of organizations related formally and informally in the NAO networks's workforce development activities. For example, The Work Place NAO refers to the One-Stop Career Center and The Work Place network refers to the governmental, nonprofit, and for-profit organizations that formally and informally comprise the network.

The Work Place (TWP) NAO was operated through a partnership between the Economic Development Investment Corporation (EDIC), a quasi-governmental agency promoting economic development—and one of Boston's most entrepreneurial nonprofits—Jewish Vocational Services (JVS). The Work Place network's entrepreneurially-oriented coordination approach was largely derived from the institutional perspectives of the principal co-operators. The WorkPlace NAO was created explicitly to function as a market focused, revenue-generating establishment. According to Herranz (2008), the co-operators' market-focus contributed to an entrepreneurially-oriented network coordination approach within The Work Place network. The Boston Career Link NAO was operated by three long-standing community-based organizations: Dimock Community Health Center; Morgan Memorial Goodwill Industries, Inc.; and Women's Educational and Industrial Union. The Boston Career Link network was mostly comprised of

community-based nonprofit organizations enmeshed with densely overlapping and longstanding social, interpersonal, inter-organizational ties. According to Herranz (2008), these organizations' focus on disadvantaged individuals contributed to a community-oriented network coordination approach within the Boston Career Link network. The JobNet network was comprised of a web of government agencies, nonprofits, and for-profit businesses that were connected through a variety of mostly formal relationships. The organizational hub of the JobNet network was the JobNet NAO, a nonprofit formed in 1996 that was operated by the Massachusetts Division of Employment and Training (DET). This state agency bureaucracy had historically administered both state and federal services including employment services and unemployment insurance.was operated by the Massachusetts Division of Employment and Training. According to Herranz (2008), this state agency's structure and administration as a traditional hierarchical bureaucracy contributed to a bureaucratically-oriented network coordination approach within the JobNet network. While the three Boston One-Stops began functioning with similar legislative requirements, budgets, and minimum service delivery expectations, differences in operating partnerships among them influenced their respective strategic approaches to network coordination (Herranz 2008). For these reasons, Boston's workforce development networks are appropriate subjects to address the question of whether different network coordinating strategies are related to differences in network adaptation.

Data Collection and Categorization Methods

For the data to address this research question, this study adopted a multi-method approach for collecting information to develop three comparative cases studies (Miles and Huberman 1994; Yin 1994). Qualitative data were collected using three methods. One method included semi-structured interviews—identified by "snowball sampling"—that lasted between one and two-

and-one-half hours with the managers and staff of One-Stops and networked organizations. These data were collected via three biennial waves of 50 semi-structured interviews during 1998, 2000, and 2002. A second method was textual analysis of annual organizational documentation collected between 1996 and 2002. The documentation—assembled by the Boston Workforce Investment Board (WIB)—includes strategic plans, program budgets, customer satisfaction surveys, employer focus group reports, and annual monitoring reports by the WIB. A third method was participant observation in events of the One-Stops and networked organizations, including staff meetings, career workshops, industry briefings, and job fairs. These personal observations occurred semi-annually in 1998, 2000, and 2002.

Collected data were subsequently organized in order to conduct a longitudinal analysis of the informal and formal self-reinforcing processes of network resiliency. For the longitudinal analysis, the data were categorized into two study periods: 1997 to 1999 and 2000 to 2002. These time periods were selected because they were each characterized by distinct periods of federal policy activity and economic conditions. The first three-year study period—encompassing the years 1997, 1998, and 1999—was characterized by implementation of federal welfare reform policy and economic expansion. The second period of 2000, 2001, and 2002 was characterized by implementation of federal workforce development policy and economic contraction.

The first study period between 1997 to 1999 encompassed implementation of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA)—the first major overhaul of federal welfare policy since its inception more than 60 years ago. Federal welfare reform provided a range of resources related to employment-related training and support to

welfare recipients as part of work-first requirements mandating labor market participation.

Welfare reform was accompanied by a combination of state and local policies and limited private

philanthropic grants, producing an era of relative munificence due to new funding. During this

same time period between 1997 and 1999, the external economy also provided a context for the

resiliency adaptation the networks. The Boston networks functioned directly in the labor market

as intermediaries that matched job-seekers with business employers. The networks provided

demand-side services to employers (e.g., worker recruitment, job preparation) as well as

provided supply-side services to job-seekers (e.g., job skill requirements, labor market analysis).

Because the networks primarily engaged in labor-matching, the networks' activities were directly

related to changing conditions in the exogenous economic environment. During the first study

period between 1997 and 1999, the nation and the Boston regional labor market experienced

record economic expansion when unemployment rates reached historic 20-year lows. As such,

this period reflects an era of economic growth—serving as an appropriate context to theorize a

"best case scenario" for how networks—particularly workforce development networks—

functioned during optimum economic conditions.

The second three-year study period of 2000 to 2000 encompassed implementation of the

Workforce Investment Act (WIA)—representing a significant shift in federal workforce

development policy towards emphasizing universal access for all job-seekers as well as services

to business employers. Federal workforce development reform provided a range of employment-

related resources as part of restructuring employment and training services. Compared to the first

study period of 1997 to 1999, the years between 2000 and 2002 were an era of relative austerity

as governmental resources associated with welfare reform diminished and with far fewer

additional resources provided WIA implementation. Moreover, government budgets dependent on tax revenue were also constrained due to the economic downturn between 2000 and 2002. During this time, implementation funds associated with PRWORA also decreased as there were fewer welfare recipients using the services of the workforce networks as welfare reform included time limited assistant and emphasis on finding employment. Also during this time, the country experienced an economic downturn and higher unemployment rates. The National Bureau of Economic Research—official arbiter of whether and when a recession occurs—determined that an economic recession occurred between March and November 2001. However, business profits were falling a year before that following the bursting of the technology and telecommunications bubble in the second quarter of 2000; and the 9/11/01 terrorist attack also affected the national economy during the fourth quarter of 2001, and throughout 2002. Consequently, considering the policy and economic changes during the study period, this study examined network resiliency between two distinct eras of exogenous policy and economic conditions.

In addition to organizing the data into two distinct time periods, this study identified several processes associated with network resiliency. In this study, self-reinforcing dimensions are distinguished as comprised of formal (e.g., written) and informal (i.e., verbal) characteristics that are illustrated with qualitative data (see table 1).

Examples of formal resource exchange include written contracts involving financial exchange between network members—including memorandums of agreements, sub-contracts, and fee-based service receipts. Examples of informal resource exchange include non-written in-kind interactions that included customer service referrals (i.e., providing a non-compensated service to a customer referred by another member of the network) and professional expertise (i.e.,

knowledge sharing among staff in network organizations about the availability, acquisition, and assessment of workforce development resources).

Qualitatively-derived illustrative examples were selected by combining analytical and interpretative approaches in order to identify patterns in the field data for the purpose of generating case stories (Lester and Piore 2004; Golden-Biddle and Locke 1997). Each time period consisted of three-year patterns for each network that were identified by triangulating data from: 1) interviews with approximately a dozen network; 2) annual NAO documentation (i.e., strategic plans, business plans, service and partnership reports; and 3) participant observations at NAO and network events (i.e., job fairs, workshops, site visits). Each network case was developed by collecting qualitative data on networks that consisted of at least 40 organizations. Each of the Boston networks were comprised of between 40 to more than 100 organizations— including public, nonprofit, and for-profit organizations. During the first study period, all three networks had at least 40 members and as many as 100 members. During the second study period, all three networks had at least 40 members. The comparative case analyses are used illustratively to provide an empirical-grounding for theory-building. To assess networks resiliency, this study presents a relational comparison by analyzing the networks for differences in the patterns of formal and informal characteristics of each dimension. This relational construct enables an examination of whether network coordination approaches are associated with resiliency between the two time periods studied. By providing a coherent synthesis of disparate research streams (Golden-Biddle and Locke 1997), this methodological approach provides conceptual building blocks for a process model of strategic approaches to network resiliency. In the next section, the resulting relative comparative analysis illustrates how the framework helps conceptualize

whether and how network resiliency in the context of changed exogenous conditions is related to different network coordination strategies.

Adapting, Bouncing-back, and Coping: Three Cases Illustrating Differential Network Resiliency

Case 1: Adaptive Resiliency: The Work Place Network's Entrepreneurially-oriented Network Coordination

For TWP's network, developing a diversified portfolio of both governmental and fee-based resource revenue streams was a strategic priority in adapting to its policy and market environments as a way to be resilient (see Table 2). Table 2 provides summary comparative examples of the formal and informal self-reinforcing processes used by The Work Place NAO— and the other two networks—in response to changing conditions.

INSERT TABLE 2 ABOUT HERE

To this purpose, TWP's NAO made a strategic choice to adopt an entrepreneurial approach in its relationships with public, nonprofit, and for-profit organizations. According to TWP (The Work Place 2000, 17),

> We acknowledged that we, as many other non-profits, tacitly felt as though we couldn't truly compete with private businesses. We recognized that it takes a certain amount of entrepreneurial spirit, competition and risk to run like a business. The spirit and risk-taking attitude…certainly existed at The Work Place.

As an example of its entrepreneurial adaptation, TWP's NAO launched "Corporate Partnership," a $200 yearly fee-based membership program that entitled employer members to discounts and special TWP services. The Corporate Partnership service was partially inspired by the popularity among businesses of developing strategic partnerships, alliances, and networks; and by TWP's

market research showing that a corporate partnership service would also help it develop its relationships with business firms. As noted by TWP (The Work Place 2000, 17),

> The idea of Corporate Partnership is widely written about and seems like a reasonable way to parlay our knowledge of the labor market and our labor exchange function into fee-based services…We could learn to act more like a business by actually working more closely with them. In turn, the employer could take advantage of our connections to the community and reach different labor pools to fulfill their hiring needs.

At the same time, TWP's NAO's most financially successful business products involving business networks were customized job fairs for specific industry sectors such as finance, hospitality, transportation (e.g., Metropolitan Boston Transit Authority), and airport businesses. During the economic downturn of 2000 to 2002, The Work Place network experienced a reduction in its welfare reform contracts as well as in its formal contracts with business for employment services. One of the ways that he TWP NAO adapted was by reframing and restructuring its employment services to offer fee-based services to companies that were laying off workers as part of their downsizing activities. For example, the TWP NAO created a new line of business that offered new fee-based transition counseling for laid-off employees.

Finding ways to sell services to companies that were shrinking their workforce was a strategic decision by The WorkPlace NAO's that reflected its entrepreneurial approach to adapting to the changed economic conditions. According to The Work Place NAO Director Thomas Ford, "we operate more like business than a government agency…we don't have a program, we have products and services…and the decision-maker is the user, even if that person is not the payer, kind of like Blue Cross." This business-like orientation similarly characterized the mutual expectations of inter-organizational relationships within The Work Place network, and included relationships with government agencies. The relationship between the Department of

Transitional Assistance (i.e., welfare agency) and The Work Place NAO provides an example of this phenomenon. According to The Work Place NAO Director Tom Ford (personal interview, May 11, 2000), DTA was a "payer" rather than a business partner or customer with whom TWP's NAO had a transactional or exchange relationship:

> I think about the welfare department as a third-party payer not a partner, and we never sit down to talk. Terms like $3,300 per placement are negotiated at the state level and given to us as 'take it or leave it,' like government is the decision-maker telling the client what to do. My partners are training providers, corporate partners, Massport, and the state Department of Revenue.

For The Work Place NAO and its network partners, quid pro quo exchanges were the basis for inter-organizational mutual expectations. For example, TWP's NAO's primary strategic response to the implementation of the federal Workforce Investment Act was to strengthen and build relationships with nonprofit agencies with specialized expertise. According to TWP's NAO (The Work Place 2001, 18),

> We have decided to build stronger bridges with community-based organizations that will provide access to the following services: housing, mental health, childcare, clothing, and food…Forming strategic partnerships with other community based "specialists" offers us an opportunity to assist our customers with their basic needs while working towards meeting their short and long-term educational goals.

For example, in July 2001, TWP's NAO organized a networking event for stakeholders involved in the new training voucher system. This training fair was adapted from previous job fairs developed by TWP's NAO and brought together training seekers, training vendors, and representative from the JobNet and Boston Career Link networks. As a result of the training fair, TWP's NAO reported that 150 training seekers connected with more than 40 training programs, almost 70 ITAs [individual training accounts] were issued, training vendors gauged levels of interest in their programs, and the networks had an opportunity to begin to develop closer relationships with training providers.

As WIA implementation unfolded during 2001 and 2002, TWP's NAO worked more closely

with partners to develop new and enhanced services for its job-seeker customers, including

youth, limited English speakers, welfare recipients, college graduates, and dislocated workers

with advanced degrees and skills. However, as a result of the weakened labor market conditions

in 2001 and 2002, TWP's NAO modified its services and connections to employers. Rather than

emphasizing fee-based services that employers were purchasing less frequently, TWP's NAO

invested in creating, maintaining, and cultivating informal relationships with employers. While

continuing to emphasize formal (i.e., fee-based agreements and agreements), the TWP NAO

invested in informal resource exchange (e.g., providing no-cost labor market information to

employers) as well as balancing its formal and informal mutual expectations with businesses as a

strategy to yield potential increased fee-based revenue in the future. According to TWP's NAO

(The Work Place, 2002, 5),

> This past year, the Business Development Team has focused considerable time and effort
> on building and growing relationships with employers...The work being done with
> employers has been somewhat different than in past years. With the downturn in the
> economy, fee services in general decreased in demand. The Business Development Team
> has taken advantage of this lull by being more strategic and creative in terms of building
> relationships with employers.

As part of this strategy, TWP produced fewer job fairs yet increased the number of on-site

recruitment sessions. During this time, TWP's NAO also continued to build informal

relationships with employers by organizing breakfasts for employers as an "effective way to

network and keep relationships going through the slow economic time" (The Work Place, 2002,

5). In addition to cultivating its informal ties with employers, TWP's NAO sought to generate

new formal fee-based services appropriate to the changing economic situation. For example,

after conducting employer focus groups and forecasting increased layoffs, TWP's NAO

developed a product line of outplacement services for medium-sized businesses. TWP also

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offered outplacement services to nonprofit organizations after assessing that government cut-

backs were reducing social service agency staff. Ford (personal interview, January 14, 2002)

noted that TWP continually sought out opportunities to provide fee-based services, and that "we

live in a nonprofit world, but we still try to be entrepreneurial."

To offer multiple lines of service that customers would use and purchase, TWP's NAO focused

early in its operations on developing processes that gathered and analyzed information. To

function as a customer-driven organization, TWP's NAO determined that it required extensive

information about customer behavior, service utilization, and satisfaction. During 2000 to 2002,

TWP's NAO increased its development and use of data to inform strategies and practices related

to coordinating inter-organizational relationships for the purpose of generating financial revenue.

TWP's NAO used evaluations, transactional surveys, telephone interviews, semi-annual focus

groups of job-seekers and employers, exit surveys, and its internal information management

systems as feedback mechanisms for improving and developing services—especially those

purchased by employers and job-seekers. According to TWP (The Work Place, 2001, 6),

> Strategic planning is critical to the success of any business, but it is especially important
> to our network, which operates in an environment where political and funding priorities,
> labor market dynamics, and economic trends can fluctuate quickly and without notice.
> We must be able to recognize these environmental factors, understand both the
> opportunities they offer and the threats they impose, and respond to them in ways that
> take the fullest advantage of the opportunities while minimizing the threats. To do this,
> we must practice strategic planning and strategic thinking, not as annual or biannual
> events, but as a way of conducting our business on an ongoing basis.

One example of TWP's NAO strategic decision to invest in data collection was its contract with

a private company to make follow-up phone calls to those job-seekers who stopped using

services. For the TWP NAO, the telephone survey was effective in documenting successful job

placements, but expensive as each completed call cost $16. Despite the expense, TWP's NAO

determined that the quarterly placement data and customer service feedback information was so worthwhile that it increased its budget for the calls from $10,000 in fiscal year 1999, to $20,000 in fiscal year 2000.

The WorkPlace network provides an illustrative case of how an entrepreneurially-oriented network coordination strategy emphasizes a mix of formal and informal processes in network exchanges regarding resources, mutual expectations, and information. As these examples suggest, the WorkPlace network made strategic decisions to use such entrepreneurially-oriented processes as a way to adapt to changes in federal policies and in the economy.

Case 2: Bounce-Back Resiliency: The JobNet Network's Bureaucratic Network Coordination

In preparing for and in responding to changes in federal workforce development and welfare policy, the JobNet network emphasized formalized resources in its inter-relationships (see Table 2). Table 2 provides summary comparative examples of the formal and informal self-reinforcing processes used by the JobNet NAO.

In particular, the JobNet network decided that governmental categorical funding associated with welfare reform would be a primary source of revenue and so organized its NAO operations so that it had staff specialists to act as liaisons with publicly agencies administering programs such as TANF (welfare), Skills Plus, Title III (dislocated workers), and ADA (American Disabilities Act). In addition, unlike the other networks, the JobNet NAO operators were inside-players within the state government social service contracting system, and therefore well positioned to help broker many governmental contracts among its network members. Through DET, JobNet's

NAO drew upon well-developed financial systems to manage complex contracting relationships with other governmental agencies. For example, DET connections helped establish resource-sharing relationships with other state agencies such as the co-location of a JobNet network satellite office at the Newmarket Square office of the Department of Transitional Assistance (i.e., welfare agency). Many of the contractual arrangements involved multiple government agencies, as well as large nonprofit organizations in a variety of program areas. Consequently, the JobNet network created several sub-networks organized around separate contracts to provide employment services to welfare recipients, disabled workers, and unemployed workers.

Just as it mostly had formal resource exchanges with government agencies, the JobNet NAO also mostly had formal resource exchange with business networks. However, compared to the other two networks, the JobNet NAO offered very few fee-based employer services during this time and so did not receive much revenue from employers during 2000 to 2002. Consequently, the shrinking number of employers in its network during the economic downturn had little effect on its formal resource base. Indeed, the JobNet network's heavy reliance on public funds meant that it was relatively insulated from market changes. The JobNet network was able to maintain sufficient resources to provide its basic services by falling back on core legislatively mandated funding sources such as the programs of unemployment insurance, and welfare-to-work.

During 2000-2002, the JobNet network adapted to the changed policy and economic environment by increasingly formalizing mutual expectations among members. For example, its network administrative organization developed a contract with New England's largest nonprofit—Action for Boston Community Development (ABCD), itself a bureaucratic agency—to established formal relationships with ABCD's network of neighborhood-based organizations.

In coordination with ABCD and its network of neighborhood centers, the JobNet network held a meeting in spring 2001 with neighborhood-based community based organizations as a community outreach effort. However, the JobNet NAO determined that it would be difficult to dedicate the staff resources required to convene monthly meetings and so instead developed a broadcast email list (list serve) of job leads. Subsequently, JobNet's NAO developed a set of procedures for network members to jobs announcement on a daily basis (Charter Review Report 2002, 10). However, the JobNet NAO reported that the email effort became "somewhat disappointing" in 2002 because it appeared that "when budget crunches hit some of the first to get axed are the job developers/counselors" (Charter Review Report 2002, 10). This became a problem since the emails were sent to individuals who no longer worked there and whose email addresses were often terminated. Nevertheless, the JobNet NAO reported that it continued to identify other community organizations to add to the list. In this illustration, the JobNet network demonstrated its tendency towards operational procedures in its relationships with community organizations rather than the reciprocal and embedded relations that characterized BCL's networks and TWP's strategic alliances. In general, the JobNet network was more likely to closely collaborate with other bureaucratically inclined public agencies. This showed that the JobNet network's resiliency response was to fall back upon its strong governmental relationships because their formality provided stability.

JobNet's NAO had a similar procedural emphasis in its approach to coordinating its network of employers. This was a challenge because demand for its services increased due to the tightened labor market. During this time, the network's mostly formal relationships with businesses and nonprofits meant that their mutual expectations changed, in that employers continued to use

formal processes, but the few informal relationships meant that there were fewer interactions. So, it did not respond to the changing needs of business customers partly because its formal mechanisms were few and its mutual expectation were low. The only relationships that remained during the economic downturn were basic mechanisms. So, informal inter-organizational relationships tended to contract along with the reduced number of employers using services. The JobNet network's emphasis on formalizing its inter-organizational relationships extended to its strategic decisions about how to set-up information exchange processes within the network. JobNet's NAO determined that its main information exchange problem was that network members used a variety of reporting systems that were not used similarly, contributing to inconsistent data collection. The JobNet NAO approach to information and systems management was establishing standardized procedures and instructions for administering the tasks, documentation, and reportable outcomes associated with the labor matching process. For example, welfare reform required new reporting mechanisms to document the types and hours of job search and training activities among welfare recipients. As part of a state-wide approach to systematically collect and report data, JobNet's NAO helped develop the specifications for a computer-based software program that would enable the information systems of different agencies to interface. The JobNet network responded to the policy environment by revising its processes and administrative apparatus. As an example of making a choice emphasizing formal process, the JobNet NAO prioritized and demonstrated leadership in improving the data collection and reporting system itself. JobNet's NAO expressed concern about the quality of postings to the Massachusetts One Stop Employment System (MOSES) jobs database due to inconsistencies in posting procedures, job description language, and even font utilization. During the same time in 2001, JobNet's NAO convened a statewide sub-network of government and

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nonprofit agencies to formally standardize the processes through which employers receive existing services.

The JobNet network provides an illustrative case of how a bureaucratically-oriented network coordination strategy emphasizes formal rather than informal processes in network exchanges. As these examples suggest, the JobNet network made strategic decisions to use such bureaucratic-oriented processes as a way to develop self-reinforcing processes that would increase the resiliency of its network to changes in federal policies and in the economy.

Case 3: Coping Resiliency: The Boston Career Link's Community-oriented Network Coordination

In contrast to the JobNet network's bureaucratic orientation and The WorkPlace network's entrepreneurial orientation, the Boston Career Link (BCL) network had a community orientated strategic coordination approach that was reflected in its self-reinforcing processes. This was evidenced in that the BCL network had more informal resource relationships with community-based organization than the other networks, as well as fewer governmental contracts than the JobNet network and fewer business agreements than The Work Place network. In general, the BCL network's resource exchanges emphasized inter-personal relationships. For example, in providing DTA-contracted welfare reform services, BCL's NAO reported that its two main "marketing techniques" consisted of strong relationships with DTA employees and with TANF recipients. According to BCL's NAO (Boston Career Link, 2002, 11), its "outreach workers have a good relationship with DTA employees, and have worked to keep those relationships solid, through relationship-building events and other positive interactions."

BCL's NAO community orientation to managing network relationships did not necessarily translate into managing inter-organizational contracts. BCL also found it challenging to develop and manage contracts with different funding sources such as the Massachusetts Commission for the Blind, the Massachusetts Rehabilitation Commission, and the Department of Transitional Assistance. These contractual relations often conflicted with BCL's community-based activist approach of providing a web of free neighborhood-based services to clients. From BCL's perspective, building relationships and developing contracts with state agencies was complicated by institutional animosity. According to the chief executive officer of one of the BCL NAO's three co-operators, "state bureaucrats hated this program because it took away their power and union people were afraid they would lose jobs, so they all did everything they could to sabotage negotiations." In this environment, BCL's NAO spent a lot of time negotiating with government agencies. Indeed, BCL's NAO was often overwhelmed in developing the appropriate strategic expertise to manage its dual customer orientation and its varied network relationships. The BCL NAO's first executive director left within the first six months. Although having community-based workforce development experience, she was unable to develop and implement the leadership and interpersonal skills needed to manage the BCL NAO's complex organizational relationships. Consequently, the BCL continued to emphasize informal resource exchanges in its inter-organizational relationships over formal government contracts for inter-organizational service delivery.

During the economic downturn of 2000 to 2002, the BCL network's formal resources shrank, leading to a contraction in both its formal and informal network relationships. Compared to the other networks, the BCL network's resiliency approach was primarily based upon increasing its

informal resource ties through its various over-lapping networks of community-based organizations. The BCL NAO's embedded ties to its community-based operators' networks as well as networks of other nonprofit social service organizations enabled the BCL network to leverage limited formal resources during this time with the extensive informal resources available across several nonprofit networks. BCL's informal relationships with the other organizations also yielded information about grant opportunities as well as provided sufficient trust among the organizations to pursue funding opportunities. The joint efforts allowed the organizations to share access to customers and to combine expertise in social supports and employment services in their response to the increased customer needs during the economic contraction.

Similarly, partially due to the long histories of familiarity and trust amongst individuals working in the BCL network's organizations, mutual expectations of continued relationships amongst network members and with employers were relatively high and reflected in informal agreements rather than written formal agreements. One the one hand, these mutual expectations were relatively easy to maintain during the economic boom and during the infusion of government resources associated with implementing welfare reform. Indeed, during these years flush with resources, the BCL network developed both in its depth and in its breadth of inter-organizational resource relationships. However, during 2000 to 2002, expectations were shaken as the BCL network adapted by retooling its strategic plan and its verbal plans amongst members because it had fewer employers in its network and fewer government funds flowing through the network. To help maintain its resiliency to the changed environment, the BCL network engaged in a six-month multi-stakeholder consensus-based strategic planning process. As part of this community-based strategic planning process in 2001, it was agreed that the BCL NAO's customers should

more closely resemble the disadvantaged clients of its operators and of the network's other community based organizations. Key strategies in this "realignment" included Goodwill becoming the BCL NAO's fiscal agent and the BCL NAO relocating to the Goodwill headquarters in the Roxbury neighborhood. According to the BCL NAO (Boston Career Link, 2002, 2),

> Focus on the Population Most in Need of Career Services meant targeting BCL's efforts on communities of color, low income job seekers, people with language barriers, those with little work history, those without computers at home, individuals with disabilities and those without a job network. Demographic data are showing that BCL's move from its former site…to its current site…has brought about changes in BCL's demographics in the way we had hoped.

While BCL's move and closer connection with Goodwill increased the career center's population of disadvantaged job-seekers, there was a trade-off to this type of resiliency. Having its offices within Goodwill made BCL more accessible to people with disabilities who received Goodwill services. Also, its location in the Empowerment Zone put the BCL NAO closer to neighborhoods with higher rates of unemployment and lower incomes. The BCL network believed that its proximity to different groups of disadvantaged job-seekers—particularly those living in the neighborhood—enabled such job-seekers to receive more focused services.

As part of its strategically-based decision to relocate and to re-focus its services, the BCL network faced the challenge of how to also modify its relationships with employers that had previously been developed as suitable matches with its former predominately college-educated job-seekers. As the BCL NAO shifted its focus and location to increase its pool of disadvantaged job-seekers, the BCL network found that it did not have extensive connections to employers that hired many lower-educated and lower-skilled job-seekers. The BCL NAO observed that as its job-seeker population changed, there was an increasing gap between the job seeker skill sets and

interests and the employment opportunities available with the employers with they had long-standing relationships. The BCL NAO's emphasis on relying upon its strong yet informal relationships with community organizations for access and services to job-seekers and with employers for hiring had worked well during the tight labor market. This was a particularly effective practice for the BCL network's many employment-ready job-seekers when the economy was booming. However, the BCL network had less history and fewer strong formal or informal relationships with businesses able to employ disadvantaged workers. Even so, some businesses continued to hire—especially entry level workers—and the BCL NAO responded by re-focusing its services to target them. However, developing new relationships with employers in an economic downturn was a problematic challenge especially at the same time as re-establishing mutual expectations in a radically restructured network.

Information exchange in the BCL network tended to emphasize inter-personal, high-touch, and low-tech approaches. Like the other networks, the BCL NAO attempted to reconcile the provision of seamless networked service delivery with the categorical service delivery associated with welfare reform. The BCL NAO's adaptive response to these competing expectations entailed providing more informal inter-personal counseling services. For example, in 2001, the BCL NAO introduced new "Ask the Counselor" sessions where customers signed up for fifteen minute check-in and advice sessions. BCL's NAO also made the strategic choice to offer more more overlapping services According to BCL's NAO (Boston Career Link, 2003, 4), "this repetition of information about the breadth of services available is a way to address the effects of funding "silos" on service delivery." Instead of having strategically planned (ala The Work Place's NAO) or formalized procedures (ala JobNet's NAO) for connecting categorical services,

the BCL network relied on offering redundant cross-referential information to customers. This network-multiplexity approach offered counselors and customers multiple opportunities to selectively pursue services that seemed appropriate to individual needs. However, this approach also caused the BCL network to expend additional staff resources due to its non-systematic performance of duplicative tasks and referrals.

Even after its strategic restructuring in response to the economic downturn and the end of welfare reform implementation, BCL's NAO did not fundamentally change the kind of informal information that it traditionally used in its operations. BCL's NAO continued to rely on "sensing" approaches in gathering and interpreting information. As noted by the Regional Employment Board (Regional Employment Board, 2003, 10),

> Historically, the organization focused on basic tracking for invoicing and performance outcomes with little focus on formal data collection and analysis for quality improvement…BCL has always relied heavily on informal organizational 'sensing' methodologies and review of workshop and other activity/event evaluations to guide service delivery designs and improvements. There has been little formal cumulative data collection, quantification and analysis of customer satisfaction.

Although BCL's NAO did use computer-based information systems to some extent, BCL did so in a style consistent with its prior consultative and particularistic manner. For example, BCL's NAO was required to adopt a statewide information system designed expressly for one-stop career centers. However, BCL's NAO did not actually fully integrate the system within its operations. And in 2001 and 2002, BCL's NAO responded by getting a service referral from one its network members and subsequently hiring a consulting company to run reports from the computerized system. Overall, the BCL network continued to emphasize informal, inter-personal, and particularistic approaches in its information exchange. Consequently, the BCL

network demonstrated that it continued to choose informal inter-organizational processes over formal processes as it fell back upon it core relationships as a response.

The Boston Career Link network provides an illustrative case of how a community-oriented network coordination strategy emphasizes informal processes in network exchanges regarding resources, mutual expectations, and information. As these examples suggest, the Boston Career Link network made strategic decisions to use such community-oriented processes as a way to develop resiliency to changes in federal policies and in the economy.

Discussion

As the case studies reveal, all three networks exhibited different self-reinforcing processes related their resilience in providing services to job-seekers and employers in a changed labor market. On the one hand, they all responded in a similar way in that they each made network development choices that were consistent with their original strategic orientation. Indeed, this study shows that none of the networks changed strategic orientations but rather clung more closely to their original strategic approach by choosing to focus on maintaining their most important organizational relationships. All three networks faced the same austere policy and economic environment during 2000 to 2002. On the other hand, however, each network differed in how it used formal and informal processes to adapt (see Table 2). An outcome of these different network development processes was that each network displayed different patterns of self-reinforcing processes related to network resiliency (see Table 3).

INSERT TABLE 3 ABOUT HERE

As seen in Table 3, The JobNet network's bureaucratically-oriented strategic orientation was associated with more formal governmental and hierarchical network relationships in its pattern of network resiliency. The Work Place network's entrepreneurial-oriented strategic orientation was associated with more clustered and balanced formal and informal network relationships with businesses. The Boston Career Link network's community-oriented strategic orientation was associated with an overall smaller network of more informal relationships.

These different patterns of resiliency may be explained by a network's coordination strategy and its emphasis on formal or informal network development processes. Examining each network's NAO provided an observational window into the network's coordination strategies because it served as the network's coordination hub. In these cases, the NAOs were One Stop Career Centers that were created by federal legislation to serve as central coordinating hubs for reforming and restructuring local workforce development systems comprised of governmental, nonprofit, and for business organizations. At the same time, Massachusetts and Boston policymakers set-up the three different One Stop Career Centers as a quasi-natural policy experiment to competitively compare whether and how different strategic orientations would lead to different workforce system policy, program, and service delivery innovations. The experimental nature of this initiative provided some constraint on the isomorphic tendencies that otherwise often characterize organizations and networks operating in the same institutional field. Also, the three-year extended study period provided sufficient data to identify an overall pattern of self-reinforcing resiliency that would otherwise not be possible if the analysis only included two single points of time (e.g., two discrete surveys conducted years apart). That is, rather than

examining a network's discrete characteristics during each era, this three-year study enabled a focus on strategic processes over time. In this way, the three-year study period helps distinguish resiliency from evolution.

Consequently, the three Boston networks provide a means to highlight the relationship between different network strategies and self-reinforcing processes. This article's comparative case study analysis shows that when confronted by environmental stress (e.g., resource contractions), each network made choices that were not only consistent with their strategic orientations, but that also—in some instances—exaggerated them. This study examined differences in formal and informal processes of resiliency as a way to differentiate the strategic differences. This analysis suggests that when confronted with an exogenous change in funding or policy, a bureaucratically-oriented network may tend to choose formal processes in its resource exchanges, mutual expectations, and information because of its abiding practice of the strategic standards of established procedures, stability, and accountability relationships. Likewise, a community-oriented network may tend to choose informal over formal processes because of its traditional beliefs about the strategic social values of familiarity, deeply-shared moral principles, and well-established trust-based relationships. An entrepreneurial-oriented network may tend to balance its formal and informal processes because of its systematic analysis about the strategic benefits of diversified business and social ties, customer (e.g., data) feedback, and quid pro quo relationships.

This article's comparative case analysis provides an empirical basis for extending Herranz's (2008) framework regarding the identification of three types of network coordination—

bureaucratic, entrepreneurial, and community—to the analysis of self-reinforcing processes associated with network resiliency. The results of this study also lend support to Isett and Provan's (2005) finding that public and nonprofit relationships evolve differently than for-profit relationships because of the particular expectations of government agencies for stability and accountability. This difference was seen in comparing a government-based bureaucratically-oriented network and entrepreneurial and community networks. The current study also contributes to the literature on NAOs (Provan, Isett, and Milward 2004; Human and Provan 2000; Provan and Milward 1995) by providing a way to conceptualize how different NAO coordination strategies contribute to the resiliency of their respective networks.

Though it specifically examined NAO-type public networks, this study has broader implications for theory building about networks. Following Herranz (2008), this study suggests that a bureaucratically-oriented coordination approach emphasizing formal procedures and processes (e.g., contracting requirements) may support the network's long-term resiliency within a changing policy environment. This is because such formalized types of resource exchange may tend to take longer to develop and are slower to change due to the myriad types of over-sight mechanisms and procedures that usually accompany government-type contracts. The bureaucratically-oriented network's emphasis on formalizing and documenting network procedures for data collection and reporting was associated with the capacity to process larger volumes of information. At the same time, these codifying processes constrained opportunities for analysis. Consequently, standardizing information processing relationships reinforced established procedures and reduced adaptation. The bureaucratically-coordinated network's

emphasis on documenting and standardizing expectations among network members contributed to high resiliency.

In contrast to the bureaucratically-oriented network, a community-coordinated network with predominantly informal resource exchange relationships may be less resilient to such changes in the long term. In the short-run, by eschewing hierarchical or quid-pro-quo resource exchanges, a community network may be hyper-resilient by potentially reacting immediately to environmental changes. This may potentially have resiliency adaptive advantages if they occur during munificent times when a network's inter-organizational relationships are broadened and deepened with flush and fluid resources, thereby providing many pathways and options for restructuring. However, as suggested by this study's case study, a community network also has the potential to become very resilient in reaction to external stimuli, especially in a resource-poor environment. In this situation, its network relationships may constrict and therefore possibly withstand external shocks by withdrawing to its core set of resource relationships. For the community-coordinated network, inter-organizational mutual expectations tended to be based on shared values and missions, as well as trust developed over many years of providing advocacy and services to distressed communities. In this case, Boston Career Link's three co-operating partners had each worked approximately 100 years in Boston, and were familiar with each other's strengths, weaknesses, and capabilities. This history enabled these three core partners to co-operate in developing and coordinating the BCL network—both in extending the network during flush times as well as in constricting the network during lean times. From this longer-term perspective, the community-oriented network was highly resilient. The community-coordinated network over-flowed with continuously rapid inter-personal communications among network

members, often characterized by intuited or socio-political interpretations. These types of information exchange enabled cognitive short-cuts that contributed to relatively immediate reactions and adaptations to external changes.

Unlike the community- or bureaucratically-coordinated network, an entrepreneurial network's emphasis on financial contingent and quid-pro-quo resource relationships makes it potentially highly resilient to changing economic conditions while also presenting some risk of low resiliency to exogenous changes in policy conditions. For the entrepreneurially-coordinated network, collecting and analyzing market exchange data was its second priority currency after generating financial revenue. In this case study, the network considered continuously-generated reliable information about labor exchange as the primary driver influencing the development and assessment of strategic initiatives. This network emphasized innovations in information technology and analysis as feedback mechanisms for tracking information exchange among network members in order to plan and respond to changing labor market conditions. This entrepreneurial approach enabled the network to adapt to economic shifts more robustly than the other networks.

While the discrete occurrence of an inter-organizational exchange contributes to network development, it is the recursive interactivity of many such interactions together that help explain network resiliency. Each case study illustrated how distinct network coordination approaches are related to differences in the self-reinforcing patterns of network resiliency. Considered together,

the case studies illustrate how Herranz (2008) provides a conceptual framework for understanding different self-reinforcing processes related to network resiliency.

Compared to other coordination approaches, a bureaucratically-oriented network coordination approach was highly resilient to exogenous changes in the policy environment and in economic conditions. Overall, inter-organizational relationships within the JobNet network reacted to the policy and economic changes by increasing their formality in resource exchange, mutual expectations, and information processing. By being embedded within the governmental hierarchical structure of welfare administration, network members enjoyed access to information and to changing policy and resources and programs, and were able to better reinforce their relationships. Compared to the other networks, the JobNet network changed less quickly and less directly to welfare reform and categorical funding. In some respects, the JobNet network was the most resilient to these external conditions because of its Division of Employment Services and Employment Services legacy. The JobNet NAO primarily relied upon its established institutional links with government agencies while seeking out "partnerings" with community based service organizations.

A community-oriented network coordination approach illustrated a different aspect of network resiliency. During the flush times of strong labor markets and governmental resources (i.e., welfare reform implementation funds), the community-orientated network expanded its breadth and depth of inter-organizational relationships. In this environment, the community-oriented network partners tended to self-organize, exploiting the abundant information and resource exchanges within their dense, multi-layered network structures. However, during a lean time of

economic recession and reduced public funding when there were fewer resources to flow through

networks, the community network constricted back to its strongest formal connections and most

dense network cores. This suggests an environmental sensitivity that represents a robust capacity

to sustain operations in the midst of dynamic institutional change. That is, the community-

oriented network was resilient, but in uneven and exaggerated ways. Of the three network

coordination approaches examined, the entrepreneurially-oriented network approach was found

to be the less resilient to the changing policy environment and economy. The BCL network's

highly socially embedded ties made it relatively less vulnerable to both external economic and

policy shocks than the other networks. This contrasted with the JobNet network's mostly formal

ties to government that were associated with relatively high resiliency to economic and policy

changes. These experiences contrast with The Work Place network's mix of formal and informal

ties that enabled it to be less resilient to changes in the external economic and policy

environment. Overall, the entrepreneurially-coordinated network was characterized by market-

focused assessments, strategies and tactics including data-rich analysis, technological innovation,

fee-based services, and an employer-as-customer priority. On the one hand, TWP NAO's focus

on employers allowed it to provide innovative market-based services that neither of the other

networks did. This focus enabled the TWP network to be more adaptive to changed economic

conditions. On the other hand, compared to the Boston Career Link network, TWP's NAO had

fewer network relationships to community-based organizations, and, compared to JobNet's

NAO, had fewer connections to state agencies. TWP NAO's emphasis on developing customer-

driven services and cultivating strong connections with employers enabled it to respond in

different ways than the other networks to changing federal policies and economic conditions. In

the tight labor market, TWP's NAO helped connect employers to "untapped" labor pools such as

welfare recipients, as well to much-in-demand high-skilled workers. In the weakened labor market, TWP's NAO offered downsizing and outplacement services to both businesses and nonprofits.

Of course, there are limitations to this study. To begin with, the specific policy arena and broader institutional context of Boston's workforce development networks constrain the extent to which the findings may be generalized to other network settings. Also, no specific causal relationship has been established between network coordination and network resiliency. More research is needed to identify the specific processes and mechanisms that influence how a network diagnoses and responds to changing external conditions in its operating environment. In addition, this study examined inter-organizational ties during both an emergent stage of network development and a latter stage of network maturity. As a result, this study does not account for whether resiliency would have been different for mature networks that experienced similar changes in exogenous conditions. Moreover, this study did not examine evidence of isomorphism among the three networks over time because of the quasi-natural experimental design of the study. Another limitation is that the study did not examine whether changes in inter-organizational ties or levels of resiliency are associated with the performance of the network. More research is required in order to understand whether a highly- or non-adaptive network matters in the effective or efficient delivery of services provided by the network. Clearly, more research is required to understand the multiple and complex process change dynamics of networks used for public service delivery.

The very limited research attention to network resiliency presents a challenge to fully

understanding the characteristics and mechanisms of networks used to delivery publicly-funded

services. In particular, this under-developed area of study constrains public policy decision-

makers and public managers who have, as of yet, few conceptual frameworks for assessing the

possible implications of network coordination strategies and network resiliency. Better

understanding the parameters and conditions of network resiliency would enable better strategic

choices in public policy development and public network management regarding the institutional

design, governance, operation, and accountability implications of networked services. And, in

the context of the dominant presumption among many scholars and practitioners that a network

is intrinsically agile and resilient and that this yields extrinsic benefits, this article suggests that

we need sharper and more rigorous conceptual and methodological approaches in order to

understand the implications of different network coordination strategies and resiliency for a

network's performance outcomes.

Table 1. Analytical Approach to Self-Reinforcing Processes of Network Resiliency

formal inter-organizational processes	*informal inter-organizational processes*
contracts; MOUs* *fee-based service agreements* *strategic plans; annual reports* *memos; letters* *reports; information sharing documents* *computer information technology*	*in-kind service-referrals,* *professional expertise exchange* *statements in meetings, events, and interviews* *inter-personal exchanges* *manual record-keeping*

*A memorandum of understanding is a documented agreement of resource interaction; less legally formal than a contract.

Table 2. Network Coordination Strategies and Characteristics of Self-Reinforcing Processes

network:	JobNet	The Work Place	Boston Career Link
coordination strategy:	bureaucratic	entrepreneurial	community
formal:	job bank; procedural memos; standardized job info;	fee-based relational investments; business contracts;	social service MOUs; consultant reports; strategic plan;
informal:	technical assistance; employer cold calls	hand-shake agreements; customer feedback	personal ties job-seeker counseling
pattern of self-reinforcing process:	formal	formal & informal mix	informal

Table 3. Network Coordination Strategy and Network Resiliency Patterns

Network Strategy & Resiliency Processes	Changed Public Policy & Economic Conditions		Network Resiliency Pattern
	Munificence Era 1997-1999 Welfare Reform & Economic Expansion	Austerity Era 2000-2002 Workforce Investment Act & Economic Recession	
JobNet: bureaucratic network	budget pass-through procedural agreements fax-back job postings system	categorical program revenue standardized forms & services computerized data collection	more formal governmental hierarchical network relationships
The Work Place: entrepreneurial network	job fairs customer satisfaction priority analyzing customer database	corporate downsizing services business networking breakfasts customer service surveys	more clustered & balanced formal and informal network relationships
Boston Career Link: community network	pooled social assets mission-based trust inter-personal communication	sponsorship by large nonprofit; consensus based strategic plan outsourcing mandated reporting	smaller network of more informal relationships

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