The Logic Model as a Tool for Developing a
Network Performance Measurement System

Joaquín Herranz, Jr.
Assistant Professor
Daniel J. Evans School of Public Affairs
University of Washington
E-mail: jherranz@u.washington.edu

***for discussion only. please do not cite without permission.***

paper presented at

School of Policy, Planning, and Development
University of Southern California
Los Angeles, California

November 16, 2009
Abstract

Performance measurement and networked collaboration are each important trends in public management. Research and practice on these two issues have largely proceeded on separate tracks. Logic models offer an intuitive way to clarify how network coordinators can manage for performance, by making explicit the hypothesized and actual relationships between indicators of network processes and outcomes. Hatry’s (2006) logic model concept (i.e., a chart of activities, outputs, intermediate and end outcomes) as used a heuristic tool for developing a network performance measurement system. Following a review of the logic model literature in the context of network performance measurement, this article provides an illustrative example of a network logic model. This article presents the advantages and limitations of a logic model for networked and collaborative initiatives. The article discusses the implications of the logic model approach as a tool for developing, managing, and assessing the performance outcomes of collaborative and networked initiatives.

Introduction

Performance measurement and networked collaboration are each important trends in public management. Yet, research and practice on these two issues have largely proceeded on separate tracks. The logic model concept provides a heuristic tool for relating these two topics in a way that may help inform how network coordinators can manage for performance. In this regard, a manager may use a logic model strategically to make explicit the hypothesized and actual relationships between indicators of network processes and outcomes. The notion of a logic model is widely used by researchers and practitioners and so represents a familiar conceptual foundation upon which to begin building a performance management system for networked collaborations. Indeed, logic models have become a popular tool among public executives and
program managers for examining services. At the same time, the flexibility of the logic model idea has also led to extensive variability in how logic models are applied and interpreted and so has tended to diffuse and confuse the main advantage of a logic model: providing a thoughtfully disciplined logic that explains an organization’s intentions, actions, and outcomes.

The purpose of this article is to use a well-established and sharpened definition of a logic model—Hatry’s (2006) representation of a logic model as a chart illustrating a sequence of activities, outputs, intermediate, and end outcomes—as a tool for developing a network performance measurement system. According to Hatry (2006), developing a logic model involves identifying key elements and indicators in four areas: 1) inputs (e.g., resources, investments); 2) activities (e.g., services, processes, strategies, methods); 3) outputs (e.g., tangible products delivered by a program; and 4) outcomes (e.g., expected changes in the short-term, mid-term, and long-term). This article builds upon and extends Hatry’s (2006) logic model approach to a network context. In doing so, this article contributes to addressing the gap in research and practice associated with one of the big questions in public management: is there a relationship between performance management and networked collaboration?

Currently, there are few conceptual and methodological approaches that address the relationship between performance measurement and network coordination (Herranz forthcoming; Agranoff 2008; Mandell and Keast 2008, 2007; Yang 2007; Kenis and Provan 2006). Performance measurement itself flies under different banners with names such as New Public Management; Managing for Results; and Results-based Budgeting (including Results-based Planning, Decision-making, and Accountability). Performance measurement is a global phenomenon as
seen in its practice in different individual countries, as well as evidenced in the transnational initiative Managing for Development Results that involves scores of nations, bilateral and multilateral development agencies, and civil society and private sector partners (Managing for Development Results 2007).

In the United States, the turn to performance measurement was evidenced at the federal level during the Clinton Administration by the federal Government Performance and Results Act, during the Bush Administration by the U.S. Office of Management and Budget’s Program Assessment Rating Tool, and already during the Obama Administration by the designation of the nation’s first chief performance officer (CPO). While there is some debate about whether some of these performance measurement efforts are more symbolically rhetorical than they are operationally functional at the federal level (Radin 2006), there is some evidence that performance measurement initiatives are more prevalent at state and local levels (Moynihan 2008; Sanger 2008). At the same time, some observers suggest that this trend is related more to its potential to improve government performance than by its demonstrated effects on transforming government (Abramson, Breul, and Kamensky 2006).

One example of this is the performance measurement approach that originated with the New York City Police Department’s “CompStat” that involved police chiefs and precinct commanders regularly and jointly reviewing how crime and arrest data related to police strategies and tactics. Behn (2008a, 2006) notes that this performance management innovation was replicated by other city departments (e.g., ParkStat, JobStat), by whole citywide jurisdictions (e.g., Baltimore’s CitiStat, Atlanta’s ATLStat), and by state governments (e.g., Washington State’s Government
Management Accountability and Performance, and Maryland’s StateStat). Perlman (2006) observes that the performance measurement approach known as “Stat’ Fever” has swept across government agencies and jurisdictions throughout the country. However, according to Behn (2008a), many such “PerformanceStat” efforts are strategically flawed in that they often do not have a clear purpose, identify specific responsibilities, or follow-up. He argues that a “PerformanceStat” effort is less likely to be effective without a clear strategic logic of how managerial coordination relates to operational activities as well as program outcomes. In other words, the governmental movement towards performance measures for single agencies as well as for multi-departmental and inter-organizational collaborations may not lead to the expected performance outcomes without clearly articulated strategic logic models.

Following on the heels of the growing movement towards performance measurement is an increased attention to the role of multi-organizational collaborations and networked arrangements in planning and implementing public policies. There has been a growing recognition by both practitioners and researchers that many public administrators are increasingly tasked to manage formal agreements and contracts with as well as to collaborate informally with a variety of other government agencies, nonprofit organizations, and for-profit businesses. Indeed, some public managers may even share direct responsibility for developing and coordinating a formalized network whose members may include governmental, nonprofit, or for-profit organizations. More often, public managers are expected to informally and voluntarily collaborate with many other organizations for the purpose of accomplishing a shared goal. Among the various terms used to describe the many different types of networks and multi-party arrangements are public-private partnerships, interagency collaborative, governing by network, joined-up government, network administrative organization, and collaborative network. One
reason for the growing interest in organizational networks was a presumption among both researchers and practitioners that such networks delivered services more effectively than services provided by single government agencies (Agranoff and McGuire 2001, 2003; Bardach 1998; Herranz 2008; Kickert, Klijn, and Koppenjan 1997; Provan and Milward 2001). However, identifying the specific processes that contribute to collaborative performance has presented a variety of conceptual and methodological challenges (Provan, Fish, and Sydow 2007).

Network performance measurement and management shares some of the same critiques as that of the government performance movement as having “moved too fast, selected the wrong targets, or simply overreached…[and] that are not linked to definable outcome measures” (Anechiarico 2007, 783). Network performance is especially problematic to study compared to non-network situations because networks are often characterized by indeterminate organizational boundaries; flexible structural relationships among participants; iterative and recursive inter-organizational processes; and organizations from different sectors (i.e., public, nonprofit, for-profit). Networks also present an empirical challenge for performance measurement related to data constraints associated with available cross-agency data, long-term time horizons required to assess collaborative initiatives, and accounting for the multiple interacting variables influencing collaborative outcomes (Koontz and Thomas 2006). Consequently, traditional approaches used to measure the performance of a single organization or program are ill-suited to assessing the performance of networks. This poses a problem for public network managers who are often held accountable for measurable performance outcomes—even when public services are delivered through networked arrangements over which managers do not have traditional public administrative controlling authority. These situations highlight the managerial dilemma of being
expected to coordinate network collaboration while at the same time being held responsible for accomplishing network objectives. On the one hand, there is an emerging consensus among both network researchers and practitioners that collaborative enterprises often generate better outcomes than single agency programs. On the other hand, there are few tools that can demonstrate the relationship between network coordination and the achievement of collaborative outcomes.

This article explores one way to address this problem by adopting a logic model approach to network performance. This approach involves developing a model of the network’s overall logic for organizing its inter-organizational processes to achieve performance goals. Logic models have been used for decades to analyze the relationships between the processes of individual organizations or programs and their expected outcomes (Kaplan and Garrett 2005). Essentially, a logic model visually presents an understanding of the relationships among a program’s resources, planned activities and anticipated results. The textbook approach to developing a logic model involves identifying key elements and indicators in four areas: 1) inputs (e.g., resources, investments); 2) activities (e.g., services, processes, strategies, methods); 3) outputs (e.g., tangible products delivered by a program; and 4) outcomes (e.g., expected changes in the short-term and long-term) (Hatry 2006). Logic models are often used to illustrate the overall logic of how resources and activities are organized so that an end outcome is achieved. In this regard, a logic model is not a tool for program evaluation nor is it a work process flow diagram. Rather, a logic model provides a way to depict the organizing concept of how a series of measurable processes is expected to result in desired performance outcomes. In this regard, a logic model is a
conceptual tool that may help to organize and analyze the complexity of network dynamics that is otherwise difficult to specify and measure. To date, however, the logic model approach has not been applied to networks. This article contributes to network scholarship by extending Hatry’s (2006) logic model concept to the public network context as a way to highlight a network’s logic for achieving its end outcomes.

This article proceeds as follows. First, it reviews and situates the literature on logic models within a network performance context. The logic model approach is presented as a means to clarify a network’s logic about the relationships between activities, outputs, and outcomes. In doing so, the paper builds upon and extends Hatry’s (2006) concept of a logic model. This framework is then illustrated with the performance measurement logic model of a workforce development network in Boston. In the final section, the paper discusses the implications of the logic model approach for researchers and practitioners involved in developing, managing, and assessing the performance outcomes of collaborative and networked initiatives.

**Literature Review**

On the one hand, considerable research finds that public networks yield positive performance outcomes (Herranz forthcoming; Agranoff 2005, 2008; Gray et. al. 2003; Koontz and Thomas 2006; Mandell and Keast 2007; O’Toole et. al 2005; Provan and Milward 2001; Provan and Sebastian 1998; Provan and Milward 1995; Selden, Sowa, and Sandfort. 2006; Vollenberg, Raab, and Kenis 2007). To date, however, there are few conceptual frameworks, empirical
analysis, or practice-based comparative case studies specifying whether networking processes are associated with network performance.

In traditional service delivery programs, performance is often defined as whether an organization delivers a specific unit of service during a specific time period, or whether the organization produces an expected result. The effectiveness of an organization is sometimes measured by whether a client receives a benefit from the service. For example, in traditional employment and training programs, an effective organization was one that provided job training classes, or placed a client into a job. Such organizations are relatively straightforward to assess because the performance measure follows a linear series of activities that yield predictable outputs. In contrast, it is more challenging to measure the effectiveness of services delivered through organizational networks because it is difficult to specify all the actions and events that occur in networks. Indeed, “the disadvantages of using performance measures manifest themselves especially in networks, since these are characterized by complexity, interdependencies and dynamics” (Koppenjan 2008, 705). In some instances, network-delivered services may be different for each client, and it is difficult to predict in advance what specific inter-organizational pathways a client may experience. And, some clients may have received services that are not delivered in a linear way but rather in iterative loop-backs until the client receives a highly individualized and specialized service. Indeed, some researchers argue that such customization and agility are among the advantages of delivering services through a network over a single agency. Consequently, traditional public policy program evaluation methods may not adequately reflect a network’s effectiveness (Koppenjan 2008).
One way to address this problem is to assess the effectiveness of a network based on its outcomes. According to Koppenjan (2008, 701), “in network theory, it is suggested that determining the effectiveness of collaboration should be based on the outcomes of processes in relation to the costs and benefits that are created for the parties involved.” Many networks and collaborative initiatives are formed to improve the circumstances of clients. For example, a workforce development network may form and function to help job-seekers improve their employment situation: from being unemployed to having a job; from having a low-paying job to moving on to a higher-paying job. The network also operates to help employers find and hire workers. However, it is important to distinguish which aspects of network behavior may contribute to network effectiveness so that policy makers and managers may better design and develop programs that will help networked initiatives to achieve these outcomes. Consequently, the key question is: what is the organizing logic within the network that enables it to reach its goals? Here, a network’s organizing logic is defined as the pattern of types of inter-organizational processes that characterize or underlie network behavior.

The concept of a network’s organizing logic lends itself naturally to logic modeling. According to Hatry (2006, 522), “every program has implicit hypotheses about what actions will produce what results. Outcome sequence charts attempt to identify these hypotheses by showing the flow of intermediate and end outcomes expected to result from program activities and the outputs produced by those activities.” In this regard, a logic model (i.e., outcomes sequence chart) provides a tool for showing how the flows of intermediate and end outcomes relate to the inter-
organizational processes within a network. Researchers and practitioners have developed logic models for a variety of organizations and programs as a means to conceptually map and measure the relationships between operational processes and their expected outcomes (Kaplan and Garrett 2005; Kellogg Foundation 2004; Penna, and Phillips 2004). Many logic models are developed in the context of helping to develop and make explicit the indicators associated with expected performance of public and nonprofit agencies. A logic model is a conceptual tool for specifying the underlying assumptions and expectations that relate organizational inputs, activities, outputs, and outcomes. According to Hatry (2006), developing a logic model involves identifying key elements and indicators in four areas: 1) inputs (e.g., resources, investments); 2) activities (e.g., services, processes, strategies, methods); 3) outputs (e.g., tangible products delivered by a program; and 4) outcomes (e.g., expected changes in the short-term, mid-term, and long-term). A logic model is illustrated with an outcomes sequence chart that provides a brief description and measurable indicators of how resources, inputs, and outputs lead to intermediate and end outcomes (see Figure 1).

FIGURE 1 ABOUT HERE

Hatry (2006) emphasizes that while both quantitative and qualitative data may be used to develop measures of inputs, activities, outputs, and outcomes, that the specific measures used in a logic model should be framed in quantitative terms. For example, an initiative that involves many meetings should specify the number of meetings held, and the percentage of staff time involved in those meetings. A logic model for a service delivery program may include measures such as number of services produced, quality of services, satisfaction with services, distribution of services, and unit costs of delivery. Having a role for both qualitative and quantitative data in
a logic model makes it especially relevant in a network context because of the current under-developed methodological state of network measurement techniques. Consequently, a logic model approach enables researchers and practitioners to explore the development of network performance indicators.

Some researchers and practitioners argue that a logic model provides several advantages in program planning, implementation, and evaluation (Kaplan and Garrett 2005; Gasper 2000; Bell 2000). A logic model’s potential benefits include: identifying assets, weaknesses and gaps in program logic; helping to determine the best scenario by exploring multiple possibilities; allowing for adjustments and corrections as the program unfolds; assisting decision-making about allocating limited resources; and clarifying what should be evaluated and at what time. Hatry (2006, 196) suggest that the uses of performance information include responding to elected officials’ and the public’s demands for accountability; helping formulate and justify budget requests; trigger in-depth examinations of why performance problems (or successes) exist; formulate and monitor the performance of contractors and grantees; support strategic and other long-term planning efforts; analyze options and establish priorities; and help provide services more effectively. However, many of these advantages represent missed opportunities in public networks because logic models are not commonly used by collaborative initiatives.

One key advantage of a logic model is that it helps represent whether and how a network is moving towards its performance outcomes. However, although a logic model assists the
evaluation process, it is not a substitute for other evaluation approaches, such as those that rely on experimental design. Hatry (2006) notes that such evaluation techniques may be enhanced by developing a logic model because a logic model helps to further specify and elaborate the assumptions that underlay traditional program evaluation. Elaborating such hypotheses as an overall logic is especially relevant in multi-organizational networked settings where it is impractical to identify exact causal relationships or directions within multiplex structures. In these situations, a logic model enables a higher level pattern analysis of how multi-organizational processes may lead to outcomes. Weiss (1995) makes a related argument in suggesting that one way to evaluate complex multi-party community collaborations is to compare the initiative’s “theory of change” with its end results. Weiss’s (1995) notion of a theory of change analysis is most similar to a planning and design logic model. However, in contrast to Weiss’s (1995) emphasis on highlighting the initial assumptions of why and how change will occur, a logic model emphasizes what processes will achieve outcomes. That is, a logic model emphasizes the operational processes that are expected to produce outcomes.

To date, there are few examples of logic model approaches being used in studies of network effectiveness (Friedman et. al. 2007; Miller et. al. 2001). Although Hatry (2006) did not explicitly address how a logic model would be developed for networked initiatives, he suggested that it was conceivable to develop a performance measurement process for multisectoral collaborations. According to Hatry (2006, 49-50),

Many federal, state, and local programs involve participation by other agencies or organizations. These partners are usually public or private nonprofit agencies but can also be the business community (such as with school-to-work, community development, and
economic development programs)…Preferably, programs would work with other organizations as partners in designing and implementing the whole performance measurement process [original italics].

It is not surprising that Hatry (2006) did not specify how a logic model would be applied in a network context. Hatry (2006) wrote in the context of traditional public administration that emphasized execution and implementation of policies and decisions in government. Public management and governance are changing. According to Lane and Wallis (2009, 102-105), “the vast public sector reforms of the last twenty years have, on the whole, resulted in a so-called post-Weberian structure of public agencies that have increased the managerial discretion of leaders…whereas it used to be the case that there was one mode of production of public services—bureaucracy, it is now the case that the choice among alternative forms of provision calls for deliberate strategic thinking.” In this regard, a logic model provides a way to highlight a network’s strategy for accomplishing its goals. That is, just as a single program may have an underlying logic of how its activities are associated with outputs and outcomes, so too a network may have an underlying logic of how its processes and activities are associated with outputs and outcomes. Although most applications of logic models tend to focus on developing a linear service delivery process map of a single organization or program, a logic model has the potential to be adapted to reflect an open system and therefore to map the outcomes sequencing of complex initiatives (Nesman et. al. 2007; Julian 1997).

A logic model approach has several potential advantages as a tool for managing and assessing a network’s effectiveness. A logic model may be useful in assessing network effectiveness by conceptually simplifying complex inter-relationships, developing measurable performance indicators, and identifying the intermediate outcomes of inter-organizational processes. A logic
A logic model may also be used to develop indicators of network performance. According to Hatry (2006, 54), the logic model approach is defined by its focus on the process of measurement, and that “whether something is classified as an output, intermediate outcome, or end outcome rarely effects the measurement process. The label, however, can affect the importance the organization attaches to the outcome.” That is, developing a logic model entails specifying sets of quantifiable measures that provide indications of the processes expected to eventually lead to the initiative’s end outcomes. Hatry (2006) suggests that almost any manner of source data may be used, including focus groups, surveys, and documentation. However, he emphasizes that such information should be quantified. He also notes that outcome information becomes more useful when used to compare findings to benchmarks. Hatry (2006, 139) writes that “comparing the outcomes to benchmarks is a fundamental, and essential, element of performance measurement and performance management systems.” In this regard, a logic model
provides an intermediate conception of how to measure a network’s processes and their relationship to objectives and goals. Since a network initiative often evokes the dynamic, iterative, and recursive relationships that are problematic to identify ex-ante, a logic model provides a way to identify and measure the general patterns of those relationships, rather than accounting for all the various inter-organizational relationships that occur in network settings.

In this regard, a logic model provides a way to more fully account for a wider range of network processes that would otherwise be over-looked or under-specified by output-based performance measurement approaches. According to Lane and Wallis (2009, 106), “in recent advances in public sector outcome analysis, it is underlined that pure output measures such as unit costs may not be a reliable measure of the results that public sector provision promotes. It is the outcome measures and their interpretation that should guide strategic management in the public sector.”

The following section provides an illustration of how a logic model may be developed for a multi-organizational multi-sectoral workforce development network in Boston. As previously noted, there are few scholarly examples of Hatry’s (2006) logic model approach applied to a collaborative initiative. Consequently, the next section presents an ex-post logic model constructed by the author for the purpose of depicting a logic model in a collaborative context, rather than a case analysis of a network logic model that was originally developed by participants in the collaboration.

**Research Subject**
This section provides an illustrative example of a network implementation logic model with a regional multisectoral workforce development network in Boston, Massachusetts. Boston’s workforce development network is an appropriate research subject because it is comprised of governmental, nonprofit, and for-profit organizations involved in improving labor exchange between job-seekers and employers by providing integrated employment support services and job-matching information. This network formed as a result of the federal 1998 Workforce Investment Act (WIA) legislation which aimed to consolidate and coordinate historically fragmented federal and state programs for job training, employment services, adult education, and vocational rehabilitation. The Workforce Investment Act specifically sought to develop an integrated regional workforce development systems through the establishment of One-Stop Career Centers that provide 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 regional workforce development network is comprised of sub-networks centered around three One-Stop Career Centers.

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.

Boston’s three One-Stop Career Centers are The Work Place, Boston Career Link, and JobNet. The Work Place (TWP) was operated through a partnership between the Economic Development Investment Corporation (EDIC), a quasi-governmental agency promoting economic development and Jewish Vocational Services (JVS). Boston Career Link 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. JobNet was operated by the Massachusetts Division of Employment and Training.

An Illustrative Example of a Network Logic Model

The Boston workforce development network developed for the end outcome of increasing the quality of employment for workers in the Boston area at the same time as improving the economic competitiveness and prosperity of Boston businesses (see Figure 2).

Figure 2 illustrates the logic model underlying the network’s strategy for accomplishing its intended end outcomes. As depicted in Figure 2, the network’s logic may be modeled on its
focus upon improving the supply and demand exchange of the labor market. In this regard, the network operated as a labor market intermediary in that one key function was to better inform and prepare job-seekers about the skill requirements demanded by employers. Another key function was to inform and facilitate employers’ awareness about the available supply of workers. Boston’s workforce development network was involved in four main *activities*: building network relationships, providing job-search and placement services, offering fee-based services to job-seekers and to employers, and improving labor exchange information.

Building relationships among network members was indicated by the number and percentage of formal and informal interactions. Measurement of formal relationships included the number of committees, task forces, and meetings that involved network members, how often network members met, and how many organizations participated. In addition, the network sponsored a number of industry sector-based breakfast and lunch gatherings to create and grow its employer networks. In another example, the network created a “Corporate Partners” program that provided extra and customized services to employers willing to pay a monthly contribution for membership in this fee-based sub-network. The network also had high numbers of informal trust-based relationships that were measured by the number of years they existed. For example, Goodwill, Women’s Educational and Industrial Union, and Dimock Community Health Center) had each collaborated with one another on and off for nearly 100 years.

Providing job-search and placement services was indicated by the number and variety of services offered by network members. The network’s logic extended beyond inter-organizational relationships to include ad hoc interpersonal relationships among staff in networked
organizations to coordinate basic service delivery as well as to customize individual service delivery. The network often relied on individual staff and their network knowledge to provide job search or service referral assistance. This approach offered many opportunities for customizing services to customers. For example, the network’s personal and professional connections facilitated a collaborative project providing job search services to disabled job-seekers. Together with Morgan Memorial Goodwill Industries, Federal Rehabilitation Services Administration, and the Institute for Community Inclusion and several other agencies providing services to disabled people, BCL essentially created a sub-network of organizations that shared client and job referrals, counseling and job preparation services, as well as special grant funding for providing services to this population. Another set of interpersonal ties led to a sub-network of nonprofit providers providing job search services to jobseekers with HIV/AIDs. The network also provided job-search services that were often measured by the number of resume and interview workshops offered and the number of job-seekers who participated in them.

Another network activity was offering fee-based services to job-seekers and employers. There were several rationales for offering fee-based services. The network believed that meeting market-based demand was the best indication of providing quality employment services. Several network members prioritized fee-based services to employers because of the perception that employers had more financial resources to pay for services than job-seekers. It was also believed that the labor-matching process depended more on job availability than the number of job-seekers.
The other main network activity was improving labor exchange information. The network collected job position announcements that were processed and counted by the number of job notice forms that employers faxed in. The network was especially concerned with standardized forms as a way to improve the accuracy of its information about network service delivery. Consequently, one way that it measured information activity was by the number of completed reports by network members.

Conducting these four network activities resulted in several network outputs: job placements, network service referrals, and jobfairs. Job placements were the result of matching job-seekers and employers. The network also measured network output by the number and percent of job-seekers that were referred to other network members for services—due to contractual arrangements or informal referrals. Another output that resulted from building relationships and offering fee-based services were the development of jobfairs. The network developed a successful and profitable series of job fairs targeted to different employer networks. The network developed job fairs in which employers paid network coordinators for booths and access to pre-screened job-seekers. Some job fairs were designed for place-based employers such as those at Logan Airport seeking workers. Some job fairs were sector-based such as for the health care industry.

*Intermediate outcomes* for the network included high quality network service delivery, increased public contracts and philanthropic grants, and increased fee-based revenue. The network’s logic of generating revenue was a way to “meet the market” of job-seeker and employer customer demand as measured by development of revenue-generating network connections. This was seen
in the creation and cultivation of networks of employers, especially businesses willing to pay for customized employment services. Achieving these intermediate outcomes were expected to result in increased job postings by employers as well as increased numbers of jobs-seekers ready to find jobs. The underlying logic was that these increased numbers of postings and placements would lead to more efficient labor-matching because of the larger pools of information for both employers and job-seekers—therefore contributing to an overall more efficient job-matching process. In turn, these efficiencies would lead to reaching the network’s other intermediate outcome of more job-seekers hired into well-matched jobs—measured by the overall rate of job placements. Related to this logic was the notion that an increase in job-matching outcomes would help satisfy the performance expectations of governmental contracts, and therefore generate continued or increased public funding support. At the same time, the improved intermediate outcomes were also seen as a way to invite and pursue the investment of philanthropic grants to continue developing and innovating services. Combined with the expected increases in job-seeker and business customers paying for fee-based services, the assumption was that these revenue streams would help strengthen the operations of the network. More significantly, it was believed that the cumulative result of multi-organizational engagement in the network as an increase in the number and percent of job-seekers and employers using the employment services of the labor market intermediary. All these factors would then help to develop an integrated workforce development system which was an explicit policy outcomes of the 1998 Workforce Investment Act. Taken all together, the network’s overall logic was that its activities, outputs, and intermediate outcomes represented a pattern of iterative and recursive inter-related processes that would eventually lead to the end outcome of increasing the quality of
employment for workers in the Boston area at the same time as improving the economic competitiveness and prosperity of Boston businesses.

**Discussion**

This article suggests that a logic model—as described by Hatry (2006)—provides a tool for conceptualizing a network performance measurement system. This approach is one way to address some of the theoretical and methodological challenges of defining and measuring network effectiveness. In this regard, a network logic model may be thought of as an interim step towards developing performance measurement methods that are more consistent with the public management trends of results-based management and networked collaborations. This article’s primary contribution to the scholarship and practice of performance measurement and network management is adapting the logic model approach—a decades-old performance measurement tool in public management—to operationalizing the relationships between network processes and measurable network performance indicators.

A key advantage of a logic model is that it offers a framework with which to depict the general pattern of processes—and their associated measurable indications—that comprise the network’s pathways to accomplishing outcomes. A logic model helps network members to more sharply develop and describe the story of how their interactions relate to one another and to their collectively shared outcomes. The logic model concept is sufficiently broad and flexible to include most network processes as well as most types of indicators that may be quantified. As illustrated in this article, a logic model also has the potential to include measurements of
subjective data such as customer surveys and focus groups. One of the advantages of a logic model approach is that it helps to contextualize such qualitatively-based data. Combining objective administrative data with subjective data such as citizen perceptions and customer satisfaction gives managers a more complete understanding of public service performance (Shingler et. al. 2008). In this way, a logic model may help frame performance indicators within the context of creating public value (Moore 1995).

Indeed, the logic model approach is robust enough to be used in most public network situations. With imaginative indicator development, it may also be used to represent virtually any metaphoric structure for network, including pipeline, ladder, lattice, ziggurat, helix, and complex adaptive system. At the same time, a logic model does not necessarily privilege a specific multi-organizational structure or organizational form. By highlighting the processes expected to achieve intermediate and end outcomes, a logic model may be used to de-emphasize or re-consider the existence of organizational forms or jurisdictional boundaries. That is, a logic model presents an opportunity to think creatively and innovatively about different ways to reach intermediate and end outcomes. Instead of emphasizing the tweaking of existing service delivery programs, a logic model may be used to consider new operational ways to accomplish the core purpose of an agency. A logic model could conceivably be used as a tool for “not just the complete reorganization of some departments and agencies that have failed to perform, but the actual consolidation or elimination of entire units of government at the county, district, and municipal levels” (Winter 2008, 57). In this regard, a network logic model provides a creative conceptual tool that may help support public entrepreneurship (Bernier and Hafsi 2007), the kind
of managerial imagination that creates public value (Moore 1995), as well as an opportunity to reconsider and restructure existing institutional boundaries towards the end outcome of achieving public benefit.

One of the advantages of the logic model approach is its flexibility. In networked settings, it may be adapted to highlight different development aspects of the collaborative enterprise. There are three basic types of logic models focused on different purposes at different stages of the program cycle. Each of these basic types may be adapted to a collaborative context. A planning and design logic model framework focuses on program strategy and may be used by a collaborative initiative to plan for how it is going to get from one situation to another. An implementation logic model more closely reflects a detailed management and operational plan. A networked collaboration may adapt such a logic model for tracking and monitoring operations to assess results and to potentially make program adjustments as necessary to move towards identified outcomes. An evaluation and reporting logic model focuses on determining when and what to evaluate, including appropriate process and outcome measures. A network may adapt such a logic model to emphasize the development of measurable indicators related to performance results or accountability expectations.

Of course, a logic model has limitations. While it helps to identify and propose causal relationships, it does not by itself necessarily provide sufficient empirical analysis to establish proof of causation. A related problem with logic models is that, per Hatry’s (2006) definition,
indicators must be quantifiable. Although most qualitative data may be formed into quantifiable information (e.g., focus group or customer survey responses pertaining to perceptions of service delivery quality), this presents the usual mix of methodological problems related to specifying and interpreting variables. Another limitation is that a logic model has most often been used to describe a linear sequence. As a result, the logic model approach may be limited in fully accounting and mapping the non-linear, recursive, and dynamic processes often associated with collaborative and inter-jurisdictional initiatives; as well as the different types of networks. To date, there is little practitioner or researcher experience with whether and how a logic model may be used in a network context. One notable exception is Julian’s (1997) theoretical argument that an open system logic model may encompass the complexity of network dynamics over time. However, Julian’s (1997) approach is itself visually complex, and so has the trade-off of giving up the conceptual advantages associated with a traditional logic model’s simplicity.

Indeed, it is the relative simplicity of a logic model as a heuristic tool that may be most useful to public managers charged with coordinating or facilitating networked collaborations. A logic model may help to clarify how network processes are expected to contribute to the relative progression of meeting network goals. A logic model therefore may be used to set and monitor progress towards performance benchmarks. The logic model’s emphasis on developing measurable indicators that are associated with end outcomes helps network managers to understand and track network processes while all the while staying focused on whether and how the network is moving towards accomplishing intermediate and end outcomes. In this way, a logic model may also be used operationally by a collaborative manager to identify contract pay
points; bonus incentives, and corrective action intervention points for individual agencies or partnerships within the network. At the same time, a logic model also offers the opportunity to avoid the problems of over-prescribing micro-level organizational behavior, or creating over-specified and categorically-rigid inputs and outputs.

A logic model also has the potential to incorporate other types of performance measurement approaches such as theories of change (Weiss 1995), democratic-constitutional impact statements or scorecards (Rosenbloom 2007), innovations in measuring accountability for results in interagency collaboratives (Page 2004), as well as potential “CollaborationStat” multi-agency collaborative PerformanceStat-type indicators (Behn 2008b). A logic model may be used as a network planning tool to mark short-term—intermediate outcomes—progress toward long-term end outcomes. A logic model may also serve a network learning tool in that it may help network participants to periodically assess whether and how processes may or may not be related to expected outcomes (Den Heyer 2001; Mausolff 2004). Moreover, a logic model may also be used instrumentally to develop and apply recent findings about the performance of learning techniques in networks (Moynihan 2008). This is possible because a logic model represents a conceptual tool for framing a network’s overall feedback patterns for coordinating its inter-organizational interactions to achieve performance goals. In this regard, the logic model approach presents an opportunity to provide an intermediate level of assessment focused on meso-level inter-organizational processes rather than the micro-level intra-organizational behavior of individual network members or the macro-level behavior of whole networks. Consequently, the logic model approach has potential to serve as a conceptual tool for
developing, managing, and assessing the performance outcomes of collaborative and networked initiatives.
Figure 1. Logic Model: Outcomes Sequence Chart with Indicators

- Resources
- Activity
- Output
- Intermediate Outcomes
- End Outcomes

Indicators: numbers and percentages

Figure 2. Logic Model for Boston Workforce Development Network: Outcomes Sequence Chart with Performance Indicators

Activity ↔ Output ↔ Intermediate Outcomes ↔ End Outcomes

Note: Network members recursively interact to achieve intermediate outcomes and move towards end outcomes.
References


Behn, Robert D. 2008b. Collaborating for performance: Or can there exist such a thing as collaboration? Paper presented at the Association for Public Policy Analysis and Management. Los Angeles, California, November 6-8.


Sanger, Mary Bryna. 2008. From measurement to management: Breaking through the barriers to state and local performance. Public Administration Review. 68(s1): 70–85


