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**THE THEORY AND MEASUREMENT OF INTERORGANIZATIONAL
COLLABORATIVE CAPACITY IN THE
ACQUISITION AND CONTRACTING CONTEXT**

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by

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The Theory and Measurement of Interorganizational Collaborative Capacity in the Acquisition and Contracting Context

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Abstract

Interorganizational collaborative capacity (ICC) is the capability of organizations and sets of organizations to enter into, develop, and sustain interorganizational systems in pursuit of collective outcomes. This report presents an open systems model of collaborative capacity. The model comprises five domains: Purpose and Strategy, Structure, Lateral Processes, Reward Systems, and People. Scales have been created to assess twelve factors or dimensions of ICC: Need to Collaborate, Strategic Collaboration, Resource Investments, Structural Flexibility, Social Capital, Information Sharing, Collaborative Learning, Reward Systems, Metrics, Individual Collaborative Capacity, and Interagency Team Support. This study discusses the factors and uses them to compare two samples: Homeland Defense and Security and Acquisition and Contracting. It then demonstrates the diagnostic use of the ICC Survey by analyzing a major DoD Acquisition and Contracting organization's ICC with respect to a "normative" sample.

Keywords: Interorganizational Collaboration, Interagency Collaboration, Collaborative Capacity

Interorganizational Collaborative Capacity: Development of a Database to Refine Instrumentation and Explore Patterns

Collaboration and the Acquisition Context

Interorganizational collaboration comprises a system of structures and processes by which organizations work together to accomplish complementary or common goals and objectives, including a common mission. Collaborations range from close partnerships in which employees throughout the organizations must work interdependently to low-level cooperation involving information sharing in which the focus is primarily on relatively independent actions. Collaboration is often used synonymously with partnering and is manifest when organizations form alliances. We formally define **interorganizational collaborative capacity** as the capability of an organization (or of a set of organizations) to enter into, develop, and sustain interorganizational systems in pursuit of collective outcomes.

Interorganizational Collaboration (ICC) has clear benefits, including better decision-making as a result of shared information, enhanced coordination among dispersed units, innovation resulting from the cross-pollination of ideas and recombination of scarce resources, as well as many forms of cost savings, ranging from reduced litigation and shared resources to the transfer of smart practices (Hansen & Nohria, 2004; Mankin, Cohen & Fitzgerald, 2004).



Given such benefits, it is not surprising that defense acquisition reform has included calls for improved collaboration among acquisition agencies and between the Department of Defense (DoD) and defense contractors. *DoD Directive 5000.1* states that teaming among warfighters, users, developers, acquirers, technologists, testers, budgeters, and sustainers is required during the capability needs definition phase of the acquisition lifecycle (USD (AT&L), 2003, paragraph E1).

Organizations often fall short when they attempt to develop effective collaborative relationships. Documented barriers include diverse and conflicting missions, goals, and incentives; entrenched histories of mistrust; leaders who do not actively support collaborative efforts; and inadequate systems and structures (GAO, 2005). Our research on ICC was initiated the summer of 2002 in response to the need to develop ICC in the emerging Homeland Defense and Security context. In 2005 we began to apply our methods and knowledge to a quite different but still critical context: DoD Acquisition and Contracting.

Our research program seeks to understand those factors that drive or enable ICC and those factors that are barriers to ICC. The ICC model and survey are designed to be used in an action research tradition. Action research is a collaborative undertaking in which the researchers work with organizational insiders to diagnose a relevant problem domain—in our case ICC—with the aim not only of increasing knowledge but also of improving effectiveness. Survey results, typically supported by interviews or focus groups, are a diagnostic vehicle for discourse, action planning and organizational development.

Developing the Interorganizational Collaborative Capacity (ICC) Model

Our team's research has moved through several stages. In a previous book chapter (Hocevar, Thomas & Jansen, 2006), we described an inductive study conducted in the context of the homeland defense and security community. This study identified factors (i.e., common themes) that facilitated and interfered with developing ICC. The success factors included a "Felt need" to collaborate, a common goal or recognized interdependence, sufficient authority of key participants, social capital (e.g., interpersonal networks), collaboration as a prerequisite for funding, effective information exchange, leadership support and commitment, trust and commitment. Barrier factors were often the antithesis of the success factors; they included divergent goals, impeding rules or policies, lack of familiarity with other organizations, inadequate information sharing, competition for resources, and lack of competency. **These factors were organized within the five domains of Galbraith's (2002) star model: Purpose and Strategy, Organizational Structure, Lateral Processes, Reward Systems, and People.**

Our inductive research, in conjunction with our literature reviews, led us to develop the ICC model illustrated in Figure 1. This model represents the simplest case of ICC involving only two organizations—A and B—in a shared problem space. The yellow arrows leading from each organization to "goals and objectives" indicate that each organization is oriented toward a set of common or complementary goals and objectives in a shared problem space. They operate



within an interdependent relationship in which some degree of collaboration can improve their efficiency and effectiveness with respect to the shared problem space.¹

As with other open systems models, the ICC model emphasizes that the effectiveness of each organization depends on the congruence or fit (i.e., fitness) of its subsystems. For example, fitness increases when an organization's reward systems are congruent with its strategic goals, structure of authority, and training. The double-sided, blue arrows within and between organizations indicate the dynamic processes of building and sustaining collaborative capacity.

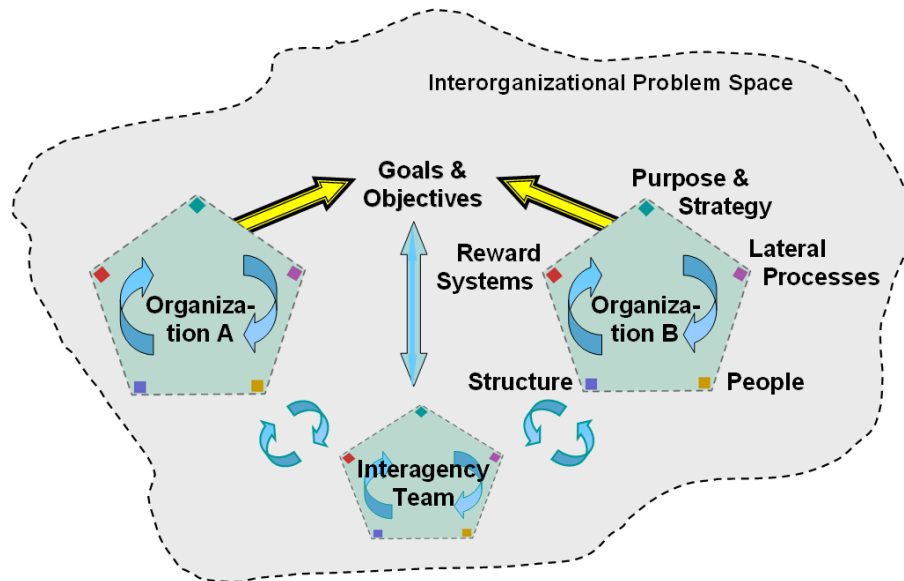


Figure 1. The Interorganizational Collaborative Capacity Model
(Hocevar et al., 2006)

The role of the interagency team is to generate ICC in both organizations. The team must also develop its own collaborative capacity. As there often are more than two collaborating organizations, there also may be multiple teams or task forces (e.g., tiger teams) focusing on and aligning specific subsystem domains (e.g., policies and procedures for sharing information).

Assessing Interorganizational Collaborative Capacity (ICC)

Our previous ICC literature review (cf. Bardach, 1998) revealed that a major stumbling block to advancing theory and practice is the measurement problem. We wrote:

Collaborative capacity is an intuitively appealing construct but currently lacks clear operationalization. This deficiency is problematic for leaders and practitioners [...] who want to identify the collaborative capacity of their agencies. The absence of

¹ This does not mean there are not conflicts or competitive aspects to their interactions. Ray Norda re-introduced the term “coopetition” to describe the complex dynamics in which organizations could be allies in one problem space and competitors in a different problem space (Fisher, 1992).

measurement models also is problematic for the advancement of the social science of interagency collaboration. (Hocevar et al., 2006, p. 273)

Items and Survey Development

Following the initial inductive phase of our research, we began writing six-point, Likert items to measure the identified key themes that had been identified (e.g., the “felt need” theme or factor we had placed in the Purpose and Strategy domain.) With the help of subject matter experts (SMEs), we developed two surveys: one for use with the Homeland Defense and Security (HDS) community and another to use within the Acquisition and Contracting (A&C) community² (Thomas, Hocevar, Jansen & Rendon, 2008). The surveys were administered to samples from both communities and scales were developed in an iterative process of collecting data, giving feedback to respondents on their results, and listening to their interpretations of their results. To be accepted for a scale or factor, the items had to pass basic statistical hurdles, make sense in feedback sessions with our SME respondents (see sample description below), as well as having value in suggesting courses of action in their discussions about developing ICC. This process resulted in items being deleted and added over multiple administrations and feedback sessions, and it accounts for the different sample sizes (different *n*'s) associated with different statistics in the research.

Samples for Survey Development and Validation

The HDS sample comprised 145 students in six classes in a Master's Degree program in Homeland Security at the Naval Postgraduate School. They were experienced civilians or military officers working for civilian, government or military organizations from around the United States who had on-going Homeland Security responsibilities. Illustrative organizations (and positions) included: USNORTHCOM, US Coast Guard, (mid- to senior-level officers), the Center for Disease Control, Offices of Emergency Management, the FBI, municipal police and fire departments (Chiefs, Captains), and utilities (Directors).

The A&C sample comprised 49 DoD managers, specifically program managers, technical/engineering managers, and contract managers. They were in three classes pursuing an MS in Program Management (MSPM) through distance learning and employed full-time as members of the DoD acquisition workforce. They were experienced DoD acquisition managers, many of whom had already achieved Level II of the Defense Acquisition Workforce Improvement Act (DAWIA) certification program. The students were located across the United States at some of the DoD's major acquisition and procurement centers.

The A&C sample also included 79 federal employees from a DoD Research, Development and Fielding Organization that is responsible for engineering, technology, research, development, and fielding products primarily for individual military personnel. The organization comprises three interdependent *organizations* from each of the military services and works with academic organizations, research hospitals, businesses, and other government agencies.

The A&C sample also included 46 employees from a major DoD Contract Administration Organization (CAO) with the mission of improving integration of acquisition processes between

² This report focuses on assessing ICC with surveys, but we also developed interview questions to be used in individual interviews or focus groups.



DoD clients and contractors, improving cost efficiency, increasing process innovations, and ensuring compliance to standards and regulations in federal contracts.

ICC Survey Scales

The process of constructing scales is simultaneously a process of construct validation, of generating and validating a theoretical model. That is to say, the data are a reality test that typically requires a re-construction of the meaning of ICC as a theoretical construct. Our current conceptualization of ICC, based on our analysis, is that it comprises twelve scales or factors: *Need to Collaborate*, *Strategic Collaboration*, *Resource Investment in Collaboration*, *Structural Flexibility*, *Reward Systems*, *Metrics for Collaboration*, *Information Sharing*, *Collaborative Learning*, *Social Capital*, *Individual Collaborative Capacity*, *Barriers to Collaboration*, and *Interagency Teams*. As illustrated in Figure 2, they can be mapped with respect to the five domains of Galbraith's (2002) star model. The specific items that make up the scales discussed in this paper, along with item statistics, are presented in Jansen, Hocesvar, Rendon and Thomas (2008).

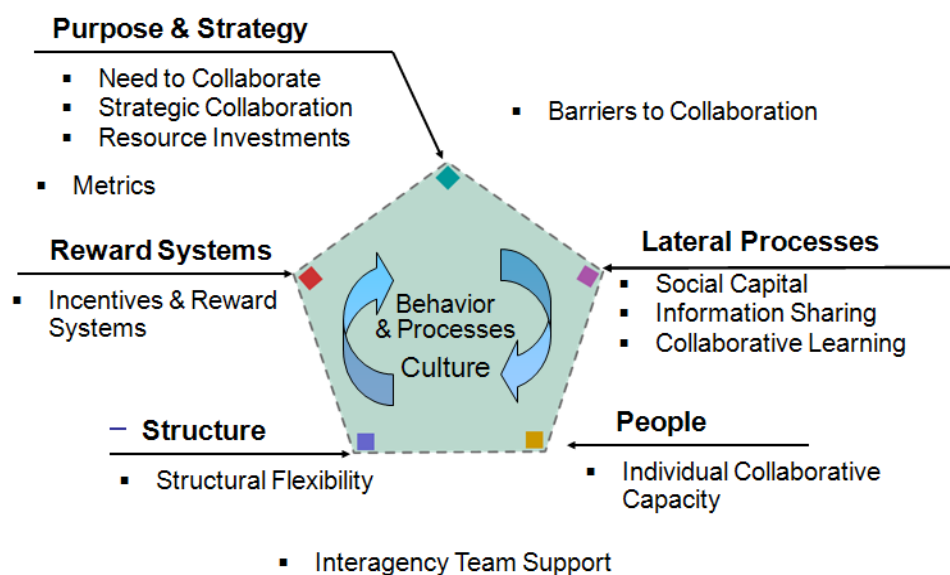


Figure 2. Interorganizational Collaborative Capacity Factors (or Dimensions) Organized by Organizational Domain

Table 1 presents scale statistics for the combined HDS and A&C samples for each scale, ranking them from high to low. All items use a 6-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree.” Thus, 3.5 is the scale midpoint. Values higher than 3.5 indicate agreement, and values of 6 indicate unanimous agreement. A “don’t know” response, which was a 7 on the scale, was re-coded as missing data. Because the *Barriers to Collaboration* scale is the only scale where a high value indicates a lack of collaborative capacity, it has been reverse-coded to facilitate comparison with other scales (the reverse-coded mean for a 6-point scale is determined by subtracting its mean from 7). Note also that the standard deviation is as important for interpreting results as the mean; focusing on a mean of 4.0, which indicates modest agreement, while ignoring a high standard deviation (e.g., 1.4) will lead to an under-appreciation of how many individuals are in disagreement.

The results in Table 1 represent a summary of individual perceptions of their organizations and individual interpretations of the survey items. Because of the idiosyncratic

nature of individual assessments, surveys use broad-based sampling and more than a single item to assess any given factor. Coefficient Alpha reliability assesses the degree to which the items defining the scale are internally consistent, which is evidence that they measure an underlying common factor. These values, all of which are satisfactory, are discussed in Jansen et al. (2008).

Table 1. Means, Standard Deviations (S.D.), Sample Size (n), Number of Items, and Coefficients Alpha for the Collaborative Capacity Scales

Scale	Mean	S.D.	n	Number of Items	Coef. Alpha
Need to Collaborate	4.7	1.3	307	3	.81
Strategic Collaboration	4.3	1.4	251	5	.85
Social Capital	4.2	1.3	307	2	.79
Interagency Team	4.2	1.3	193	2	.85
Structural Flexibility	4.1	1.2	135	4	.78
Information Sharing	4.1	1.4	226	3	.83
Individual Collaborative Capacity	4.1	1.2	258	7	.86
Resource Investments	3.7	1.4	227	3	.88
Lack of Barriers to Collaboration*	(3.7)*	1.4	136	4	.75
Collaborative Learning	3.5	1.4	225	3	.85
Reward Systems	3.4	1.5	268	4	.86
Metrics for Collaboration	3.0	1.5	264	2	.83

*The Barriers to Collaboration scale is the only scale in which a higher value represents a lower collaborative capacity. It is thus reverse-coded so that it can be compared to the other scales and relabeled as Lack of Barriers to Collaboration.

The Interorganizational Collaborative Scales

In this section, we discuss the results in Table 1 in the context of the ICC model in Figure 2, and we include some observations from feedback sessions with HDS and A&C respondents.

The Domain of Purpose and Strategy

Three scales assess factors within the domain of Purpose and Strategy: Need to Collaborate, Strategic Collaboration, and Resource investments in collaboration.



Need to Collaborate. Hocevar et al. (2006) used the term “felt need” to refer to a theme that emerged in their inductive, qualitative research as well as in their literature review. “Felt need” was taken from the organizational change literature (Jick & Peiperl, 2002) in which the construct is used to describe the strong motivational energy and effort needed to overcome the inertia of the status quo and generate change in organizational structures, processes and behaviors. The change literature asserts that a felt need or “sense of urgency” (Kotter, 2008) is a powerful factor that motivates individuals to make commitments to learning new skills and exploring new behaviors. Sample items include,

- My organization recognizes the importance of working with other agencies to achieve its mission.
- People in my organization understand the benefits of collaborating with other organizations.

Strategic Collaboration. A theme that emerged for successful collaboration in our inductive research was having “a common goal or recognized interdependence.” This scale references establishing and addressing goals for collaboration and considering the interests of other organizations in planning. It assesses leaderships' role in addressing interorganizational goals and conferring with the leaders of other organizations. Sample items include:

- My organization’s leaders meet and confer with the leaders of other organizations about mutual collaboration.
- My organization considers the interests of other agencies in its planning.

Resource Investment in Collaboration. Resource Investment in Collaboration emerged in the quantitative data as a theme in our inductive research. The scale focuses on investing, committing or assigning various resources to collaboration. This is placed in the domain of strategy and purpose because the strategic apex is where general resource decisions are typically made. A sample item is, “My organization has committed adequate time, budget, and personnel to interorganizational collaboration.”

As Table 1 indicates, the **Need to Collaborate** scale typically has the highest mean in our various survey administrations. The respondents in both the HDS and A&C samples report that their organizations appreciate the need to collaborate. This will perhaps remain a common result across organizations actively involved in collaborations; typically, we work in contexts in which messages from the highest levels of the chain of command and even stories in the national media emphasize the critical importance of collaboration.

The *Strategic Collaboration* scale also typically has a relatively high mean, indicating a generally positive perception in the domain of strategy and purpose associated with setting goals and priorities and other leadership actions regarding collaboration. On the other hand, its mean is considerably lower than the *Need to Collaborate* mean. Lower still is the **Resource Investments** mean. In feedback sessions discussing the results, our respondents typically interpret these results in terms of the challenges of “walking the talk.” It is far easier to send the message out on the importance and benefits of collaboration than to engage other organizations and their leaders to plan and set goals; it is harder yet to find and dedicate resources to make collaboration happen.



The Domain of Structure

Structure is currently represented by a single scale or factor: Structural Flexibility.

Structural Flexibility. Structural flexibility is viewed as important to effectiveness in dynamic environments (e.g., Mintzberg, 1993) and for effective organizational processes (e.g., Deming, 1982). In our inductive research, structural themes emerged but were mentioned more often as barriers than as success factors. In our quantitative research, *Structural Flexibility* assesses the degree to which respondents perceive that the organization is flexible and responsive, quickly forming and modifying policies, processes, procedures, and partnerships. A sample item is: “My organization is flexible in adapting its procedures to better fit those organizations with which we work”

The **Structural Flexibility** scale’s positive mean reveals more flexibility than many might expect, given that these respondents generally work for large government bureaucracies. As with the other scales, the standard deviation indicates that some individuals perceive more flexibility than others, but the overall distribution for these items is not consistent with dysfunctional rigidity as commonplace in these organizations. When the survey is given within a single organization, analyzing where there are higher or lower levels of perceived structural flexibility can be informative for action planning.

Metrics and the Reward Systems Domain

In Figure 2, the Metrics factor is placed between the Reward Systems domain and the Purpose and Strategy domain. On the one hand, metrics operationalize goals and serve as indicators of effectiveness. On the other hand, metrics are generally part of the performance appraisal process and thus part of the reward system.

Reward Systems. The *Reward Systems* scale assesses the degree to which collaborative activities and collaborative talents lead to rewards, career advancement, and promotions. In this domain, perceptions are critical: if individuals perceive collaborative actions go unrewarded, their behavior will reflect these perceptions. Sample items include:

- Engaging in interorganizational activities at work is important to career advancement in this organization.
- Collaborative talents and achievements are considered when people are reviewed for promotion.

The **Reward Systems** scale shows a relatively low score; it is one of two scores that fall below the Likert scale’s mid-point of 3.5. For example, it is lower than the *Structural Flexibility* scale; some respondents argue that it is easier to reorganize and change procedures than to change institutionalized reward systems. Because incentives and rewards are especially powerful for generating organizational culture, discussions in which people explain how reward systems often fail to support collaborative activities typically represent a powerful opportunity for action planning.

Metrics for Collaboration. Metrics did not emerge as a theme in our inductive research, but it emerged as a measure in our quantitative research. The scale assesses the degree to which an organization has identified or established measurement criteria and performance standards to assess interorganizational collaboration efforts. A sample item is, “My organization has established clear performance standards regarding interorganizational work.”



Metrics for Collaboration is consistently among the lowest scores, and the low values promote interesting discussions. These include the issue of how important such measures really are, the degree to which such measures might produce counterproductive behaviors, and the role of leadership in assessing individuals and motivating performance. Individuals sometimes note that the ICC survey is itself an attempt to develop collaboration metrics.

The Domain of Lateral Processes

Three scales can be placed within the domain of Lateral Processes: *Social Capital*, *Information Sharing*, and *Collaborative Learning*.

Information Sharing. Information sharing was a theme in the Hocevar et al. (2006) research. The scale has diverse content, referring to people, the organization, and to organizational norms. Sample items include:

- My organization has strong norms that encourage sharing information with other organizations.
- People in my organization share information with other organizations.

As noted when we defined collaboration, some work relationships require low levels of interdependence (i.e., pooled interdependence) in which information sharing represents all that is required of organizational allies. Such organizations are able to accomplish their goals and objectives independently if information sharing is effective. More interdependent collaborative relationships (e.g., liaisons, regular task force meetings, and joint exercises) may require higher levels of lateral processes captured by Collaborative Learning.

Social Capital. “Social capital” and “interpersonal networks” emerged in Hocevar et al. (2006). The scale assesses the degree to which organizational employees or members take the initiative to build relationships and know who to contact in other organizations or agencies. A sample item is: “Our employees know who to contact in other agencies for information or decisions.” Some individuals see this as a pre-requisite to information sharing: how do you share if you don’t know who values the information? Others emphasize information sharing as a means of developing social capital.

Collaborative Learning. When organizations face problems that require teamwork, either because of sequential or reciprocal interdependence, learning how to work with and adjust to organizational partners becomes more important (Thompson, 1967). The collaborative learning scale assesses the degree to which the organization commits resources to training, works with other organizations to identify lessons learned, and develops strong norms for learning from other organizations. They assess the degree to which the organization might be regarded as a collaborative learning organization. A sample item is, “My organization works with other organizations to identify lessons learned for improved collaboration.”

The Lateral Processes Domain. Organizational theory emphasizes the importance of lateral processes to integrate and coordinate among differentiated units. Such horizontal processes take the burden off the vertical hierarchy, preventing overload and allowing actions to profit from local conditions and distributed knowledge. They are viewed as especially critical in ICC where vertical hierarchies of different organizations may not lead to a common boss.

The pattern of means within this domain is interesting: *Social Capital* and *Information Sharing* have comparable means, but the *Collaborative Learning* mean lags behind. This



pattern suggests that knowing who to contact and develop relationships with can function primarily to serve the lower collaborative demands of information sharing; this is reflected in the higher means for these aspects of collaborative capability. On the other hand, the results suggest collaborative learning is unevenly developed and is a lagging capacity in the organizations. To the degree learning represents changing habits related to how one plans, organizes, leads, decides, and works, it is indeed a more challenging than simply sharing the information with the right people.

The Domain of People

The domain of People is represented by a single scale, which is labeled Individual Collaborative Capacity.

Individual Collaborative Capacity. Hocevar et al. (2006) identified a number of themes describing the collaborative capabilities and attitudes of individuals within the organization. Items referencing individuals tend to fall into a single scale in our research. The scale focuses on skills, capabilities and expertise; on an understanding and knowledge of how other organizations work; on a willingness to engage in shared decision-making, and on seeking input from the other organizations. Sample items include:

- Members of my organization understand how our work relates to the work of other organizations with which we need to collaborate.
- Members of my organization are able to appreciate another organization's perspective on a problem or course of action.

Barriers to Collaboration

All the items and scales described to this point have been facilitating factors or enablers that support the development and maintenance of collaborative capacity. In contrast, *Barriers to Collaboration* items focus on the challenges or impediments to collaboration. Agreement on these items is undesirable, whereas agreement on other items is desirable. This requires that the item means and the scale mean must be reverse-coded to compare it to other scales, subtracting it from 7 so that a mean of 3.3 becomes 3.7. This reversal is used in comparisons among scales (e.g., in Tables 1 and 2), and the scale is relabeled as Lack of Barriers to Collaboration—a double negative.

The items composing the *Barriers to Collaboration* scale are diverse; they assess interorganizational history, individual collaborative capacity, role conflict, policies, and requirements that are unique to an individual's organization. The items cover a number of domains within the collaborative capacity model and cannot be placed within a single domain. Two sample items are:

- A history of interorganizational conflict affects our interorganizational capability.
- I face incompatible requirements or requests when working with other organizations.

Interagency Teams

HDS respondents were directed to the items in this scale if they answered "yes" to the statement, "My organization has a representative on an interorganizational team." A&C respondents were directed to these items if they indicated they had served on one or more



“interorganizational special project or tiger teams.” The scale might be regarded as assessing an aspect of the domain of structure. The items are,

- My organization gives members of special project teams (or tiger teams) adequate authority to speak on behalf of the organization.
- My organization supports the decisions and recommendations of the special project or tiger team.

The mean also is close in its value to the *Structural Flexibility* mean.

Comparing the ICC of a Set or Community of Organizations

The ICC results can be used to compare samples from different organizational sets, different communities of practice, or even different industries. By administering surveys to individuals from multiple organizations, we should be able to describe the collaborative capacity of that organizational set. Table 2 compares the means of two such sets: the Homeland Defense and Security (HDS) and Acquisition and Contracting (A&C) samples.

Table 2. Means, Standard Deviation (S.D.), and Sample Sizes (n) for Homeland Defense & Security and for Acquisition & Contracting Communities

Scale	Homeland Defense & Security			Acquisition & Contracting		
	Mean	S.D.	n	Mean	S.D.	n
Need to Collaborate	5.0	1.0	145	4.3	1.2	49
Strategic Collaboration	4.4	1.0	145	3.8	1.3	49
Resource Investments	4.0	1.2	144	3.4	1.2	49
Structural Flexibility	4.1	1.0	145	4.1	1.1	49
Reward Systems	3.4	1.3	145	3.1	1.2	49
Metrics for Collaboration	2.9	1.2	141	2.8	1.2	49
Social Capital	4.5	1.1	144	3.9	1.2	49
Information Sharing	4.2	1.2	145	3.6	1.1	49
Collaborative Learning	3.7	1.1	145	2.9	1.0	49
Individual Collaborative Capacity	4.2	1.0	144	3.9	1.0	49
Lack of Barriers to Collaboration*	(3.7)*	1.0	145	(3.6) ¹	.9	49
Interagency Team	4.6	1.1	117	3.5	1.3	48



* The Barriers to Collaboration scale is the only scale in which a higher value represents a lower collaborative capacity. It is thus reverse-coded so that it can be compared to the other scales and relabeled as Lack of Barriers to Collaboration.

The means in Table 2 would seem to indicate no significant difference between organizational communities in terms of *Structural Flexibility*, *Reward Systems* and *Metrics for Collaboration*, *Individual Collaboration*, and *Barriers to Collaboration*. The main differences appear to be that the HDS's sample's means are somewhat higher in the strategic domain comprising *Need to Collaborate*, *Strategic Collaboration*, and *Resource Investments* and in the lateral processes domain of *Social Capital*, *Information Sharing*, and *Collaborative Learning*.

Figure 3 presents the pattern of results in graphic format and reveals that the profile patterns are generally parallel; their similarity is more dramatic than their differences. In a section below, the ideas of Leading and Lagging factors in generating Collaborative Capacity are discussed. Figure 3 suggests that some factors lag (e.g., *Metrics* and *Reward Systems*) and some lead (e.g., *Need for Collaboration*, *Strategic Collaboration*, *Social Capital* and possibly *Structural Flexibility*) in developing ICC.

Caution is required in making attributions about differences in organizational sets as diverse as HDS *versus* A&C. To generalize about mean differences, comparable sampling procedures for the two communities are required. Even with excellent sampling, the contextual frames of reference used by respondents as they take the survey need to be considered when interpreting these differences.

Here are a few of the contextual differences characterizing the individuals in the A&C *versus* HDS samples.



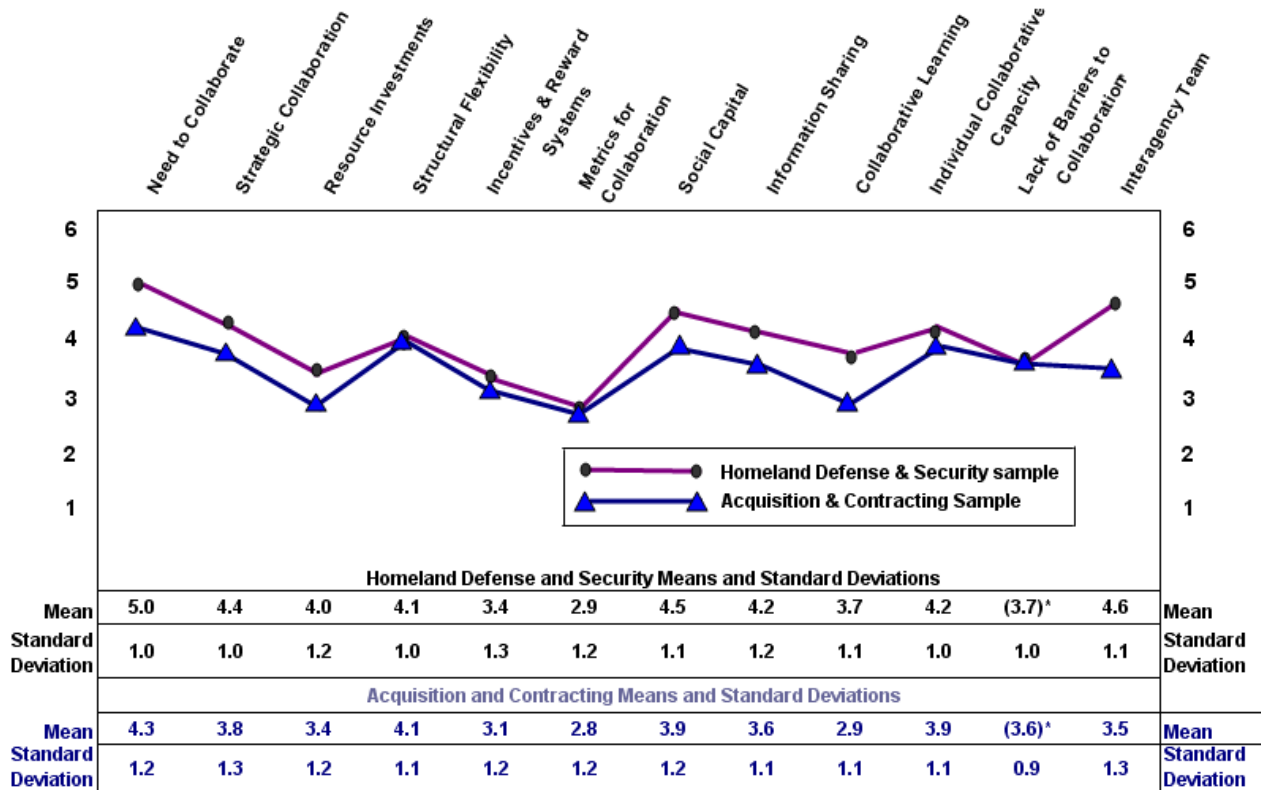


Figure 3. Profiles with Means and Standard Deviations for the Homeland Defense & Security and the Acquisition and Contracting Samples

A&C is relatively mature and institutionalized, and interorganizational collaboration through various phases of the Acquisition lifecycle has long been inherent to the mission. By contrast, much of HDS has recently been reorganized to improve effectiveness through collaboration. A large minority of respondents report that they do not have a mandate to collaborate with other organizations, and collaboration often depends on local initiatives.

A&C comprises many functionally-focused, matrixed organizations with inherently conflicting intraorganizational goals and resulting role conflict. The functional areas have divergent cultures and goals; for example, Program Managers (PMs) have different goals than contracting officers and systems engineers. By contrast, HDS typically comprises independent organizations with distinct chains of command.

A&C comprises primarily civil service members of the DoD's acquisition workforce. HDS includes a small number of military officers, federal civil servants from diverse agencies, as well as employees of state, county, and city governments.

Our DHS respondents' perceptions of the consequences or risk in the face of a failure of interagency collaboration were significantly higher than the perception of risk in our A&C samples (Jansen et al., 2008).

Interpretive Norms

Comparing organizational capabilities of different organizations or sets of organizations raises the question of interpretive norms. Norms are “descriptive statistics that are compiled to permit the comparison of a particular score (or mean) with the scores (or means) earned by the members (or groups of members) of some defined population” (Thorndike, 1971, p. 533). Norms in this context would allow an organization to understand its relative standing on a scale or profile of scales compared to a defined reference group.

The concept of norms for organizations, in contrast to norms for people, is problematic. Norms can be developed and interpreted relatively easily for human beings. However, developing norms for aggregates of people in diverse organizations is far more difficult and ambiguous. This is because, in spite of our great diversity, there is more homogeneity among people than organizations that comprise people. Organizations differ vastly in size, age, history, mission, technology, member demographics, and other variables. In addition, organizations are nested hierarchically within other organizations, and sometimes they are matrixed; their boundaries are more ambiguous. Thus, the entire concept of individual vs. organizational norms requires rethinking. However, without specifically addressing these challenges, we argue that a wide and continuing sampling of individuals from particular classes of organizations (e.g., HDS or A&C) can be useful for comparative purposes. There are commonalities within various organizational sets and communities, and leadership can derive some sense of their organization’s relative standing by cautiously comparing their results to the results of others. By increasing sample size and more rigorously collecting data across the acquisition community, it is possible to generate information akin to norms. We illustrate the potential value of this in the next section.

An Organizational Example of ICC in the Acquisition Context

In this section, we use the survey to do a brief, summary assessment of two units within a much larger organizational system. Table 3 shows the results for two units of a major DoD CAO that functions in an interorganizational context (cf. Kirschman & LaPorte, 2008). In the following discussion, quotations come from a teleconference interview conducted with the top leadership team of these units on June 22, 2007, and from comments made when the leadership of one unit who conducted a briefing for an NPS A&C class on August 6, 2008.

Table 3. Means, Standard Deviation (S.D.), and Sample Sizes (n) for a Major DoD Contract Administration Organization

Scale	Mean	S.D.	n
Need to Collaborate	4.5	1.1	46
Strategic Collaboration	4.2	1.2	46
Resource Investments in Collaboration	3.4	1.5	43
Structural Flexibility	4.0	1.0	46
Reward Systems	3.8	1.2	45



Metrics for Collaboration	3.6	1.4	43
Social Capital	4.0	1.2	46
Information Sharing	3.9	1.2	46
Collaborative Learning	3.2	1.3	46
Individual Collaborative Capacity	3.9	1.1	46
Lack of Barriers to Collaboration*	(3.2)*	1.1	46
Interagency Team	3.9	1.2	40

* The Barriers to Collaboration scale is the only scale in which a higher value represents a lower collaborative capacity. It is thus reverse-coded so that it can be compared to the other scales and relabeled as Lack of Barriers to Collaboration.

Context and Mission

The organization’s mission is to enhance the integration of acquisition processes between DoD clients and contractors, generating cost savings, increasing process innovations, and ensuring compliance to standards and regulations in federal contracts. Prior to the survey administration, one manager said, “We are very much a customer support organization ...and ... in order to provide the support that our customers need, we’ve got to interact and collaborate with them We’ve got to sit down with our customers and agree and talk and discuss what’s important to them.” In this context, customers of the organization are other government agencies; they support these agencies with respect to contractors, typically involving major programs. Executing their mission requires “selling” organizational customers on the support they can provide. In order to be more effective with customers, the organization has gone through what one manager called a “realignment that puts us in a position where we are very focused on specific customers.” The leadership team appeared to be dedicating considerable time and energy to generate and sustain ICC, which was congruent with their strong support in administering the survey.

Respondents express modest to moderate agreement on their organization’s capacities with respect to most factors. However, there is, on average, mild disagreement regarding the adequacy of *Resource Investments* and engagement in *Collaborative Learning*, and there is mild agreement that there are *Barriers to ICC*. The standard deviations for two scales—*Resource Investments* and *Metrics for Collaboration*—appear relatively high, indicating less consensus among the organization’s members on these dimensions. Figure 4 presents the results from Table 3 in the form of a line graph. It adds the results on multiple A&C organizations to serve as a surrogate for comparative norms.



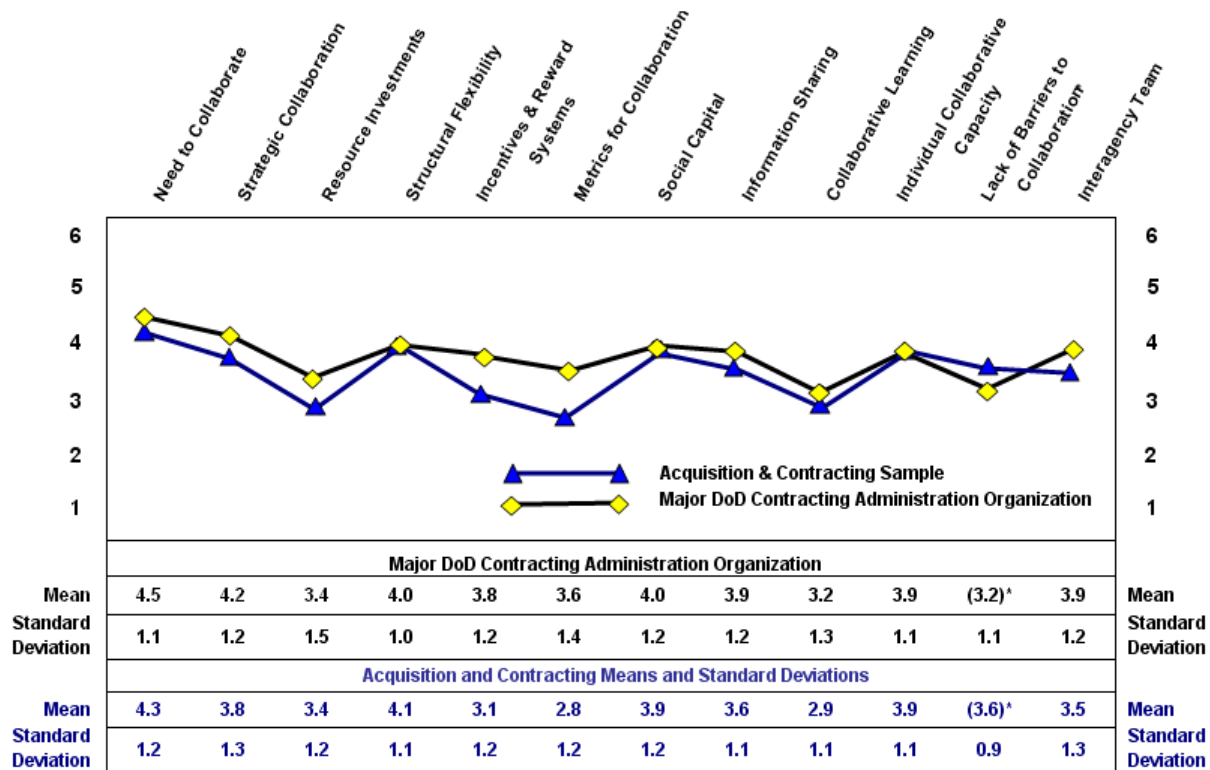


Figure 4. Profiles with Means and Standard Deviations for a Major DoD Contract Administration Organization and an NPS Acquisition and Contracting Sample Representing an Organizational Set

Again, we should be cautious in our interpretations, but this comparison suggests a somewhat more positive perspective than we gain only by viewing the organizational profile in isolation. The pattern of comparisons shows the CAO as being equal to or higher than the normative sample (drawn from 49 different organizations) on all the enabling factors and shows higher ratings in the factors of Resource Investments, Reward Systems, and Metrics for Collaboration. This example suggests the interpretive value of having a larger, more representative data set for A&C organizations. In the next section, we discuss the subsystem domains and their factors, which are illustrated in Figure 5.

The Strategic Domain

In terms of the strategic domain, the *Need to Collaborate* scale and the *Strategic Collaboration* scales have relatively high values, with means of 4.5 and 4.2. This is congruent with the collaborative vision and statements expressed by the top leadership. A Deputy (personal communication, June 22, 2007) noted that, a “key point” for the organization was “bringing in the needed stakeholders, identifying what the key issues are, what the common ground is, and then understanding what we can do to complement each other.” Such efforts

had been accelerated in the previous two years. The survey provides evidence of the degree to which the message behind this has been accepted.³

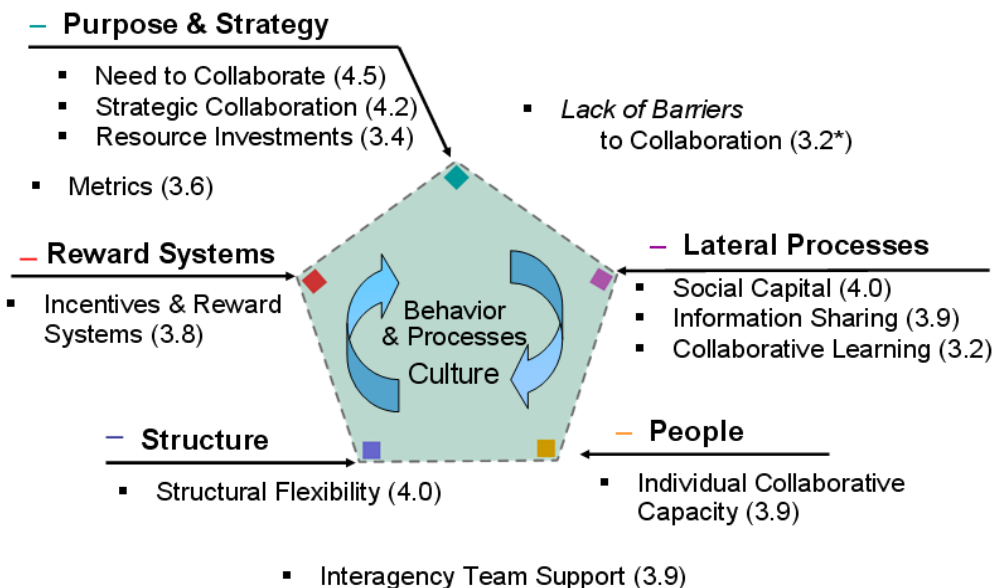


Figure 5. Interorganizational Collaborative Capacity Scale Means Organized by Domains for a Major DoD Contract Administration Organization

The *Resource Investments* scale, although higher than the “normative” sample result, remains low, with a mean of 3.4, which suggests that this may be a barrier to collaboration (being perceived as such by many in the organization). It was also raised as a primary issue or barrier by top leadership:

One of the things that come to mind ... is a resource situation and having the right talent ... to be able to provide the support our customers need. This agency has gone down to—I’ve been here less than two years—so I have the 20,000 number—we are roughly a 10,000-person agency now. So our resources have gone down significantly. (personal communication, June 22, 2007)

Indeed, a commander of one of the units (personal communication, August 6, 2008) said he simply lacked the personnel and other resources to engage all the required tasks. A key part of his job involved assessing risks to determine where lack of oversight and slippage was least problematic. Thus the strategic resource picture with respect to collaborative capacity is trying to do more with less.

³ In the discussion of survey results, we use quotations from a teleconference interview conducted with the top leadership team of these units on June 22, 2007, and from a briefing to an NPS Acquisition and Contracting class on August 6, 2008. The organizations and their managers are quoted anonymously to maintain confidentiality.

The Structural Domain

The organization was created in a restructuring of service organizations into a joint entity. This was motivated by the need for greater efficiency and customer service. It allowed contractors building products for more than one service to simplify their interface problems with the DoD bureaucracy. The organization had thus been viewed as structurally inflexible in the recent past. A PowerPoint brief described this era as, “Someone above writes the rules—workers follow the rules—masters check to see that workers are following the rules and if they are, victory is proclaimed on all fronts” (personal communication, August 6, 2008). Current management was working to unlearn this rule-driven, behavioral legacy, calling it “too internally focused.” They sought greater responsiveness to and collaboration with customers.

The organization had very recently reorganized from a geographic divisional structure to a more product-oriented structure. Although it remains a bureaucracy with regulatory responsibilities, such recent changes may well support perceptions of structural flexibility, especially given managements’ desire to increase collaboration and customer responsiveness. The *Structural Flexibility* mean of 4.0 indicates some agreement that there is flexibility in the structural domain. This result can be viewed positively given the history of rule-driven behavior.

The Reward Systems Domain and Metrics

In the ICC model, metrics overlap two domains: Reward Systems and Strategy. Metrics relate to accomplishing strategic goals and objectives, but they also can be used to assess individual performance, in which case they are part of the reward system. Leadership in the CAO had invested considerable time, energy and resources to develop metrics and link them to performance. Leadership had invested in a tool to provide agency level visibility from the Director down to operational employees. One member of the top management team said:

We have metrics, and we have a performance commitment that we set down with our customers; ... we’ve agreed that this is important, and this is what we are going to do with you. And there’s a way to grade those, and that’s set out ... and as a result of that, then we know ... where we fall short. (personal communication, June 22, 2008)

The *Metrics for Collaboration* scale’s mean value of 3.6 is no doubt less than the management team would like to see, but it appears to be a relatively high value for this scale in comparison with the “normative” sample.

As mentioned in the discussion of *Resource Investments*, the organization’s efforts to reward and recognize individuals were made in the context of an understaffed organization with a mission of promoting interorganizational collaboration. The *Reward Systems* mean of 3.8 suggests somewhat positive results in a very difficult human resources context.

The People Domain—Individual Collaborative Capacity

Leadership reported that they sometimes lacked people with the required technical skill sets (e.g., engineering talent and software skills) (personal communication, June 22, 2007). They also asserted the importance of “critical thinking skills” and “soft skills” for dealing with conflict. However, they did not express any sense that the people in their organization were deficient in such skills; they noted that there was “always room for improvement.” The discussion was consistent with the Individual Collaborative Capacity scale mean of 3.9: generally positive with room for improvement.



The Lateral Processes Domain

The *Social Capital* mean of 4.0 is somewhat positive, revealing moderate agreement with items indicating individuals take the initiative and know who to contact in other organizations. *Information Sharing* is also somewhat positive, with a mean of 3.9. *Collaborative Learning* would seem to be a more demanding level of lateral integration, and its lower mean of 3.2 is perhaps not surprising, especially (a) to the degree that this is an under-resourced organizational context and (b) to the degree that developing collaborative learning systems in a complex network of partnerships requires exceptionally high levels of integration.

Barriers to Collaboration

Individuals within the DoD CAO still perceive barriers to collaboration, as the relatively low reverse-coded mean of 3.2 suggests. This is an indicator of the inertia that leadership must still overcome as they develop ICC in this complex, under-resourced, bureaucratic context. In this scale, as with others, deeper insights emerge from looking at specific items that comprise the scales; space constraints prevent such analysis.

Leading and Lagging Factors in the Open Systems Organizational Models

The ICC model is an open systems model; it emphasizes that organizations depend on the congruence or fit (i.e., fitness) of their subsystems (i.e., domains) with respect to each other and the larger environment. To achieve fitness in their political, economic, social and organizational environments, organizations develop habitual routines and patterns of action. The commonality in the pattern of ICC profiles may thus reflect a systemic state of fitness and inertia of the public bureaucracies in our sample.

Organizational development and change—including developing ICC—requires a systemic approach if it is to be sustained. However, trying to change an organization in its entirety generally is not possible. Leadership must choose which subsystem domains to initially develop (i.e., leading factors) and which subsystem domains will be allowed to lag (i.e., lagging factors) and be changed in the future (Kaplan & Norton, 1992).

For the organizations in our sample, the *Metrics for Collaboration* scale has typically had the lowest—or one of the lowest—scores. By contrast, *Felt Need* is often one of the highest scores. Our feedback sessions with respondents are congruent with organizational change literature: generating a sense of felt need is often a lead factor in organizational change; managers typically begin such efforts by communicating a sense of urgency. By contrast, our feedback sessions suggest that developing metrics to assess collaboration often is a lagging effort, delayed because of the time and skill required for development and implementation. However, although it might not be typical, leaders may choose to use metrics to lead change efforts. The DoD CAO described in this report is consciously using a metrics management system as a leading factor in their change efforts. Using the ICC survey longitudinally may reveal how collaborative capacity is developing in the subsystem domains composing the organization.



Continuing and Future Research

Feedback workshops with students/SMEs (Thomas et al., 2008) combined with the item analysis and scale development (Jansen et al., 2008) lend considerable confidence to the dimensionality of the ICC model and operationalizations reported here.

Research is currently under way to analyze how the survey is used in the context of specific partners. The ICC survey described in this report diagnoses an organization's "general collaborative capacity" to enter into relationships with unspecified partners; it assesses ICC with respect to generalized others. By contrast, research in progress on "relative collaborative capacity" focuses on one specific partner; the survey questions name one specific organization and thus assess ICC for this one specific relationship.

It is possible to use the dimensions in the ICC model to generate a performance appraisal of collaborative relationships. In such a case, items would need to be rewritten or other summary scales created whereby the members of organizations judge their partner organizations with respect to on-going relationships. It is even conceivable that such measures could become integrated into performance appraisals, thus creating a metrics to drive incentives and reward actions that develop and sustain ICC.

Validation of the ICC survey requires research with dependent variables on interorganizational performance or alternative assessments of collaboration processes (e.g., nominations of extreme cases—excellent collaborators *versus* ineffective collaborators—by experts or top leaders). This would provide an external, empirical validation for the factors specified in the ICC model. This is the most challenging research to perform, requiring more resources and management support than previous efforts.

Richer diagnoses of an organization's ICC using qualitative methods in conjunction with the survey are also needed. Understanding collaborative capacity processes and dynamics requires qualitative methods such as interviews and focus groups as well as case studies. Such collaborative efforts between researchers and leaders/managers support the "action research" agenda of simultaneously improving organizational functioning and developing better theories and measurements.

These last two issues—research with dependent variables and qualitatively enriched research that is used in conjunction with the survey—are the necessary next steps to furthering our understanding of the dynamics of collaborative capacity and simultaneously improving ICC.

Conclusion

At this stage of our research, we have considerable confidence in the usefulness of the ICC model and the ICC survey scales reported here. The model of collaborative capacity in Figure 5 conceptualizes an organization's capability to enter into partnerships as a systemic state. It defines that state in terms of a set of factors (e.g., structural flexibility and metrics) organized into the subsystem domains of strategy, reward systems, structure, lateral processes, and people (Galbraith, 2002; Hocevar et al., 2006; Jansen et al., 2008). This fits into the themes and constructs identified in the literature and our own inductive research. We have created scales to assess the factors that define the state of ICC, and these possess internal-consistency reliability and convergent validity. The items composing the scales suggest action strategies for developing collaborative capacity. Although continuing refinement and validation



is necessary, we believe our attempts are representative of the state of the art in theory and research on ICC.

The problems facing DoD's acquisitions and contracting community are extraordinarily complex and, given resource constraints, uncertain. They do not fit neatly into the categories of academic disciplines or of single agencies or organizations. They require collaboration among people, teams, and organizations from private and public sectors in a global context. Success increasingly requires collaboration to bring together information, knowledge and expertise located in diverse organizations. The ICC survey is designed to be a tool for leaders and managers who face the intellectually and emotionally challenging work of increasing their organizations interorganizational collaborative capabilities.

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