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Assessing the Organizational Capacity to Change

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This research builds on Ghoshal and Bartlett's (1994) concepts of discipline, stretch, trust, and support and Black and Boal's (1994) emphasis on examining the configuration between firm resources and capabilities in creating higher-order competences which can lead to a sustainable competitive advantage. We address empirically how different configurations of stretch, trust, discipline, and support can result in differences in the capacity for change and/or performance. Using worksite data from two *Fortune* 500 companies, operating in different industries, we find that there are some configurations that result in a capacity to change but not in high performance, and vice versa. However, we find that worksites that achieve strategic flexibility, i.e. both high performance and high capacity for change, all have similar configurations.

The resource-based view of the firm began a new orientation in the strategic literature in which practitioners and researchers became open to a view of corporate strategy that, as Rumelt (1994: iv) puts it, "place(s) technology, skill and synergy ahead of cash flow and control". It asserts that a bundle of resources that are valuable in attaining the firm's strategic goals, rare in the competitive arena, inimitable, for which there are few or no substitutes, and which the firm is organized to use (Barney, 1992), enables the pursuit of a sustainable

competitive advantage (Wernerfelt, 1984). Work in this stream now highlights the importance of competence-based competition and of competence as a focal unit of strategy analysis (Sanchez, Heene, and Thomas, 1996).

Much of the empirical work utilizing the concepts of competence-based competition consists of descriptive case studies (Helfat, 1994; Klein and Hisscocks, 1994). These case studies are useful descriptions and illustrations, but their focuses have been weak in prescribing or even illustrating what to do to use, maintain, create, or change competences (Bettis, 1991). To move from generalities and description to specifics and prescription requires more studies, and, more specifically, studies that examine resources at the competency level. This chapter examines the "bundling" or "coordinated deployment" (Sanchez, Heene, and Thomas, 1996) that creates an important aspect of competence, the "capacity to change". We examine the coordinated deployment aspect of competence at three sites to determine if the bundling of resources is similar or different across the sites. This information will help in the movement towards illustrating what to do to use, maintain, create, or change competence by determining what patterns of bundling may be needed for the high attainment of the firm goals.

CONCEPTUAL FRAMEWORK

To examine resources at the competence level requires a clear definition of what a competence is. Sanchez, Heene, and Thomas (1996: 9) define competence as "the ability to sustain the coordinated deployment of assets in a way that helps a firm achieve its goal". Thus a competence is distinguishable by the presence of three conditions: organization, intention, and goal attainment. Black and Boal (1994) suggest that deployment is more than a bundle and is a configuration consisting of embedded resources, their cogency relationships (those enhancing, compensating, or suppressing relationships among them), and substituting relationships. They propose that a competence is composed of the network of the constituent resources and the cogency relationships. They suggest that it is the entire network that should be regarded as "rare" rather than the individual elements separately.

However, to examine how resources may be bundled or deployed as competences, a specific competence is required. While suggested current strategic competences range from communication competences to development competences to option management competences (Choshal and Bartlett, 1994; among others), the ability of a firm to change or to learn has been repeatedly presented as a central feature of

competence (Brumagim, 1994; Hamel and Heene, 1994; Sanchez, Heene, and Thomas, 1996).

Ghoshal and Bartlett (1994) recently proposed that the context in which collective learning can occur consists of a set of four key attributes, which they termed discipline, stretch, trust, and support. Discipline is composed of clear performance standards, fast feedback, open communication, and management by commitment. The second attribute, stretch, is indicated by the presence of a shared ambition for the future across the organization, a collective identity which is epitomized by a mission statement accepted by all and understood by all, and finally by personal meaning where the link between the individual's work and the company priorities gives meaning to the individual's work and a motivation to "stretch". Trust is composed of elements of perceived equity or fair decision making, involvement in decision making, and individual competence which refers to the existence of specialized knowledge and skills at the individual level. The final attribute of support includes access to organizational resources involving inter-group cooperation and communication, autonomy as related to decentralized decision making, or, in other words, the freedom to make decisions, and finally, guidance and help which was evidenced by mutual help within groups and a climate of help, coaching, and support from management. In addition to the presence of these attributes and their embedded resources, Ghoshal and Bartlett (1994) suggest that it is the *gestalt* or the effect of all of these elements on each other as well as their presence that create the organizational context. This orientation of considering a *gestalt* of competence elements is very similar to Black and Boal's (1994) configuration perspective on firm resources in that both consider the entirety and that each element interacts to create that entirety.

Ghoshal and Bartlett (1994) assert that management is responsible for the creation of the organizational context in which collective learning can take place (cf. Baden-Fuller and Volberda, this volume). We agree, but believe there will be wide variability in terms of management's success in doing so, thus the creation of such an organizational context is itself an important aspect of a competence. We term this aspect of competence an *organizational capacity to change*. This meets the criteria of Sanchez, Heene, and Thomas (1996) for competence: it is about the coordinated deployment of firm resources and is intended to attain the goal of creating a necessary condition for collective learning, an orientation to change. Ghoshal and Bartlett have not indicated how the four resources might affect each other. However, the work of Black and Boal (1994) suggests that enhancing, compensating, suppressing, or substituting relationships among the firm's resources are important ways

that resources affect each other. This chapter addresses a key dimension of competence leveraging and building: examining the role of configurations in understanding competence building.

In addition, by investigating the organizational Capacity to Change and Performance, we seek to add insight into strategic flexibility which involves the simultaneous attainment of current performance while maintaining the capacity to change to enable the attainment of future performance. Sanchez and Heene (1996) suggest that strategic flexibility occurs through the use of flexible resources. If the configuration of the make-up of the competence is similar for both the attainment of high levels of an Orientation to Change and Performance, the organizational Capacity to Change appears to be a flexible resource that can be leveraged to facilitate the attaining of strategic flexibility without diminishing the attainment of current performance.

We thus examine three general hypotheses (see Table 7.1). The first hypothesis compares configuration maps associated with Performance levels, the second compares the configuration maps associated with Organizational Capacity to Change levels and the third compares maps across the two dependent variables. The focus is on the configuration among discipline, stretch, trust, and support at high and low levels of an Orientation to Change and Performance.

Given the definition of strategic flexibility as being able both to currently perform and to remain ready to take advantage of emergent opportunities, this set of hypotheses has the added advantage of also enabling a better understanding of strategic flexibility by comparing the Organizational Capacity to Change maps associated with Performance and Orientation to Change with each other. If similar configurations are present across high levels, the Organizational Capacity to Change can be useful for attaining strategic flexibility, as well as organizational learning.

TABLE 7.1 Hypothesis summary matrix

Orientation to Change Performance	Orientation to Change				Performance	
	High Low	High Low	Low Similar	Low Not similar	High Similar	Low Similar
High	High	High	Low	Low	High	Low
Low	Low	Low	Similar	Not similar	Similar	Not similar
High	High	High	Not similar	Not similar	Similar	Not similar
Low	Low	Low	Similar	Similar	Not similar	Similar

METHODOLOGY

SAMPLE

In 1992, the scales used to operationalize the above sets of embedded resources were administered as part of a larger research program via questionnaires to 455 workers at three sites from two different *Fortune* 500 manufacturing organizations situated in the Midwestern part of the United States with an average 90% response rate of all employees at a site. The responses were delivered to the researchers administering the questionnaire and anonymity of respondents and their specific responses was maintained. The non-responses were across hierarchical levels and positions and no apparent non-response bias was detected.

Firm 1 is a consumer products firm and has operated since its founding in a small city with a population of about 100 000 in the mid-western region of the United States. The factory complex, with multiple distinct production sites on the same campus, is within sight of agricultural concerns. The firm takes care of its employees, for example downsizing occurs through normal attrition. The employees are not subjected to seasonal hiring and laying off, since part-time and temporary workers are used to satisfy seasonal demands. The factory site includes interconnected buildings. The offices are in the center of the complex with the factory floors on one side and cafeterias and mixing rooms on the other. Two sites, Sites 1 and 2, at this complex were surveyed. These two sites are physically separated although it was possible that employees from both sites simultaneously visited the corporate cafeteria.

The third site surveyed is one of many operated by the second firm which is in the chemical industry (plastics). Located in a small mid-western town on the outskirts of a large city, its operations included the manufacturing of products that were used by its customers to make their products. This supplier firm has a history of hiring and layoffs.

By choosing these firms, both firm and industry boundaries were spanned. This allowed for an initial examination for context-specific and context-free factors in the Orientation to Change. By thus using both a context-specific and cross-context examination, the usefulness of examining the configuration of a competence can be better evaluated.

VARIABLE OPERATIONALIZATION

The descriptions of the sub-dimensions of discipline, stretch, trust, and support on the part of Ghoshal and Bartlett enabled the matching of

their descriptions to pre-existing scales obtained from the Texas Center for Productivity and Quality of Work Life which included scales originally developed for the Michigan Organizational Assessment Questionnaire and the Survey of Organizations. The dependent variables, Orientation to Change and Performance, are also operationalized with scales from these same questionnaires. To ensure that the constructs of discipline, stretch, trust, and support were adequately captured by the use of these pre-existing scales, each construct was subjected to confirmatory factor analysis using Lisrel 8 (Joreskog and Sorbom, 1993) following standard procedures (Anderson and Gerbing, 1988; Bagozzi and Yi, 1989; Byrne, 1989). Analysis of the data suggested that the scales adequately measured each construct using accepted criteria (Bentler and Bonett, 1980) (α 's ranging from 0.70 to 0.87). These operationalizations were deemed of sufficient reliability to proceed with the analysis.

OPERATIONALIZATION OF CONFIGURATION MAPS

A configuration map for the Organizational Capacity to Change is the configuration of the resources, discipline, stretch, trust, and support, and the set of enhancing, compensatory, and suppressing relationships between them. Black and Boal's set of enhancing, compensatory, and suppressing relationships between the resources can be modeled using interaction terms (Baron and Kenny, 1986). The configuration map is operationalized by the expanded correlation matrix which includes the two-way interaction terms between the resources as well as the resources. The data obtained from each site were used to create the maps of the configurations present at high and low Performance levels and present at high and low Orientation to Change levels. This resulted in four matrices being created for each worksite.

These matrices were compared to each other using the quadratic assignment procedure from the UCINET program to determine the degree of similarity between the matrices. The assessment of the hypotheses involved both within- and between-site comparisons. Thus, the competency maps for high and low levels of Performance and Orientation to Change within each worksite were first compared to each other. Then the between-site comparisons were done sequentially by using each site's map as a separate base reference point. Three sets of decision rules were used. The first, the correlations between competency maps, had to meet traditional criteria of statistical significance (denoted in the results at "*" for 0.05 and "**" for 0.01) to ensure that the observed correlations were not due to chance.

The degree of similarity is assessed by examining both the magnitude and the relative values of the significant matrix correlations. These decision rules examine the absolute difference between significant correlations of two sets of map comparisons. If the difference is smaller for maps at the same level than the difference between levels, then the maps at the same level will be considered "more" similar than the between-level maps. Both the pattern of correlations and the magnitude of the correlations will be taken into account (including examining any overall patterns by level or site) to clarify mixed or very weak results.

RESULTS

The hypotheses were tested as described above. The results of the comparisons within Orientation to Change and Performance and across sites, the quadratic assignment procedure correlations, are found in Table 7.2. The comparisons across the configuration maps associated with the different Performance levels are on the top half of the matrix. The comparisons across the configuration maps associated with the different Orientation to Change levels are on the bottom half. The closer the value in a cell of the matrix is to one, the more similar were the two maps being compared. Table 7.3 reports the interpretations of these comparisons. The only clearly supported hypotheses are those

TABLE 7.2 Configuration map comparisons within dependent variable

	Site 1— high	Site 1— low	Site 2— high	Site 2— low	Site 3— high	Site 3— low
Site 1— high		0.31*	0.90**	0.84**	0.81**	0.93**
Site 1— low	0.61**		0.49*	0.55*	0.48*	0.54**
Site 2— high	0.76**	0.67**		0.83**	0.93**	0.92**
Site 2— low	0.16	0.18*	0.26**		0.75**	0.87**
Site 3— high	0.89**	0.74**	0.93**	0.21**		0.84**
Site 3— low	0.81**	0.71**	0.90**	0.21**	0.94**	

Key: Upper triangle of matrix reports correlations between the configuration maps for Performance and lower triangle reports correlation between configuration maps for Orientation to Change.

TABLE 7.3 Summary matrix of test results

Orientation to Change	Orientation to Change		Performance	
	High	Low	High	Low
Orientation to Change	High	Similar across sites Supported between sites	Similar Not supported between sites	
	Low	Not similar Supported between sites	Not similar Supported Site 2	
Performance	High	Similar Supported at all sites	Not similar Supported Site 2	Similar Supported between sites
	Low	Not similar Supported Site 1	Not supported Sites 2 and 3	Not similar Supported between sites
		Not supported Sites 2 and 3	Not supported Sites 1 and 2	Similar Supported between Sites 1 and 2 and other sites
				Not supported between Site 3 and other sites

that involve the high-high level comparison of Orientation to Change maps, the high-high level comparison of Performance maps, the high-high level comparison across Orientation to Change and Performance, and the low-high comparisons of both Orientation to Change and Performance.

PERFORMANCE HIGH-HIGH COMPARISONS

We hypothesized that the competence configuration map associated with high Performance would be similar across sites. The three high-high comparisons made have significant correlation with magnitudes

ranging from 0.81** to 0.93**. The correlations support a strong degree of similarity between the competence maps and provide strong support for the hypothesis.

PERFORMANCE LOW-LOW COMPARISONS

We hypothesized that the competence configuration maps associated with low Performance levels would be similar across sites. The three low-low comparisons have a set of correlations, which, while significant, are relatively low between Site 1 and the other sites (0.55*; 0.54*) but relatively strong correlation between Sites 2 and 3 (0.87*). There does not appear to be a consistent pattern across all sites. These mixed results indicate that no one configuration of discipline, stretch, trust, and support is associated with low Performance levels. To flesh out our understanding, we turn to the cross-level results, the high-low/low-high comparisons.

PERFORMANCE HIGH-LOW AND LOW-HIGH COMPARISONS

We hypothesized that the competence configuration map associated with a high Performance level would be *different* from the competency configuration map associated with a low performance level. To test this hypothesis, we examined configurations both within and between sites. The comparisons consisted of the high-level map at a specific site being compared with the low-level map from that same site and then compared to the low-level maps of the other two sites. The same pattern is followed with the low-level map at a site being compared to the high-level maps. Of the resulting eighteen correlations (see Table 7.2), six clearly supported the hypothesis that the high and low maps are different upon initial examination (i.e. had low or non-significant correlations). To flesh out this understanding and to examine "relative" dissimilarity, these between-level comparisons needed to be contrasted with the respective high-high and low-low comparisons. This same analysis also enabled further understanding of the low-low comparisons.

When Site 1 is the base of comparison, the four additional comparisons (high-high compared to high-low across sites and low-low compared to low-high across sites) result in three demonstrating a relative but weak difference. When Site 2 is the base of comparison, again three of the four additional comparisons support a relative difference between the maps. When Site 3 is the base of comparison, only

the two comparisons from the high-level maps support there being a relative difference Site 3's low-level maps were more similar to other site's high-level maps than to other site's low-level maps.

In summary, of the twelve additional comparisons, eight support there being a relative difference. Of the four that do not support there being a relative difference, three are when the Site 3 low-level map is in the comparison. Since the high degree similarity behind the high and low maps at Site 3 appears responsible for the mixed results, we conclude that there may be weak relative difference between high and low configurations of relationships between discipline, stretch, trust, and support for high and low perceptions of Performance.

ORIENTATION TO CHANGE HIGH-HIGH COMPARISONS

We hypothesized that the competence configuration map associated with a high orientation to change level would be *similar* across sites. The three high-high comparisons made had significant correlations ranging in magnitude from 0.76** to 0.93**. Since the magnitudes support a moderate high to high degree of similarity, the configurations of discipline, stretch, trust, and support are deemed similar at high levels of Orientation to Change.

ORIENTATION TO CHANGE LOW-LOW COMPARISONS

We hypothesized that the competence configurations associated with a low Orientation to Change would be similar across sites. The three low-low comparisons made had resulting correlations of 0.18*, 0.21*, and 0.71**. The two very low magnitude correlations indicate that the map in use at Site 2 is very different from the maps at Sites 1 and 3. There was a moderate degree of similarity between Sites 1 and 3. Again the low-level maps do not appear to have a consistent pattern across sites. These mixed results indicate that no one configuration of discipline, stretch, trust, and support is associated with low Orientation to Change levels. We again turn to cross-level comparisons to flesh out our understanding of these results.

ORIENTATION TO CHANGE HIGH-LOW AND LOW-HIGH COMPARISONS

We hypothesized that the competence configuration map associated with a high Orientation to Change level will be *different* from the

competence configuration map associated with a low Orientation to Change level. To test this hypothesis, we followed the same procedure used to examine high and low levels of performance. Again nine comparisons are done for the high-low comparisons and nine comparisons for the low-high comparisons. Of the 18 comparisons (see Table 7.2), seven correlations (across five of the six site comparisons) supported the hypotheses of different configuration maps for the different levels. Further analysis was needed to reveal relative differences. This required the between-level comparisons to be contrasted with the respective high-high and low-low comparisons.

Again starting with Site 1 as the base of comparison, only the high-level map comparisons support there being a relative, but weak, difference. Because Site 2's internal high-low and all low-high comparisons were of such low magnitudes, the hypothesis was supported in the earlier analysis, and no further analysis was needed. Even when the cross-site differences of the high-level maps are examined, weak relative differences are found. When Site 3 is the base comparison, again the high-level map comparisons support relative differences while the low-level map comparisons do not.

In summary, of the 10 additional comparisons examined, six comparisons support there being a relative difference. Of the four that do not support there being a relative difference, all occur when the comparison base point is a low level map. We conclude that there are relative differences in the configurations of discipline, stretch, trust, and support for high and low levels of Orientation to Change when the comparison point is a high level map. This reinforces our earlier conclusion that a wide range of low level Orientation to Change maps are possible.

ORIENTATION TO CHANGE AND PERFORMANCE: HIGH-HIGH COMPARISONS

Further illumination is provided when comparisons are made across Performance and Orientation to Change and across levels. These comparisons are shown in Table 7.4.

In keeping with ideas about strategic flexibility, we hypothesized that the competence configuration map associated with a high Performance level would be similar to that associated with a high Orientation to Change level. Support was found at all sites (0.84**, 0.94**, 0.91**). This leads to support for the concept that high Orientation to Change levels and high Performance levels have similar maps of configurations of the relationships between discipline, stretch, trust,

TABLE 7.4 Comparisons across orientation to change and performance

Site 1		Orientation to Change		Performance	
		High	Low	High	Low
Orientation to Change Performance	High	0.61**			
	Low	0.84**	0.89**		
	Low	0.52*	0.05	0.31**	
Site 2 Orientation to Change Performance	High	0.26**			
	Low	0.94**	0.22*		
	Low	0.90**	0.17*	0.83*	
Site 3 Orientation to Change Performance	High	0.94**			
	Low	0.91**	0.90**		
	Low	0.95**	0.94**	0.84**	

and support. This suggests that the high performers and the high orientation to change holders require similar configurations to attain those high levels. This implies that the variability found in the competence may be attributable to the miscoordination of discipline, stretch, trust, and support.

CROSS-ORIENTATION TO CHANGE AND PERFORMANCE: LOW-LOW COMPARISONS

Two of the three sites did not support the hypothesis that the maps between low levels within a site would be similar. Sites 1 and 2 had low level maps with correlations of 0.05 and 0.17 respectively. Site 3 did support similarity across dependent variables with the low-level maps (0.94*). In interpreting the above results, we note the differences in the patterns at each site. Site 1 has the lowest set of correlations, indicating that the maps are the most different among the high and low levels at that site. The range in magnitude of similarity evidenced by the wide correlation range (0.17* to 0.94**) at Site 2 really shows that the low Orientation to Change map is very different from the other maps at that site. Site 3's set of correlations shows the highest degree of similarity across all levels and types of maps.

CROSS-DEPENDENT VARIABLE: LOW-HIGH AND HIGH-LOW COMPARISONS

Except for the previously mentioned case of strategic flexibility, we hypothesized that the competence configuration maps for a low Orientation to Change level and high Performance level would be different and vice versa. This was supported at Site 2 (0.22*) but not at Sites 1 and 3 (0.89** and 0.90**) for the low Orientation to Change and high Performance comparisons. This indicates that those that have a low Orientation to Change have different configurations from the high performers at Site 2. However, at Sites 1 and 3, high performers have similar maps to those with low Orientation to Change.

With respect to high-low comparisons, support was found at Site 1 (0.52*) but not at Sites 2 and 3 (0.90** and 0.95**). This indicates that the low-level configurations between discipline, stretch, trust, and support were indeed different between having a high Orientation to Change and low Performance at Site 1. At Sites 2 and 3, the two maps were very similar.

The set of significant correlations between configurations that are in the 90s indicates that there is high similarity across all configurations. This provides some support for the arguments that performance and orientation to change are not necessary polar opposites. This shows that there is a very similar pattern across these levels. What it does not indicate is whether the overall firm is relatively oriented to change, relatively resistant to change, or just what change is being considered. If the firm is relatively oriented to change, then this pattern may be indicative of the presence of strategic flexibility.

DISCUSSION

SITE 1

This site had similar high-level Orientation to Change maps, high Performance maps, and low Performance maps with the other sites. It also supported the dissimilarity between the high and low maps within any dependent variable. There was mixed support from this site for the similarity of low-level Orientation to Change maps.

The correlation of 0.84** between the high-level maps of Orientation to Change and Performance indicates that those with a high perceived Orientation to Change had configurations for discipline, stretch, trust, and support more similar to those who perceived a high level of firm effectiveness on Performance measures than they were similar to those

who had a low Orientation to Change or low Performance map. When the low-low cross-dependent variable (0.05) comparison is made, it is evident that there are very different configurations present in the low-level maps due to the low magnitude of the correlation.

Perplexing is the Orientation to Change/Performance low-high correlation of 0.89** which is greater than the high-high cross-comparison correlation of 0.84**. This says that those who perceived their organization to be effective have an Organizational Capacity to Change map that is slightly *more similar to a low* than a high Orientation to Change map!

There may be a number of reasons for this finding. An obvious one is that those who perceive high performance currently may not see any reason to change. This attitude may be due to the buffering from external market conditions that Firm 1 provides their employees. They might not have really internalized a reason to change and so are not as open to change. If so, this same pattern might show up for Site 2 as well.

Another reason might be that those with a high Orientation to Change map may be too willing to change and thus are always on the leading edge of the experience curve and hence are not the top performers. The top performers may be the ones that wait and see what happens with a new change and what glitches occur before stepping in on the backs of those who went before, a sort of early second-mover syndrome.

This pattern of similarity does not work in reverse. Although those with a low perception of Performance have maps more similar to those with a high Orientation to Change than those with a low Orientation to Change, it is still very different from the similarity between the two high maps. In other words, they do perceive a need to change that is closer to the high Orientation to Change map but still not as close as those with a high perceived Performance level.

SITE 2

Site 2, with the smallest number of employees, like its sister site had similar maps for high-level Orientation to Change, high-level Performance, and low-level performance with the other sites. There was also a difference between the high- and low-level Orientation to Change maps, the high- and low-level Performance maps, and across low-level Orientation to Change maps.

This site also has a great similarity between its Orientation to Change/Performance high-high maps (0.94**). However, it also has

one low-level map that is more similar to the high maps than the other low map. In this case, it is the low perceived Performance map which is more similar to the high Orientation to Change map (0.90**) than it is to the high Performance map (0.83**). This is in contrast to Site 1 (Site 1 had a low Orientation to Change map more similar to a high Performance map than to the high Orientation to Change map). Buffering may not be a firm-wide reason for differences. The low Performance map is not as similar to the high Orientation to Change map as the high Performance map was. It is, however, very different from the map of those with a low Orientation to Change level (0.17*).

Even though Sites 1 and 2 are samples from the same organization, Site 2 has employees with a low Orientation to Change level whose *Capacity to Change* map is very different from any other map. This difference is even more than that between the low-level Performance map and the low-level Orientation to Change map at Site 1. Because both the levels of the Performance maps at Site 2 are very similar to the high-level Orientation to Change map, it may be that both Performance levels are motivated to consider change but for different reasons. Perhaps those with high Performance perceptions see a need for change to keep up the performance level (maintain performance in a changing world) while those with low perceived Performance see a reason to change now (to personally do better and get the rewards associated with high performance). This study did not include a contextual base for the orientation to change items in the survey, so motivation cannot be determined.

SITE 3

While Site 3 is only one site of many that Firm 2 has, it has a medium number of employees that falls between the numbers for Sites 1 and 2. This firm did not have a policy of protecting its employees from the fluctuations of the marketplace. This firm was further up the value change and is a supplier firm whose customers use their products as raw materials.

Support was provided by Site 3 for similarity of high-level Orientation to Change maps and high-level Performance maps across sites. Support was also provided for the relative dissimilarity of high and low maps across sites. Support was not provided for the dissimilarity of high and low maps within Site 3.

Site 3 had overall high levels of similarity between all maps. The lowest similarity was between those with high perceived performance and those with low perceived performance (0.84**). But that was just

as high as the magnitude of the correlation at Site 1 for indicating similarity. The consistent similarity across the maps may indicate several scenarios:

1. All employees may be aware of reasons to change brought about by the awareness of how marketplace fluctuations directly affected them.
2. High and low levels of perceived Performance respondents may be open to change for different reasons (see discussion for Site 2).
3. Those who see the firm as needing to improve performance also are open to changing it and those who see the firm as currently being effective see continued need for change.
4. Something other than *Organizational Capacity to Change* is affecting both Performance perception and Orientation to Change perception.

Again, this study has not included the necessary information to tease out motivation and specific contextual issues. Despite this need for further analysis evident at all three sites, some trends are evident from this analysis.

IMPLICATIONS FOR STRATEGY THEORY, RESEARCH, AND PRACTICE

Our first implication is that the *Organizational Capacity to Change* from Ghoshal and Bartlett's model also appears in manufacturing firms in the midwestern United States. The patterns of similarity and the significant correlations lend support to the generalizability of Ghoshal and Bartlett's attributes of an organizational context. This is particularly so since their model was examined here at sites that were in different industries and countries from the site where they developed the model. The use of survey questions also facilitates the identification of deployment issues their linkages to performance (coordination/organization issues) by practitioners.

Second, the existence of similar maps (those that included the interaction terms operationalizing the cogency relationships suggested by Black and Boal, 1994) remained robust even when the data were standardized, thus implying that the similarity was attributable to something other than the mathematical relationships involved in the operationalization of the cogency relationships. This then lends support to Black and Boal's assertion that the relationships among the resources involved in the competence are also important to the creation and utili-

zation of the competence. The existence of significant correlations between matrices lends support to the concept that it is not only the resources that are important in the determining of a competence but also the relationships between the resources.

We believe it is the management of the relationships between resources that is the key to creating competences on which to build a competitive advantage. This is clearly a mechanism through which hierarchy can aid in achieving the competitive advantage and strategic renewal (cf. Baden-Fuller and Volberda, this volume). In this vein, perhaps the most significant of the findings was the high degree of similarity of the configuration associated with high Orientation to Change and high Performance. This held true across sites and industries. This implies that managers can create contexts that support organizational learning without compromising their ability to attain high levels of current performance.

A final lesson to be learned from this study is that there are many ways to fall short of having a successful capacity to change. Some of those ways are very similar to those that work at other sites. This implies that competence is very sensitive to changes in the relations among the four underlying resources. Minor variations can spell the difference between success and failure.

In summary, in addressing firm resources at the level of analysis of the competence, we found that in some sites how the resources are "bundled" appears to make a difference by competence level and/or performance level. This analysis showed one way to untangle some of the elements so that competences can be consciously managed. This project utilizes what is best about previous empirical work—fineliness (quantitative cross-sectional surveys) and contextualization (firm-specific information)—thus providing a potentially powerful tool in the examination of firm resources and competences, as well as replication of this study in other industries and firms.

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8

Strategic Defense and Competence-based Competition

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We draw on the competence-based competition literature to develop the construct of Strategic Defense. This encompasses strategies used to defend the firm's bundle of competences against threats to its rent-producing capacities. These strategies include a narrow range of intelligence activities, along with a broad range of defensive actions within two generic defense strategies: Preservation and Alteration. Preservation is aimed at sustaining rents, whereas Alteration seeks to develop substitutes and make existing competences more flexible. We outline specific tactics associated with each generic strategy, and develop a model which incorporates the external and internal factors affecting the decision to invest in Strategic Defense. The empirical results suggest that intense competition is a catalyst to investment in strategic defenses, particularly the creation of alternative resources. Older and larger firms tend to rely on Preservation strategies, such as deterrence and deployment prevention. Also, firms' governance structures are shown to help in determining their approach to Strategic Defense. The results further indicate that low-performing firms tend to invest more in Preservation tactics, whereas high-performing firms mainly invest in intelligence activities and in attempts to deter competitors. High-performing firms also invest more in maintaining