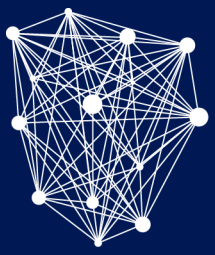

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EDITORIAL

In our editorial accompanying the launch of Journal of Organization Design (Vol. 1, Issue 1, 2012), we said that the field of organization design offers a true opportunity to bridge the worlds of scholarly research and management practice. We were pleased to announce the establishment of an open access journal dedicated entirely to advancing the theory and practice of organization design. Special features of JOD include a dual emphasis on theory and practice, an orientation toward the future, openness to methodologies that allow for organizational prototyping, and a forum for the discussion of new organizational forms. JOD introduced four different article formats which enable authors to find the proper voice for their work (research articles, translational articles, point of view articles, and urgent issue articles). Judging the various articles published in Vol. 1, we believe that JOD is headed in the right direction, and we are optimistic about its future.

In this editorial, we present our plans for JOD in 2013-14. The first issue of Vol. 2 continues in the tradition of Vol. 1 but with one additional feature: a new article category called Case Study. A case study article is based on the experience of a single organization, and this versatile format can be used to introduce a new concept, refine an existing theory or concept, illustrate or demonstrate an application, describe a new organization design, present an unusual or complex design problem in need of analysis, and so on. We are excited about the case study format and believe that it adds value to JOD's already wide repertoire of article formats.

In 2014, JOD will begin to publish Special Issues based on conferences sponsored by the Organizational Design Community. Because JOD, as an open access journal, can publish an unlimited number of articles in every issue, a special issue can be combined with a regular issue or it can appear as a stand-alone issue. The next ODC-sponsored conference is the World Summit on Big Data and Organization Design which will be held in Paris, France on May 16-17, 2013. A special issue based on this conference will appear in 2014. Other ODC-sponsored conferences are Making Organization Design Knowledge Actionable (Orlando, Florida on August 9, 2013) and Performance Management (Aarhus, Denmark in June 2014), and one or both of these conferences will result in the publication of a special issue. We encourage any member of the Organizational Design Community to propose a special issue on a timely and important organization design topic. Of particular interest are topics that JOD is trying to promote including strategic foresight, organizational prototyping, organizational agility, and public sector organization designs.

In conclusion, we believe that JOD has established itself as a valuable new journal and one that will grow and improve. We welcome your comments and suggestions, and we look forward to receiving your papers.

Børge Obel
Charles C. Snow
Co-Editors

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MISFITS IN ORGANIZATION DESIGN

INFORMATION PROCESSING AS A COMPENSATORY MECHANISM

BEN NANFENG LUO • LEX DONALDSON

Abstract: We propose a compensatory misfits theory which holds that an "over-fitting" organization structure can compensate for an "under-fitting" structure, thereby reducing the total misfit. In organizations, over-fit occurs when structural features misfit the core contingencies because the structural level is too high to fit the contingencies. An under-fit occurs when structural features misfit the contingencies because the structural level is too low. When an under-fit is compensated by an over-fit, the combination can produce performance outcomes that approximate those from fit. The reason inheres in information processing being a higher level factor that cuts across different contingencies and structural features that are mis-fitted to each other, so that compensation is possible. We identify the specific conditions that must be fulfilled for compensation to occur, and we discuss implications for organization design theory and practice.

Keywords: Over-fit; under-fit; misfit; fit; compensatory misfits; compensatory effect; contingency theory; information processing

Organization design follows the idea that the best design for an organization is one that fits its situation (Donaldson, 2001). Achieving fit means aligning organizational features to contingency factors such as uncertainty (Burns & Stalker, 1961; Lawrence & Lorsch, 1967), strategy (Miles & Snow, 1978; Rumelt, 1974), and size (Child, 1975). The resulting design will be the best in the sense that it will allow the organization to meet its goals, including that of high performance. The emphasis in organization design, therefore, is on identifying misfits and changing them into fits. We suggest, however, that sometimes misfits may produce outcomes that begin to approach the same positive outcomes as fits. Furthermore, it may be better to retain misfits rather than change them into fits because changing the organization's design may incur substantial costs. Such "beneficial" misfits only occur in certain situations, and we identify them in this conceptual article.

Our compensatory misfits theory is based on the information processing perspective which has long served as the theoretical foundation of organization design (Galbraith, 1974). Contingencies are viewed as the information-processing requirement, while organization structure is viewed as the information-processing capacity to meet that requirement (Burton, Lauridsen, & Obel, 2002, 2003; Egelhoff, 1991; Keller, 1994; Tushman & Nadler, 1978). When information-processing capacity matches the information-processing requirement, there is a fit. Otherwise, if information-processing capacity is not equal to the information-processing requirement, there is a misfit. Under-fit occurs when information-processing capacity provided by the structure is lower than the information-processing requirement of the contingency. In contrast, over-fit occurs when information-processing capacity exceeds the information-processing requirement. Our compensatory misfits theory adopts the information processing perspective in identifying fits, misfits, and interactions among misfits. The theory posits that the excess information-processing capacity of the over-fit may

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be used to compensate for the deficiency in information processing capacity of the under-fit.

Our article proceeds as follows. The next section positions compensatory misfits theory within the structural contingency theory tradition. Following that, we discuss the notion of compensatory information-processing mechanisms. Third, we discuss the simultaneous occurrence of over-fit and under-fit, along with non-routine information processing and its costs, as they pertain to compensatory misfits theory. Fourth, we discuss the implications of our proposed theory for organization design theory and practice. The final section presents our conclusion.

STRUCTURAL CONTINGENCY THEORY

Organization structure has long been an important topic in management and organization research (Donaldson, 1987; Doty, Glick, & Huber, 1993; Meyer & Rowan, 1977; Perrow, 1967; Rumelt, 1974). Structure continues to enjoy popularity in the recent literature and is a major focus of managers and consultants who design and redesign organizations (Birkinshaw, Nobel, & Ridderstrale, 2002; Burton, DeSanctis, & Obel, 2006; Gulati & Puranam, 2009; Siggelkow, 2002; Siggelkow & Rivkin, 2005; Turner & Makhija, 2012; Wasserman, 2008). One influential approach for examining the design of organization structures is structural contingency theory (Burns & Stalker, 1961; Donaldson, 2001; Lawrence & Lorsch, 1967; Thompson, 1967). The core idea is that to design a high-performing organization, structure needs to fit key contingencies such as uncertainty, strategy, and size. Misfits between an organization's structure and its contingencies lead to performance loss. For example, a major contingency of structure is environmental uncertainty. In an uncertain environment, organization structure needs to be "organic" to be in fit, in order to be flexible enough to innovate, while in a stable environment it needs to be "mechanistic" to be in fit, to ensure efficiency (Burns & Stalker, 1961).

Misfits occur when the actual structural level is different from the structural level which fits the contingency level. There are two types of misfits: over-fit and under-fit (Klaas & Donaldson, 2009; Klaas, Lauridsen, & Håkonsson, 2006; Naman & Slevin, 1993). Over-fit is where a structural level is higher than the ideal amount required by the contingency variable. Under-fit is where a structural level is lower than the ideal amount required by the contingency variable. Considered independently, both over-fit and under-fit have negative effects on performance.

COMPENSATORY INFORMATION-PROCESSING MECHANISMS

The key idea of compensatory misfits theory is that *under certain conditions an over-fit can compensate for an under-fit*. The excess resources from the over-fit make up for the deficiency of resources in the under-fit. This can occur when the resources provided by both misfits are substitutes for each other. Such a condition holds where information processing serves as the primary mechanism for achieving overall fit. That is, the contingencies taken together represent the organization's need to conduct information processing, and the structural variables taken together provide information-processing capacity. The excess information-processing capacity of the over-fit substitutes for the deficient information-processing capacity of the under-fit. In this way, an over-fit can compensate for an under-fit. However, the compensation can only occur when the over-fitting structure can provide non-routine information processing. Thus, the three conditions that must be met simultaneously for compensation to occur are: (1) the simultaneous presence in an organization of both an over-fitting and an under-fitting structural variable; (2) each structural variable contributes to information-processing capacity; and (3) the over-fitting structural variable can contribute to non-routine information processing. Pairs of misfits that meet all three conditions produce superior performance outcomes to those produced by two over-fits or two under-fits. Moreover, an organization in misfit might do better to retain the under-fit and over-fit, rather than change them into two fits, because of the costs such reorganization might incur. Lastly, although the three conditions tend to reduce the occurrence of compensation, another consideration tends to increase the occurrence of compensation. That is, compensation holds not only for misfits

to the same contingency variable but also for misfits to different contingency variables, so long as both structural variables are involved in information processing.

If over-fit and under-fit are simultaneously present in an organization, the possibility comes into view that the over-fit may compensate for the under-fit. Here the two misfits jointly produce positive outcomes that are approximately the same as the outcomes produced by two fits. The reason the possibility of compensation exists inheres in information processing being a higher level factor that cuts across different contingencies and structural variables involved in misfits (Galbraith, 1974, 1977; Klaas & Donaldson, 2009; Klaas et al., 2006; Tushman & Nadler, 1978). According to Galbraith (1977: 53), the information-processing structures and their capacities "are added to the organization's repertoire." In this sense, the structural variables can satisfy the information-processing requirement of the contingency *collectively* rather than separately. Klaas et al. (2006) discuss how several different structures can contribute to the overall information-processing capacity of the organization. Likewise, numerous contingency variables could all contribute to the demand for information processing in the organization. For example, high task uncertainty requires more generation and analysis of decision options, while a strategy of diversification adds complexity from dealing with different products or markets, so that both contingencies contribute to the information-processing demand on the organization. Thus, the fit of the structures to the contingencies is the fit of the structures taken together to the fit of the contingencies taken together. Hence, the information-processing capacities of multiple structural variables should be considered as a whole as to their fit to the information-processing requirement of the contingencies as a whole. This implies that the over-fit of one structural variable and the under-fit of another should be taken into account jointly in terms of information-processing capacity.

As shown in Figure 1, the over-fit (S_1 is greater than C_1 in the left side of Figure 1) has more than enough information-processing capacity, which opens the door for the compensation of information-processing capacity by this over-fit. Such compensation can only occur, however, when there is also an under-fit (S_2 is less than C_2 in the right side of Figure 1) that has insufficient information-processing capacity, so that the organization is in a position to use the extra information-processing capacity of the over-fit. In other words, when a structural variable is in under-fit, the *extra* information-processing capacity of the over-fit of another structural variable can be beneficial.

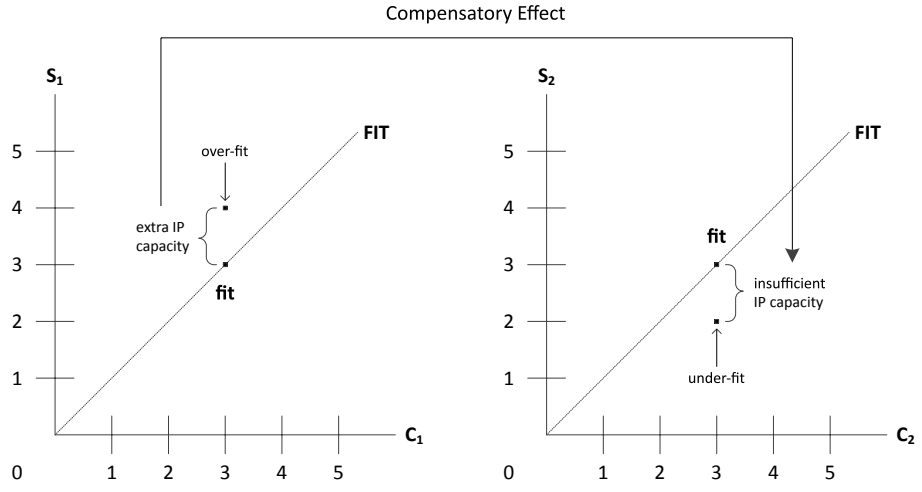

Fig. 1. Compensatory Effect of Over-fit on Under-fit

If one structural variable is in under-fit, then this structural variable has insufficient information-processing capacity and is unable to fully meet the information-processing requirement of its contingency. In this case, the structural variable (S_2) that under-fits its contingency (C_2) processes some information but leaves some information unprocessed. The structural variable (S_1) that over-fits its contingency (C_1) uses its extra information-processing capacity to process that information, so all information gets processed. The extra information-processing capacity of the over-fit (S_1) does not directly strengthen the information-processing capacity of the structural variable that is in under-fit (S_2). Rather,

the extra capacity of the over-fit (S_1) is utilized as a supplement to the structural variable in under-fit (S_2) to process the information that the under-fit cannot process. We illustrate this point in the example below of how over-fit in occupational specialization compensates under-fit in formalization.

The extra capacity of the over-fit is a "waste" when there is no under-fit requiring compensation. The extra capacity of over-fit easily appears to be a waste when it is considered in isolation from the under-fit it compensates. However, when both over-fit and under-fit are present together, the extra capacity of the over-fit increases the overall benefit from the combination of over-fit and under-fit. To illustrate, the contingency variable of task uncertainty imposes certain information-processing requirements on both of the two structural variables of formalization and occupational specialization (Hage, 1965, 1980). For both structural variables, there is a level that fits the organization's level of task uncertainty and other levels that misfit it. Suppose that Alpha Company is a U.S. electronics manufacturer with a plant in Mexico that employs non-English speaking workers who need to be guided by clear rules and standard operating procedures (i.e., high structural formalization) given the repetitiveness of their work (i.e., there is low task uncertainty). Even though there are rules and standard operating procedures, however, they are not enough to thoroughly guide the workers; the workers are sometimes unsure of what to do next and lack the information that would provide valid guidance. Here, formalization under-fits task uncertainty. Nevertheless, these employees are well-educated and work in a structure of high occupational specialization in which they develop knowledge about effective work practices. The degree of occupational specialization exceeds that required by the level of task uncertainty; this variable is in over-fit. The specialists educate their colleagues about effective work practices. They know the best ways to run each of the machines and can communicate this information among themselves. In this way, the extra occupational specialization compensates for the insufficient formalization, so that the deficiency stemming from the too low formalization is overcome. The information-processing capacity of the combined structural variables meets that required by the task uncertainty, resulting in overall fit.

In such cases, the overall benefit of the combination of one over-fit and one under-fit is greater than the sum of the individual benefits of these two misfits. The combination of one over-fit and one under-fit collectively achieves much of the level of benefit as the combination of two fits, since the former combination is able to satisfy the same total information-processing requirement as those two fits. Thus, theoretically, the two misfits of over-fit and under-fit interact in the way they affect organizational performance rather than both having independent, negative effects on performance.

SIMULTANEOUS OCCURRENCE OF OVER-FIT AND UNDER-FIT, AND NON-ROUTINE INFORMATION PROCESSING AND ITS COSTS

For compensatory misfits theory to apply, there has to be more than one misfit present in the organization, but this can occur in several ways. First, more than one structural variable can be contingent on a particular contingency factor (Burns & Stalker, 1961; Donaldson, 2001; Hage, 1980). For example, the size contingency can be mis-fitted by both decentralization and formalization. It is possible that one of those structural variables over-fits the contingency factor while another under-fits the same contingency factor. Second, a structural variable may have a misfit to more than one contingency variable simultaneously (Burton et al., 2002, 2003; Donaldson, 2001; Gresov, 1989, 1990). For example, formalization can misfit uncertainty and size. It is possible that the structural variable over-fits one contingency factor while under-fitting the other contingency factor. Third, a structural variable could under-fit a contingency variable while a different structural variable over-fits another contingency variable. Thus, theoretically, there are several possible combinations of misfits between structures and contingencies because some contingencies are mis-fitted by multiple structures, some structures misfit multiple contingencies, and misfits need not share a structure or contingency to be compensatory. These various misfits create many potential situations where an over-fit and an under-fit could occur simultaneously.

Considering the organization from a dynamic perspective, the simultaneous occurrence of over-fit and under-fit is more likely when multiple contingencies are changing in different directions – for example, when some are declining and some are growing. According to Structural Adaptation to Regain Fit (SARFIT) theory (Donaldson, 1987, 2001), decline will tend to produce over-fits and growth will tend to produce under-fits. There are several contingencies that influence whether the organization declines or grows. For compensation to occur there needs to be simultaneously both a contingency causing decline, which creates over-fit, and another contingency causing growth, which creates under-fit. This would exist, for instance, if the organization was growing in size, making its existing formalization level an under-fit. Simultaneously, the organization might be in an environment that is becoming more certain, so the existing high decentralization that previously fitted the uncertain environment has become an over-fit. The over-fit could compensate for the lack of formalization by having managers lower in the hierarchy make decisions rather than relying on organizational rules. In sum, the multiple misfits that are possible between structures and contingencies increase the likelihood that there may be in an organization the combination of an over-fit and an under-fit, so that the over-fit provides the excess information-processing capacity that compensates for the deficiency from the under-fit. While simultaneous under-fits and over-fits may be a common occurrence in organizations, however, simultaneity alone is insufficient to create compensation between the misfits. An additional relevant variable is the routineness of information processing.

Over-fit can compensate for under-fit only if the over-fitting structure allows for non-routine information processing. The substitution between routine and non-routine information-processing capacities is a one-way rather than two-way path. On the one hand, non-routine information-processing systems are also capable of processing routine information (Egelhoff, 1991). For example, an autonomous team, a non-routine information-processing mechanism, is also able to perform ordinary, standardized work. Therefore, when this non-routine information-processing structure (i.e., the autonomous team) is in over-fit, part of its capacity can be used to process codified information about routine operations if there is insufficient processing capacity for routine information in the organization.

On the other hand, routine information-processing structures are not able to process non-routine information, so routine structures cannot substitute for non-routine structures (Egelhoff, 1991). For example, standard operating procedures are not flexible enough to deal with exceptional events. Hence, an over-fit of routine information-processing structures cannot provide extra information-processing capacity to the under-fit of non-routine information-processing structures.

The compensation of over-fit on under-fit also has cost implications. Routine information processing achieved by compensatory non-routine information-processing structures may not be as cost-effective as routine information-processing structures (Egelhoff, 1991). This higher cost is readily apparent in the example of using an autonomous work team, rather than less autonomous workers controlled by standard operating procedures, to conduct routine work. Investments made to increase the flexibility and capability of an autonomous work team are largely wasted in the standard day-to-day tasks.

In summary, the direction of the compensation of information-processing capacity can only be from non-routine to routine information-processing structures. Moreover, this compensation has higher costs compared with processing routine information using a routine information-processing structure. The total cost of one over-fit and one under-fit is thus greater than that of two fits, making the combination of over-fit and under-fit less optimal. However, as will be shown below, there are also costs associated with changing misfits to fits, so it may be rational to maintain the combination of over-fit and under-fit.

DISCUSSION AND IMPLICATIONS

The compensatory misfits theory proposed here needs empirical testing to ascertain its validity. If valid, the theory has several theoretical implications. First, it reveals the theoretical possibility of the compensation of information-processing capacity from over-fit to under-fit. The concept of compensation is in line with recent academic interest in organization design

elements and their effects on performance (Rivkin & Siggelkow, 2003, 2007; Van de Ven, Leung, Bechara, & Sun, 2012), and compensation appears to warrant further investigation concerning where it applies.

Second, the extra information-processing capacity of over-fit is analogous to organizational slack (Child, 1972; Tang & Peng, 2003) in that over-fit buffers the structure of the organization from needing always to change to fit the contingencies. However, whereas organizational slack often refers to surplus financial resources (Child, 1972), compensatory misfits refers to misfits between structures and their contingencies.

Third, the idea of compensatory misfits does not imply equifinality (Gresov & Drazin, 1997). We show that, due to the compensatory effect, the combination of over-fit and under-fit can possess the same level of information-processing capacity and therefore can realize the same performance benefits as two fits. However, in articulating the third condition of the compensatory effect, we also show that for a non-routine over-fitting structure to process routine information, the cost is higher than for a routine information-processing structure to process routine information. In this way, the combination of over-fit and under-fit incurs higher cost in information processing and so produces less performance than the combination of two fits. Hence, these two combinations are not equifinal in terms of performance. Our compensatory misfits theory is not the same as equifinality.

Fourth, we clarify the boundary of functional equivalence in information processing (Galbraith, 1977; Gresov & Drazin, 1997). We suggest that not all combinations of over-fit and under-fit provide the same amount of information processing. We show that the over-fit of a *non-routine* structural variable and the under-fit of a routine structural variable can produce superior performance over two misfits, whereas the over-fit of a routine structural variable and the under-fit of a structural variable cannot.

Fifth, the concept of compensatory misfits proposed here is distinguishable from the meaning of compensatory fit as used by Gulati and Puranam (2009). While both compensatory misfits and compensatory fit are concerned with the compensation between structural variables, these two terms have some distinctive theoretical properties. Compensatory misfits refers to the interactions between formal structural variables whereas compensatory fit is the interplay between formal and informal structures. Moreover, the focus of compensatory misfits is on how structural variables interact with the same function (information processing) while the focus of compensatory fit is on how the formal and informal structures achieve two conflicting yet desirable functional demands (cost-effectiveness and differentiation).

The compensatory misfits theory also has implications for existing empirical research findings. For instance, in the Burton, Lauridsen, and Obel (2002, 2003) study the additional misfits beyond the "bottleneck" (i.e., largest, single) misfit (Klaas et al., 2006) had no significant decrease in performance. That multiple misfits in organizations can have less reduction in performance than expected may be explained by compensatory misfits theory. That is, the remaining, relatively small misfits may include enough over-fits and under-fits that they tend to cancel out their effects on organizational performance. Future research could examine such results to see if multiple misfits in the same organization contain both under-fits and over-fits that are reducing performance loss.

The compensatory misfits theory also has several practical implications. Instead of eliminating over-fit, as according to the traditional view, organizational designers should sometimes maintain over-fit – or even create over-fit. The compensatory misfits theory suggests that compensation from the combination of over-fit and under-fit can create information processing that is more beneficial than that from two misfits. However, as seen above, the costs for information processing are higher than for two fits, because the over-fit has to provide non-routine information processing that is more costly than fits which provide routine information processing. Therefore, the combination of two fits remains more beneficial than the combination of an over-fit and an under-fit. Nevertheless, the costs of structural changes may sometimes render the maintenance of one over-fit and one under-fit organizationally rational.

There are costs involved in moving from the over-fit and under-fit condition to the condition of two fits. The exact level of the structural variable that fits the contingency(ies) may be unknown to the managers of an organization, so there are costs of deciding such as

obtaining experience and dealing with uncertainty – although these costs might be mitigated by using available design/redesign software like OrgCon (Burton & Obel, 2004). There are also costs of changing the organizational structure such as training, hiring, or terminating employees or redesigning support systems (Greve, 1999). Only if the additional performance from changing from over-fit and under-fit to two fits is greater than the costs of the change is it rational for an organization in over-fit and under-fit to change them to fits. Thus, depending upon the values of these performance and cost levels, it may be optimal for an organization to remain with the two compensatory misfits of over-fit and under-fit.

Going further, it may be rational for an organization to intentionally create over-fit. This is where the organization anticipates that in the future it will have an under-fit because an existing level of a structural variable will become a misfit to a new, higher level of a contingency (e.g., the organization is growing), so the existing level of formalization that fits the present size will become an under-fit). Here the creation of an over-fit of another structural variable proactively prepares for the future under-fit of the first structural variable. In this way, an organization can lessen the structural liability of growth (Stinchcombe, 1965). Organizations are able to increase their degree of overall fit and thus lose less performance in the long term.

In summary, compensatory misfits theory suggests that managers and organizational consultants should change their mindsets that all misfits are bad. They should be aware that over-fits can be valuable in the present and perhaps be an investment for the future. Therefore, maintaining or even creating over-fit can be a beneficial choice – especially when the organization is growing. Nevertheless, such beneficial over-fit can only be created in structural variables that contribute to non-routine information processing, such as in autonomous teams. In contrast, over-fit in routine structural variables, such as by having too many rules and standardized procedures, should still be avoided.

CONCLUSION

The compensatory misfits theory holds that the combination of one over-fit and one under-fit can perform better than traditionally expected from contingency theory due to the compensation of information-processing capacity from the over-fit to the under-fit. The compensation is possible because the demands for information processing posed by the contingencies collectively are met by the structural variables collectively. Nevertheless, the combination of an over-fit and an under-fit performs worse than the combination of two fits. This is because the over-fit will typically have to provide non-routine information processing which is more costly than an under-fit providing only routine information processing. Hence, the compensatory combination of an over-fit and an under-fit can perform better than two misfits but less than two fits. There are, however, costs of changing from the combination of an over-fit and an under-fit to two fits. Only if these costs are less than the superior performance from two fits will it be rational for an organization with a simultaneous over-fit and under-fit to change them into fits.

The conditions required for compensatory misfits theory to apply are restrictive: an under-fit and an over-fit should be maintained if their simultaneous presence provides compensating, non-routine information processing and if the change to two fits would be more costly than the benefits it adds. In these conditions, an organization should rationally retain compensatory misfits. Furthermore, an organization may create an over-fit in anticipation of a future under-fit for which the over-fit will compensate.

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EMPLOYING YOUNG TALENT FROM UNDERSERVED POPULATIONS

DESIGNING A FLEXIBLE ORGANIZATIONAL PROCESS FOR ASSIMILATION AND PRODUCTIVITY

ARTHUR M. LANGER

Abstract: This article describes an ongoing 13-year-old program designed to improve the ability of organizations to assimilate young talent from underserved populations, mostly students who have recently graduated from high school. Although many firms have internship and orientation programs, few have well-tested organizational approaches for assimilating 17-20 year-olds into their organizations in an efficient and productive manner. The objective of this study is to describe and evaluate the solution introduced by Workforce Opportunity Services (WOS), a non-profit agency that provides organizations with well-trained talent from underserved local communities. The WOS model is a systemic design involving a lead agency (WOS), corporate clients, training partnerships with local colleges and universities, and underutilized human capital. Over 290 students have completed the WOS program and obtained long-term employment, mostly in IT jobs that normally are outsourced. The results of the study show that companies have success employing young talent when they follow the WOS organizational process. Companies need to have patience with WOS student employees, but within six months most members of the WOS program make positive contributions to their sponsoring firm and have a strong likelihood of becoming permanently employed. Implications of the WOS model for organization design are discussed.

Keywords: New organizational forms; outsourcing; workforce development; mentoring; adult development theory; workplace transformation; workplace literacy

Over the past 20 years, the increased outsourcing of jobs in the United States and Europe has led to significant social and economic problems in many countries. Outsourcing has contributed to growing unemployment among underserved populations including disadvantaged youth and returning military veterans. Indeed, the employment rate for teens in U.S. households making less than $20,000 is nearly 20 percent less than their counterparts (16-19 years of age) in households whose incomes are between $75,000 and $100,000 (Fernandez-Alcantara, 2012). Returning military veterans have been similarly disadvantaged in the workforce, even though their skill levels typically are higher (Kleykamp, 2012). Workforce Opportunity Services (WOS) was created as one means of solving employment problems caused by outsourcing. The WOS approach is based on the belief that disadvantaged youth can be trained for jobs in areas such as information technology that would normally be outsourced offshore. WOS has developed an organizational model that has successfully placed 292 young individuals in such jobs. This article describes the WOS approach, presents data on its effectiveness, and discusses the main design issues faced by these intermediary organizations.

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WORKFORCE OPPORTUNITY SERVICES

Concept and history

The idea to create WOS was the result of a five-year study on workplace literacy conducted by Columbia University in New York City (Langer, 2003). That program involved 48 residents of public housing projects from the inner-city area and provided a community-based alternative to vocational education. Participants received training and mentoring plus guidance on how to seek jobs in information technology. Overall, the research was designed to understand the challenges of underserved young learners and how to help them develop skills that would enable them to effectively compete for jobs in the workplace. Participants attended classes at Columbia University one evening per week. During the training period, a select group of ten students was given the opportunity to work at companies on a trial basis. The participants' performance was measured based on their ability to perform IT functions as well as how they contributed to their assigned work teams.

The results of the study showed that the participants were capable of doing the work but needed mentoring and training to better develop their communications skills and individual self-esteem. Furthermore, the research showed that corporations were ill prepared to assimilate young talent from underserved populations because they did not have the infrastructure or the management experience to properly develop such individuals. The study also concluded that existing degree programs at this prestigious institution of higher education fail to provide the necessary combination of applied knowledge and communication skills necessary for underserved young adults to compete for jobs. The research suggested the need for a different model that could assist underserved populations to compete for skilled jobs while also allowing them to achieve post-secondary college degrees on a part-time basis. This new model needed to provide individuals with what Andrew Carnegie called "ladders of ascent," the ability for students to continue to advance socially and economically based on their previous accomplishments. Within the context of the study, the model needed to provide such individuals with a certificate program from a recognized college or university that would provide technical skills training, a job within a short period of time to address their desperate need for income, and a value proposition for corporations that would give them a pipeline of diverse talent but also a "try before you buy" employment arrangement. The model was actualized when the researcher created an organization called Workforce Opportunity Services (WOS) which was launched in 2005.

WOS is a U.S.-based non-profit organization licensed as a 501 (c) 3 charity. The social mission of WOS is to educate, train, and hire adults from underserved populations or those that are "socially excluded" from the mainstream, and to place them in companies as outsourced consultants. Firms can decide at some later point to convert them to permanent employees. Thus, WOS provides companies with a flexible option for finding talent that fits their needs. Moreover, by offering opportunities to those individuals who may not otherwise have the wherewithal to find the requisite training and education for a job, WOS facilitates their personal, professional, and financial independence and provides both the firm and the individual with assistance in matching organizational needs with the necessary talent. This flexible option is attractive to many organizations, since firms may have restrictions on hiring employees at any given time. With the WOS relationship, they can still utilize talent as outsourced consultants and convert them to employees when the option for employment is more favorable.

WOS has also established an economic development center in France and is currently developing centers in The Netherlands and Great Britain. WOS seeks corporate and educational sponsorship that enables the development of a pipeline of talent for hire. These centers provide a systemic flow of funds from the work performed by their employees who are local students simultaneously completing their education while working. Since WOS is a non-profit (or NGO), and because work is performed in local communities, the costs are very competitive with for-profit outsourcing services offered abroad.

Organizational process

The WOS model is a "just-in-time" on-demand approach. Employers determine the specific talent demographic they want and where they want the resources to be located. For example, an employer can request a specific ethnicity and gender for certain jobs, and it can specify the desired location. WOS has a defined implementation model but is flexible enough to provide for employers with special needs. The components and sequence of the WOS organizational process are described in the following sections.

Curriculum design. Each client provides WOS with the number of consultants needed and identifies the specific skills required. As stated above, clients can also determine the specific demographic preferences of the students they want as well as where to recruit students (specific local communities or schools). WOS completes a formal needs assessment document with the client. After reaching a joint agreement, WOS transforms the needs assessment document into a formal academic curriculum. Such curricula vary in length and by number of courses. The curriculum is implemented with a partnering college or university to conduct the training and issue the certificate. Table 1 shows the existing WOS installations and partner institutions of higher education.

Table 1. WOS Installations and Higher Education Partner Institutions

City	State/Country	Partner College/ University	Number of Corporate Clients	Student Consultants
Various	New Jersey	Rutgers University	10	154
Various	New York	Columbia University	10	56
Jacksonville	Florida	University of North Florida	1	17
Charlotte	North Carolina	University of North Carolina	1	13
Philadelphia	Pennsylvania	Penn State University	1	11
Allentown	Pennsylvania	Penn State University	1	11
Dubuque	Iowa	Northeast Iowa Community College	1	10
Hartford	Connecticut	Western Connecticut State University	1	10
Paris and Lyon	France	Groupe IGS	2	6
Cleveland	Ohio	University of Akron	1	4
Total			29	292

The agreement with the institution covers a specified number of students. The institution provides classrooms and instructors, although WOS assists in recruiting skilled teachers if needed. Sometimes client employees are hired directly by the institution if the topics to be covered in the course are client specific. Typical curricula include technical courses and special courses in business communication, writing skills, and personal development. The "soft skill" courses improve a student's success in transitioning culturally into the company. Certificate programs usually require students to take four classes per term for three terms. Typically, the classes meet two nights per week for 13 weeks. Other certificate programs vary depending on the specific needs of the client. An example of the Quality Assurance curriculum is provided in Appendix 1.

Recruitment. WOS recruits students by holding multiple information sessions at local public schools where formal applications are accepted. WOS personnel meet with students and parents to help applicants determine whether the WOS opportunity fits their interests and needs. Sponsoring clients often attend sessions to answer specific questions about their work environments. Applicants must complete a pre-certification before being accepted into the program. The pre-certification usually comprises six two-hour classes held weekly for six weeks. Students' skills are tested on logic, communication, and writing. Instructors also measure students' attendance, promptness to class, general behavior, tardiness in assignments, and academic performance. A faculty and client meeting is scheduled, and acceptances are jointly made to select a cohort of students.

Assessment of student readiness. During the courses, students are required to write learning journals. These journals cover various topics assigned by the instructors. The purpose of the journals is to determine a student's status and progress across the Langer Workforce Maturity Arc (Langer, 2003). The LWMA is an instrument designed specifically to measure students' readiness for assimilation into a corporate environment. Learning journals are coded qualitatively by identifying cues that are used to create and maintain an individual arc for each student. Weaknesses in a particular student's workplace maturity are noted, and individual actions are determined to help students progress to more realistic thinking and reflection and thus make them more valuable employees for the sponsoring company. For example, if a student has limited communication skills, then a separate plan is developed to help develop growth in that area. Ultimately, a student's arc is representative of his or her chances of success in the workplace.

Students complete the first term of the certification in the evening, two nights per week. Two of the courses are designed to ensure that students have attained requisite work skills to be productive when they start to work. After successful completion of the first term, students are then employed by WOS and assigned to start work, typically at the client's site. To aid in assimilation, WOS usually employs students part-time (three days per week) to start while students continue to take four courses during the next two academic terms (26 weeks). Thus, students work three days and attend night school on the other two days. The rationale for this approach is to gradually teach students how to balance work and school. By the end of the third term, students earn a certificate and work full-time for WOS. Students are then funded to continue their college studies in the evenings to earn their bachelor's degree. Thus, over about a year's time, students engage in basic skills training (first term), work part-time for two academic terms (six months), complete their certificate, and become a full-time salaried WOS employee consulting for the client. After serving in this capacity for at least one year, the client has the option to employ the student.

Student consulting process. A Client Service Manager (CSM) is assigned by WOS to work in conjunction with the client. The ratio of students to CSM does not exceed 20:1. That is, for every 20 students employed there must be a dedicated CSM even if there are more than 20 students working for the same client. The CSM works closely with the client, student supervisors, and assigned HR personnel to ensure that students are assessed properly. A student's progress is monitored closely by the CSM. A client-designed performance review is completed quarterly along with a student's self-evaluation of his or her own progress. This process ensures that the client's view and the student's view of performance are reconciled. During the evaluation period, the CSM and client take any appropriate corrective actions. Those actions may include (a) academic tutoring to improve technical aptitude; (b) social support to develop communication skills; and (c) formal warning of unacceptable behavioral patterns such as spotty attendance, tardiness, or unprofessional demeanor. CSMs also communicate concerns about the ways in which certain client supervisors are managing students. This typically includes concerns about giving enough assignments or being available to answer questions. In some instances, client supervisors are uncooperative with students, show a disinterest in their development process, or even are prejudiced against a student of a certain ethnicity. In these cases, the CSM might suggest a reassignment of the student to a different client supervisor.

WOS performance and success

WOS has expanded in the United States during its first seven years of operation to nine client-designated locations. During its first three years of operation, WOS had a conservative growth plan and tested its methodology with over 200 underserved adults in the New York City area before expanding the operation to other locations. However, the agency has doubled in the number of students employed in the last three years and forecasts expanding to five new locations in 2013. In 2010, WOS broadened its focus beyond just underserved high-school graduates by also supporting returning enlisted veterans from the Iraq and Afghanistan wars. Currently, WOS employs over 75 veterans and expects to significantly expand support of this underserved population in the future. In 2012, WOS established a center in France, demonstrating that the model can be applied internationally. The agency is currently holding

discussions about its model with companies in The Netherlands and Great Britain. To date, WOS has permanently placed 292 consultants at 22 diverse clients. Most of these clients are in the United States across the nine locations, although six students are now active in France. Ninety-two students have been hired away as permanent employees from WOS clients. Table 2 presents key employee statistics on the largest clients of WOS.

Table 2. WOS Client Organizations and Employee Statistics

Firm	Industry	Total Company Employees	Total WOS Contracted Resources	WOS Current Consultants	WOS Consultants Converted to Employment	Training In Progress
Finance A	Financial Services	35,000	93	24	45	24
Health A	Healthcare	4,700	56	43	3	10
Insurance A	Insurance	5,400	22	11	1	10
Software A	Software Solutions	3,000	23	0	23	0
Health B	Healthcare	13,120	9	7	2	0
All Others	Various		89	65	18	6
Total			292	150	92	50

RESEARCH STUDY

WOS has an ongoing research program that examines various aspects of its operations. The study reported here was done in Finance A, an anonymous name of one of WOS' sponsoring firms in the financial services industry. Finance A was selected because it: (a) was WOS' first client and has the longest association as a sponsoring firm; (b) has the largest population of WOS employees; (c) has converted the largest number of WOS student employees to permanent employees; and (d) has implemented the program in four different geographic locations. The sample that is the focus of this study includes the 46 students converted to employment and the 23 WOS consultants currently working at various Finance A locations. Forty-eight students are veterans and 21 are high-school graduates. Table 3 shows demographic information on the Finance A sample.

Table 3. Demographic Statistics on the Finance A Sample

	Total	Gender		Ethnicity			
Student Type		Male	Female	White	African American	Asian / Pacific	Hispanic / Latino
High School	21	15	6	2	8	2	9
Veterans	48	34	14	13	27	2	6
Total	69	49	20	15	35	4	15

Langer Workforce Maturity Arc

As stated earlier, the Langer Workforce Maturity Arc (LWMA) was developed to help evaluate a student's preparation to succeed in the workplace. The LWMA, initially known as the Inner-City Workplace Literacy Arc:

> *... charts the progression of underserved or 'excluded' individuals along defined stages of development in workplace culture and skills in relation to multiple dimensions of workplace literacy such as cognitive growth and self-reflection. When one is mapped in relation to the other (workplace culture in relation to stages of literacy assimilation), an Arc is created. LWMA traces the assimilation of workplace norms, a form of individual development. (Langer, 2003: 18)*

The LWMA addresses one of the major challenges confronting an organization's HR group: to find talent from diverse populations that can successfully respond to evolving business norms, especially those related to electronic and digital technologies. The LWMA

provides a method for measuring the assimilation of workplace cultural norms and thus can be used to meet the mounting demands of an increasingly global, dynamic, and multicultural workplace. Furthermore, if organizations are to attain acceptable quality of work from diverse employees, assimilation of socially or economically excluded populations must be evaluated based on (a) if and how individuals adopt workplace cultural norms and (b) how they become integrated into the business (Langer, 2003). Understanding the relationship between workplace assimilation and its development can provide important information on how to secure the work ethic, dignity, solidarity, culture, cognition, and self-esteem of individuals from underserved populations.

Theoretical constructs of the LWMA

The LWMA encompasses *sectors of workplace literacy* and *stages of literacy development*, and the Arc charts business acculturation requirements as they pertain to underserved adult learners. The relationship between workplace assimilation and literacy is a challenging subject. A specific form of literacy can be defined as a social practice that requires specific skills and knowledge (Rassool, 1999). In this instance, workplace literacy addresses the effects of workplace practices and culture on the social experiences of people in their workday as well as their everyday lives. We need to better understand how individual literacy in the workplace, which subordinates individuality to the demands of an organization, is formulated for diverse groups (Newman, 1999). Most important is the ways in which one learns how to behave effectively in the workplace – the knowledge, skill, and attitude sets required by business generally as well as by a specific organization. This is particularly important in underserved communities which are marginalized from the experiences of more affluent communities in terms of access to high-quality education, information technologies, job opportunities, and workplace socialization. Prior to determining what directions to pursue in educational pedagogies and infrastructures, it is necessary to understand what workplace literacy requirements are present and how and when they can be developed.

The LWMA assesses individual development in six distinct sectors of workplace literacy:

1. *Cognition*. Knowledge and skills required to learn and complete job duties in the business world including computational skills; ability to read, comprehend, and retain written information quickly; remembering and executing oral instructions; and critically examining data.
2. *Technology*. An aptitude for operating various electronic and digital technologies.
3. *Business Culture*. Knowledge and practice of proper etiquette in the workplace including dress codes, telephone and in-person interactions, punctuality, completing work and meeting deadlines, conflict resolution, deference and other protocols associated with supervisors and hierarchies.
4. *Socio-Economic Values*. Ability to articulate and act upon mainstream business values which shape the work ethic. Such values include independent initiative, dedication, integrity, and personal identification with career goals. Values are associated with a person's appreciation for intellectual life, cultural sensitivity to others, and sensitivity for how others view their role in the workplace. Individuals understand that they should make decisions based on principles and evidence rather than personal interests.
5. *Community and Ethnic Solidarity*. Commitment to the education and professional advancement of persons in ethnic minority groups and underserved communities. Individuals can use their ethnicity to explore the liberating capacities offered in the workplace without sacrificing their identity (i.e., they can assimilate workplace norms without abandoning cultural, ethnic, or self-defining principles and beliefs).
6. *Self-esteem*. The view that personal and professional success work in tandem, and the belief in one's capacity to succeed in both arenas. This includes a devotion to learning and self-improvement. Individuals with high self-esteem are reflective about themselves and their potential in business. They accept the realities of the business world in which they work and can comfortably confirm their business disposition independently of others' valuations.

Each stage in the course of an individual's workplace development reflects an underlying

principle that guides the process of adopting workplace norms and behavior. The LWMA is a classificatory scheme that identifies progressive stages in the assimilated uses of workplace literacy. It reflects the perspective that an effective workplace participant is able to move through increasingly complex levels of thinking and to develop independence of thought and judgment (Knefelkamp, 1999). The profile of an individual who assimilates workplace norms can be characterized in five developmental stages:

1. *Concept Recognition*. The first stage represents the capacity to learn, conceptualize, and articulate key issues related to the six sectors of workplace literacy. Concept recognition provides the basis for becoming adaptive to all workplace requirements.
2. *Multiple Workplace Perspectives*. Ability to integrate points of view from different colleagues at various levels of the workplace hierarchy. By using multiple perspectives, the individual is in a position to augment his or her workplace literacy.
3. *Comprehension of Business Processes*. Individuals increase their understanding of workplace cooperation, competition, and advancement as they build on their recognition of business concepts and workplace perspectives. They increasingly understand the organization as a system of interconnected parts.
4. *Workplace Competence*. As assimilation and competence increase, the individual learns not only how to perform a particular job adequately but how to conduct oneself professionally within the workplace and larger business environment.
5. *Professional Independence*. Ability to employ all sectors of workplace literacy to compete effectively in corporate labor markets; obtain more responsible jobs through successful interviewing and workplace performance; and to demonstrate leadership abilities leading to greater independence in career pursuits. Professionally independent individuals are motivated and can use their skills for creative purposes.

The LWMA is a matrix that charts an individual's development across the six sectors of workplace literacy. Each cell within the matrix represents a particular stage of development relative to that sector of workplace literacy, and each cell contains definitions that can be used to identify where a particular individual stands in his or her development of workplace literacy. Figure 1 shows an example of the LWMA.

	Stages of Workplace-Culture and Labor-Market Literacy				
Sectors of Workplace Literacy	Concept Recognition	Multiple Workplace Perspectives	Comprehension of Business Processes	Workplace Competence	Professional Independence
Cognition					
Technology					
Business Culture					
Socio-Economic Values					
Community and Ethnic Solidarity					
Self-esteem					

Fig. 1. Langer Workforce Maturity Arc
Source: Langer (2003)

Methodology

The study was conducted in Finance A using an ethnographic technique of participant observation with group and individual interactions (Denzin & Lincoln, 2000). Journal writing was the main method of coding the LWMA to determine student readiness for the workplace. Students were required to write a weekly semi-structured learning journal during the mentoring course at the college certificate program. A semi-structured journal carries a certain amount of imposed form or constraint regarding the manner in which it is written. Its purpose is to benefit both instructor and student. The instructor obtains value by receiving

information on a range of formats and topics. This allows the instructor to compare student responses and reflections and obtain feedback on specific discussions and lectures – all to help determine student progress. The mentoring course spanned the entire certificate program (39 weeks or 39 distinct learning journals per participant). Journal topics were assigned weekly and designed by the instructor to gather data needed to code each individual LWMA and measure a student's growth. For example, typical journal topics required students to write about their experiences at work, challenges in learning new skills, and their personal development in general. Furthermore, the learning journals were designed to assist students in improving their comprehension of technical concepts. The literature offers evidence that students, regardless of the course topic, improve their learning by keeping journals, especially non-traditional learners in computer training courses (Langer, 2002). Further, Langer's (2009: 46) research showed that "mentors consistently encourage [reflective writing] for successes in classroom projects, employment settings, group discussions and reflection through weekly journaling, where students can increase their self-efficacy and self-esteem." Student growth was also measured at the client site, where the CSM and client jointly conducted three-month reviews that addressed the sectors of the LWMA. Reviews were completed using two forms, one a self-evaluation by the student, the other the client's standard review form. Journals, student performance reviews, and group discussions were all coded thematically and mapped onto the LWMA by two independent raters. A total of 2,691 journal entries were reviewed for Finance A (39 journals for 69 students).

Group discussions with the client and executive management interviews were conducted to ascertain the effects of the WOS organizational process on the Finance A organization. Further, ethnographic observations and participation by the CSM as an integrated member of the client's management team enhanced conclusions about the effectiveness of the WOS approach, particularly with respect to student assimilation of the workplace experience. Students converted to client employees were also monitored and assessed for continued professional growth. This assessment measured growth based on (a) individual promotion, (b) progress in completing a bachelor's degree, and (c) participation with future WOS client-sponsored cohorts.

Analytical method

Learning journals were coded to the LWMA by mapping what students write and by looking for cues that help determine an individual's maturity across the Arc. Journal assignments are constructed to require students to write about all sectors of the LWMA. Once a student demonstrates a cell level of maturity along the Arc, the coder can establish that the individual has reached that level of maturity. Each week's journal is coded using a different shade to display growth across the sectors of the Arc. Thus, each student has an individual arc that is tracked through the process of training to employment. Appendix 2 provides an example of an actual student coding and mapping to the LWMA.

RESULTS

This section presents the data used to measure students' progress across the LWMA in Finance A and assesses the changes administrators made to Finance A's existing organization in order to assimilate WOS graduates.

Maturity arcs

Students who completed the first term of the certification scored evenly across the six sectors of Stage 1: Concept Recognition. Seventy-five percent of the students also progressed to Stage 2: Multiple Workplace Perspectives in three other sectors: Cognition, Business Culture, and Self-esteem. During the following three-month period, where students worked at the client part-time (three days per week) and attended classes two evenings per week, 78 percent progressed to Stage 3: Comprehension of Business Processes in three sectors: Technology, Business Culture, and Self-esteem. Upon graduation from the certificate program where students also completed six months of part-time work, 42 percent advanced to Stage 3 in

Cognition, and 16 percent moved to Stage 4 in Workplace Competence in the Technology sector. Table 4 shows the summary Arc of the Finance A students.

Table 4. Stages of Workplace Literacy for Finance A

	Stages of Workplace Literacy				
Sectors of Workplace Literacy	Concept Recognition	Multiple Workplace Perspectives	Comprehension of Business Processes	Workplace Competence	Professional Independence
Cognition					
Technology					
Business Culture					
Socio-Economic Values					
Community and Ethnic Solidarity					
Self-esteem					

1st Term 2nd Term 3rd Term

Overall, these results show that students who are accepted into the WOS program after completing a pre-certification meet the minimum processing capacities across the Arc. Those students all scored in Stage 1 (Concept Recognition) across all sectors of the Arc. This suggests that pre-certified students have the ability to learn material and concepts as a precursor for advancing to subsequent stages of workplace maturity. Also, most students had already advanced to Stage 2 (Multiple Workplace Perspectives) of the Arc at the end of the first term before they entered the employment part of the program. The Finance A results confirm that those students who have advanced to Stage 2 at the end of the first term in the three sectors of Cognition, Business Culture, and Self-esteem tended to outperform those that were still in Stage 1. This finding confirms the results of previous research by Langer (2009) that self-esteem and integration with mentors in the workplace correlate with student assimilation into the workplace. At Finance A, most students reached Stage 3 in all sectors except Socio-Economic Values and Community and Ethnic Solidarity by the time they graduated from the 39-week certificate program. This result is significant in that it justifies the importance of students being able to deal with multiple workplace perspectives and learning how to transform their own beliefs to be consistent with those of the organizations where they work. Students who cannot transform in this manner, regardless of their cognitive processing abilities, are less likely to succeed. The lower scores in the final sector (Community and Ethnic Solidarity) are attributable to the relative importance to the client. In other words, a student's ability to relate back to his or her original community and low-income environment is not as relevant to the client as the other sectors. Whether or not more focus on the Community and Ethnic Solidarity sector improves performance and assimilation is unknown at this time.

The LWMA has served to provide WOS with a reliable instrument in the selection of students for the workplace. The results of the LWMA in this study of Finance A are consistent with WOS' other clients in that the lower the maturity of the student, the less the likelihood that he or she will achieve sustained success in assimilating into the organization. Table 5

shows further statistics on the use of the LWMA across WOS' various clients, resulting in an average 91 percent retention rate of students among their employers.

Table 5. WOS Supply and Retention Rates for Recent Cohorts

Client	Original Request for Students	Students Supplied	Current Number of Employed Students	Initial Supply Rate (Percentage)	Retention Rate (Percentage)
A	8	8	6	100	75
B	6	6	6	100	100
C	5	5	4	100	80
D	25	22	17	88	77
E	15	15	14	115	93
F	10	15	12	125	80
G	7	7	7	100	100
H	1	1	1	100	100
I	4	4	3	100	75
J	8	9	9	112.5	100
K	2	2	2	100	100
L	8	8	7	100	86
M	5	5	4	100	80
N	2	2	2	100	100
O	4	4	4	100	100
Total	108	113	98	105 (Average)	91 (Average)

Organizational changes at Finance A

Finance A's implementation began in 2005 in its Information Technology (IT) department. During the next eight years, the firm expanded into non-IT areas such as call center operations and project management. In 2010, the CEO asked WOS to expand the program to include enlisted veterans returning from the Iraq and Afghanistan wars. The executive sponsor for Finance A is the Chief Information Officer (CIO). Interviews were conducted with the CIO, the Vice President of Human Resources (HR), and with personnel who directly manage WOS student consultants. Interviews were conducted by WOS personnel and by a graduate student from Columbia University (Ijdens, 2013).

Finance A originally partnered with WOS to help establish a staff augmentation program in its IT organization. The CIO was concerned about the increasing number of retirements among older employees as well as the decline of available trained IT workers in the U.S. The WOS model offered an opportunity to train underserved local students and place them in jobs soon to be vacated by retiring employees. After the success of the first cohort, the CIO made the following organizational changes at Finance A:

- Created a dedicated project manager to determine positions that could benefit from the WOS program. This project manager was empowered to seek opportunities throughout the company, both inside and outside of IT, where WOS could potentially provide value. These areas of opportunity were typically positions that were hard to fill because of the lack of supply of trained candidates. For example, it can be difficult to find candidates to take positions that are deemed to be less than "leading edge." Such jobs are called "legacy" operations because they support older computer systems. Colleges and universities do not typically offer courses for these older systems. WOS' tailored training could address this shortfall and potentially bring a new cost-effective breed of talent.
- Expanded the role and responsibilities of the Vice President of HR to create a new architecture on how WOS students would be transformed from WOS consultants to full-time employees of Finance A. This required HR to formalize the internship portion of the program, engage managers in the selection process during the pre-certification, and ultimately produced a process that assigned a WOS student to the

appropriate job opportunity.

- Designed a unique WOS student evaluation system for use by Finance A managers. The new evaluation process needed to be integrated with the traditional employee review system. This meant modifying the evaluations to work with consultants (WOS) who eventually would be converted to a Finance A employee. Furthermore, managers needed to design a new system that allowed them to apply a measurement value that could be compared with other alternative solutions for new talent. In this way, managers could understand the true value of the WOS model compared with alternative solutions.
- Formed an advisory cabinet that reassigned WOS students who showed advanced capabilities. Finance A discovered that 25 percent of WOS students were capable of handling more responsibility and could contribute at a higher rate than others. The advisory cabinet also addressed demographic issues for future cohorts, specifically the number of high school graduates versus veterans, and the balance of gender and ethnicity of students.

The implementation of the WOS program at Finance A has led to a new infrastructure that blends the specialized needs of student consultants with traditional systems at the firm. For example, Finance A is considering an outsourced alternative that would use WOS students instead of traditional offshore vendors. In this design, WOS would provide traditional third-party outsourcing but doing so at locations in the U.S. This process has required a formalized valuation against competing third-party alternatives, providing competitively weighted criteria for assessment of where and how to use WOS in this regard.

IMPLICATIONS FOR ORGANIZATION DESIGN

Finance A represents only one of 22 current sponsoring organizations of WOS. The changes made at Finance A to accommodate WOS students are significant for a large organization and yet representative of the experiences with other organizations. For example, executive sponsorship coupled with the eventual acceptance of the line managers are major factors for creating new organizational designs. It took three years for the results of two cohorts of students before the organizational changes became comfortable to Finance A. This can be attributed to the cultural control that line managers have in an organization. Executive sponsorship is critical for initiating change, but line managers are the salient components for fostering new and systemic organizational design. The implications of the WOS program on organizational design can be classified into five areas: social responsibility through shared value, culture of collaboration, work-life balance, supply chain shifts and relational contracting, and open innovation.

Social responsibility through shared value

Porter and Kramer (2011: 64) state that companies need to formulate a new method of integrating business profits and societal responsibilities: “The solution lies in the principle of shared value, which involves creating economic value in a way that also creates value for society by addressing its needs and challenges.” These authors suggest that companies need to expand the definition of corporate performance to include social progress. The WOS model is consistent with this direction as it is based on partnerships among businesses, educational institutions, and communities. Each of the interested parties experiences progress towards its financial and social objectives. Specifically, Finance A is able to attract diverse talent, have the student consultants trained specifically for its needs, and attains an economic return that fits its business models. The educational institution fulfills its desires to educate underserved populations through a funding source that provides administrative support, tuition costs, and mentoring to improve completion rates. Finally, the community adds jobs, which reduces crime rates and increases tax revenues. Thus, the funding corporation establishes an ecosystem that provides a shared value of performance consistent with Porter and Kramer’s concept.

Culture of collaboration

WOS integrates services collaboratively among its clients. The ability to collaborate both internally and externally is becoming increasingly important in the 21st century (Miles et al., 2010). WOS' approach establishes collaboration among various departments within the corporate client. The strategy to recruit, train, and employ workers can be viewed differently by the various internal stakeholders of an organization. Often each stakeholder's business has unique requirements that need to be integrated with other interdependent departments. Finance A is an example of a firm that has multiple business lines with unique and sometimes competing needs. WOS, because of its social mission and willingness to collaborate to come up with customized solutions, has minimized resistance to collaboration among disparate business units.

Collaborations among WOS clients have resulted in the formation of communities of practice, where members representing each business unit participate in the further development and expansion of the WOS model. Furthermore, new communities of practice have been formed outside the sponsoring firms, where multiple clients collaborate on such issues as best practices, shared investments in WOS, and the provision of services to local communities. These collaborations have resulted in the formation of an official advisory board of sponsoring clients who provide ongoing direction and support to the WOS mission.

Work-life balance

Young adults from underserved populations are more likely to have trouble balancing personal, social, and educational challenges with work obligations (Langer, 2003). The WOS model is designed to help this population achieve the requisite balance. While corporations traditionally expect employees to quickly assimilate and manage this process on their own, they need to create new organizational designs that allow this type of worker to transition over time to become productive members of the workforce. WOS provides a cushion for transitioning young adults by providing mentoring and financial support outside the boundaries of the sponsoring company. At the same time, WOS collaborates with the client to insure that some support mechanisms, if necessary, are executed outside of what might be considered standard practice within the sponsoring corporation.

The WOS model also emphasizes the importance of lifelong learning to the student consultants. As such, WOS consultants who are hired away by companies continue to attend college part-time in the evening while maintaining their full-time employment. This process has resulted in accelerated skills development through a process of learning and doing (Schank, 1995). In general, the learning and doing process provides a mechanism that improves sense-making by its participants. Through better sense-making, WOS-converted employees have been able to better balance competing priorities brought on by work requirements.

Supply chain shifts and relational contracting

Large companies are challenged to organize resources in supply chains in various locations throughout the world. Supplies of workers at the right cost have shifted significantly over the past 20 years and will likely continue to be a dynamic variable in the 21st century. Many of these shifts in worker populations relate to shifts in urbanization and the cost of labor. Ketchen et al. (2012) suggest that firms move toward a "best value" approach in the design of their supply chains and by investing strategically in their workforces. Ketchen et al. (2012: 66) define a best value approach as one where:

> *firms have enjoyed significant improvements in both efficiency and effectiveness by moving away from a focus on cost and toward a focus on total value added for the customer.*

To accomplish this best value approach, contractors need to be viewed as a partner rather than a mere vendor or supplier. This is called "relational contracting," and it focuses on the building of long-term relationships to avoid uncertainty and constant monitoring. Ketchen et al. (2012: 66) state that "organizations whose personnel have the highest levels of knowledge, skills, and abilities have been found to be the most efficient and effective."

The WOS model advocates a partnership relationship with clients. This partnership helps WOS consultants to reach an effective level of performance in order to become eligible to be hired away by the sponsoring company. This organizational design provides a sustainable process to replace older workers who are preparing to leave the workforce. Furthermore, the WOS model allows sponsoring firms to find skilled resources in favorable geographic locations. For example, WOS and Finance A are considering an outsourced operation in El Paso, Texas which has a significant supply of college students and veterans at lower employment costs than much of the rest of the United States. Without the WOS partnership, it would be difficult for Finance A to establish this supply chain shift in time to respond to a changing competitive landscape.

Open innovation

Organizations are challenged to keep up their competitiveness when they try to innovate only from within (Chesbrough, 2003). Indeed, the complexity of boundaries is challenging companies to "pursue a range of boundary options that include 'closed' vertical integration, strategic alliances with key partners, and 'open' boundaries characteristic of various open innovation approaches" (Tushman et al., 2012: 24). WOS provides such a range of boundaries by allowing an organization to adopt all or portions of a self-defined strategic alliance that best fits its own industry and culture. For example, the open innovation process at Finance A allowed the business to successfully recruit war veterans, which in the past had failed within the confines of a closed innovation model. Open innovation, in this case, allowed a lower-cost provider, WOS, to transform Finance A's market penetration to not only attract veterans but also to successfully train and prepare them for careers in the workforce.

In summary, the WOS model provides important new organizational designs – features that allow corporations to have flexible choices in the way they employ and use talent. The WOS design suggests that organizations use a non-profit entity that can compete effectively on cost and quality while providing a structured but flexible partnership. Such relationships are critical for firms competing for global resources because of the growing need for specialized skills with alternative options for employment.

CONCLUSION

WOS is an organizational model that can provide firms with the ability to assimilate cost-effective, well-trained talent recruited from underserved populations. By adopting WOS's integrated design of facilitator (WOS), educator (college or university), and employer (corporate client), organizations can successfully use socially excluded populations as a source of employment. The Langer Workforce Maturity Arc is a tool that can be used by organizations to measure the readiness of young adults to successfully respond to evolving business norms. Furthermore, the WOS model establishes new organizational designs that address social responsibility through shared value, culture of collaboration, work-life balance, supply chain shifts and relational contracting, and open innovation. Finally, organizations should utilize non-profit business partners similar to WOS when considering talent sources from local markets as an alternative to offshore outsourcing.

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APPENDIX 1

Core Courses in the Quality Assurance Curriculum

Quality Assurance Fundamentals
Systems Analysis & Design
Quality Principles and Concepts
Test Planning, Design, and Execution
Test Automation Tools, Methods, and Scripting
Quality Assurance Laboratory

APPENDIX 2

Example of a Coded Learning Journal

Self-esteem					
Community and Ethnic Solidarity					
Socio-Economic Values					
Business Culture					
Technology					
Cognition					
Stages of Workplace Norm Assimilation	Concept Recognition	Multiple Workplace Perspectives	Comprehension of Business Process	Workplace Competence	Professional Independence

Concept Recognition/Cognition

In the analyst course, I just try to adjust to how our instructor teaches. The students started off fast and I understand how everyone feels. I just know that our textbook is detailed with a lot of information and we have a short amount of time to cover the different concepts. I am basically trying to go with the flow and learn as much as possible.

I am struggling a little bit with the course on Dreamweaver. I am trying to grasp the concept. As the term progresses, I believe that I will get the hang of things.

I am glad to be learning something new. My favorite class is MYSQL. Everything is fun about that class. The instructor makes it easy to grasp on to the subject. PHP is difficult, but I am still confident that I will be able to learn and apply the concept to future employment.

The most complicated task I had to do on the computer was dealing with the PHP course. I am handling these assignments by referring to class notes, textbook pages, browsing various websites relating to PHP and asking questions to people who work in the IT field that know PHP.

If I had to deal with a hard math question, I would focus on a method I used to solve similar math questions. In an English or History class, I would use the format for essay writing and write my opinions in my summary paragraph. The solution to both dilemmas is similar because they both have methods and formats that you should follow to complete the assignments.

Concept Recognition/Technology

The most complicated task I had to do on the computer was dealing with the PHP course. I am handling these assignments by referring to class notes, textbook pages, browsing various web sites relating to PHP and asking questions to people who work in the IT field that know

PHP.

I am hoping that I will grasp on to the PHP classes and at least gain a basic understanding. It goes hand in hand with MYSQL and if I want to work in that area I have to work harder.

I was able to have a clearer understanding about certain functions that relate to MYSQL in the PHP course. In MYSQL, I am doing fine. The instructor has been really great.

The hardest programming function I can perform is connecting a database by using PHP that displays on the web. I can display the information from the database in various ways by using rendering HTML in PHP…[this was] learned in the PHP course. While I have some free time I play around with what I have learned to see if I can expand on what I have learned.

Prior to being in the SLICE program, I have had a limited amount of technology skills. During a brief enrollment in college, I took a computer science course. In that course, I was exposed to some technological skills, but they didn't develop. Working for different companies, I was exposed to different software applications related to my job responsibilities. At the companies where I work, I also have experienced going through changes in software systems.

THE STRATEGIC FITNESS PROCESS

A COLLABORATIVE ACTION RESEARCH METHOD FOR DEVELOPING AND UNDERSTANDING ORGANIZATIONAL PROTOTYPES AND DYNAMIC CAPABILITIES

MICHAEL BEER

Abstract: Organizations underperform and sometimes fail because their leaders are unable to learn the unvarnished truth from relevant stakeholders about how the design and behavior of the organization is misaligned with its goals and strategy. The Strategic Fitness Process (SFP) was designed to enable leaders to overcome organizational silence about the misalignment with the environment and chosen strategy. By enabling an honest, organization-wide and public conversation, senior management teams, working collaboratively with scholar-consultants and organizational members, have access to valid data (the unvarnished truth), can conduct a valid diagnosis, and can develop a valid plan to change the structure, processes, and behavior of an organization while at the same time developing commitment that ensures execution. SFP is also a research method. By applying SFP iteratively to new and challenging situations, scholar-consultants can invent new organizational prototypes as well as learn if a standardized and institutionalized organizational learning process like SFP can enhance dynamic capabilities. The SFP model is illustrated with an application to Hewlett-Packard's Santa Rosa Systems Division.

Keywords: Organization alignment; dynamic capabilities; organization design; organizational prototyping; organizational silence; organizational learning

It has been a long-held assumption, supported by substantial research, that a system of management – organization structure, senior team effectiveness, business processes, people (skills, attitudes, and behavior) and culture – must fit the organization's environment and particularly the firm's chosen strategy (Labovitz, 1997; Lawrence & Lorsch, 1967, 1969; Miles & Snow, 1978; Miller, 1986, 1987, 1990a). The process of aligning the organization and its behavior with strategy is a two-way process: the design must be adapted to fit the strategy, and the strategy must sometimes be adapted to the organization's capabilities and culture. There is also considerable evidence, however, that organizations are slow to adapt their design to fit changing competitive circumstances and emerging strategies (e.g., Miller, 1990b). One of the major causes is organizational silence, the reluctance of knowledgeable internal and external stakeholders to "speak truth to power" due to fear that the truth will threaten those in positions of power (Argyris, 1985; Beer & Eisenstat, 2000; Detert & Edmondson, 2011; Morrison & Milliken, 2000). Senior teams, therefore, may be prevented from learning in advance of problems or crises due to inadequate fit between organization design and behavior, and changing situational realities.

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Such conditions of misfit can have significant consequences. First, senior teams may be unable to respond in a timely way to performance problems, with consequent financial and human costs and perhaps business failure (Miller, 1990b). Second, senior teams and the scholar-consultants collaborating with them to solve performance problems are unable to make hidden barriers discussible, thus making it difficult for senior teams and their scholar-consultants to develop a valid diagnosis and to design an organization that fits the diagnosis. If we are to develop sustainable organizations, their designs must be based on valid data. Third, because designing organizations is a process of successive approximation – roles, responsibilities, and relationships are defined in action – senior teams must foster a continuous learning process that provides feedback from stakeholders about how well the newly designed system of management is working.

Lacking a continuous learning process, senior teams call in expert design consultants and academics. To break the organizational silence, these outside experts interview organization members and provide feedback to management along with recommendations for a new design. While this may lead to a good design in theory, it does not always lead to commitment by senior teams or organizational members. Lacking commitment, good design solutions become difficult to implement. For an organization to adapt and maintain internal and external fit, a method for continuous collaborative learning about the effectiveness of the organization is required. The data that motivates organizational diagnosis and redesign must be available to three key stakeholders in the redesign process: senior teams, employees and other relevant stakeholders, and experts who advise senior teams about redesign options. Unless all these stakeholders are involved in producing relevant data and redesigning the organization, the newly invented organization will fail due to low commitment. Its redesign will have been based on a diagnosis that both employees and scholar-consultants know is invalid – one that does not incorporate undiscussible issues such as ineffective leadership and management systems. These considerations are particularly important when the new design is a prototype from which managers and academics can learn. In other words, in designing prototypes it is important to eliminate the unwanted variance that comes from low commitment and resistance as well an invalid diagnosis.

Consider the case of Hewlett Packard's Santa Rosa Systems Division (Beer & Rogers, 1997). Two years after it was created in 1992 by HP's senior management to develop a new frequency measurement systems/solutions business for the rapidly growing telecommunication industry, the business unit was not meeting expectations for revenue and profit growth. The functional organization SRSD's senior team adopted was modeled after other divisions in the Test and Measurement Sector where those executives had worked. It was not producing the cross-functional coordination required to develop new solutions or the strategic management process needed to prioritize and reprioritize projects and then reallocate resources based on the promise they showed. In addition to poor business results, a noticeable symptom was conflict over scarce resources, resulting in distrust and low morale among the division's members.

Key people in all functions below the senior team as well as senior team members knew the business was in trouble, and each person had his or her own diagnosis and ideas for organizational redesign. While apparent, these issues could not be openly discussed within the senior team or raised by lower levels due to low trust and fear that the senior team would become defensive with negative consequences for the bearers of bad news. The fact that the division's general manager was perceived as conflict averse, and the senior team as ineffective, was a major barrier to a much-needed dialogue. Realizing the urgent need to improve performance or face career consequences, the general manager and his senior team decided to employ the Strategic Fitness Process (SFP) developed by Beer and Eisenstat (2004) to guide senior teams through an organizational diagnosis and redesign. SFP ultimately led to a matrix design, a new strategic management process, and a much more effective senior team – all despite the fact that matrix designs ran counter to the existing organizational culture at Hewlett Packard (HP had succeeded for five decades with a divisional structure) and SRSD's senior management was keenly aware that their bosses would challenge their design choice. Within three months, the new organization was up and running. SRSD's performance improved dramatically in the years that followed and an organizational prototype new to HP

and solutions businesses in general had been developed (Beer & Rogers, 1997).

In this article, I describe the Strategic Fitness Process model and discuss how it can be used to redesign an organization. I also offer insights into how the SFP model can aid in the development and testing of organizational prototypes as well as in understanding an organization's dynamic capabilities.

STRATEGIC FITNESS PROCESS

The Strategic Fitness Process is a collaborative inquiry and action learning process that involves the senior team, key employees throughout the organization, and scholar-consultants who facilitate the process and work collaboratively with senior management as experts in organizational diagnosis and redesign. The process begins with the senior team committing itself to an organization-wide inquiry intended to foster an honest conversation about organizational strengths as well as barriers to strategy execution that are causing under-performance. Below is a description of each of the nine steps in the process as they were used to redesign HP's Santa Rosa Systems Division. See Figure 1.

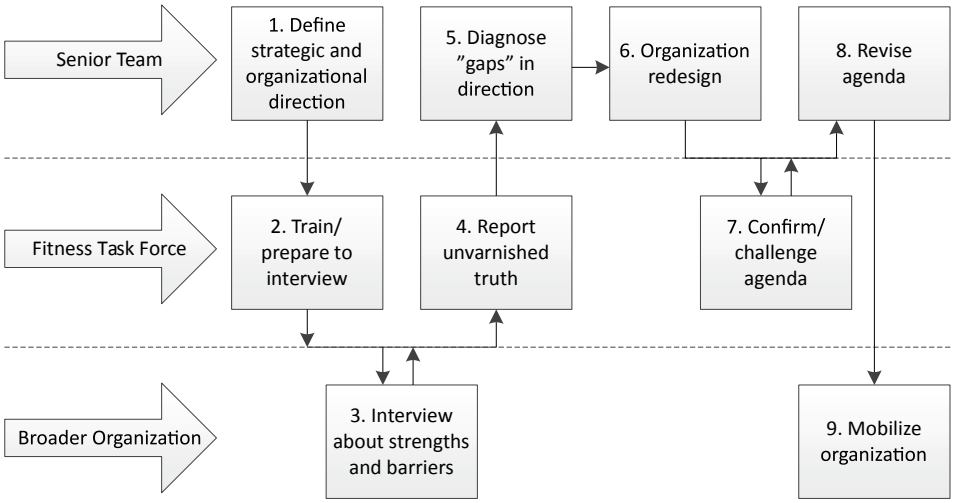

Fig. 1. Strategic Fitness Process

1. *The senior team formulates strategic direction.* Senior teams meet for a day (or more if needed) to create a statement of strategic direction: competitive strategy, the capabilities required to enact the strategy, and the values and culture the senior team wishes to guide leader and organizational behavior. In one day of intensive discussion, senior team members at SRSD formulated a statement of strategic and organizational direction. They reaffirmed the ambidexterity of their business strategy (March, 1991) – *exploit* for profit existing technologies through one-off mission-critical solutions delivered by the Custom Systems Group, and *explore* a mass customization strategy through the development of new technology platforms aimed at market segments with similar solution requirements. The senior team appointed an eight-person task force composed of high-performance and high-potential people one to two levels below them to collect data about the organization's effectiveness.
2. *Consultants train the task force.* The task force meets for a day to be trained by the scholar-consultants in data collection through interviews and rigorous analysis of the data. The general manager or CEO, not the VP of HR or some other senior executive, meets with the task force to present and explain the statement of strategic direction and, importantly, reinforces his or her desire to hear the truth. With guidance from consultants, task force members select approximately 100 people in key positions across all parts of the organization and other relevant stakeholders inside or outside of the business to be interviewed. Recognizing that they will undoubtedly hear about problems that will threaten the senior team, task forces often voice anxiety about the task they have been assigned. The SRSD task force was no exception. After members were briefed about

how SFP is designed to provide psychological and career safety, the task force came to see the assignment as a singular opportunity to transform the organization.

3. *The task force collects and analyzes data.* Over a two to three week period, task force members conduct semi-structured interviews, asking three key questions: Does the strategy make sense? What organizational strengths will enable strategy implementation? What barriers stand in the way? Task force members always interview people outside their functional, business, or geographic home. Upon completing the interviews, task force members meet for a day to analyze their data and agree on key themes to be fed back to the senior team. Consultants interview the senior team and do a similar analysis. A content analysis of results across many organizations found that task forces almost always identify six silent barriers (Beer, 2009; Beer & Eisenstat, 2000). They are:
    - Unclear strategy, values, and conflicting priorities
    - An ineffective senior team – not working as a real team
    - Leaders who exhibit top-down or laissez-faire behavior that prevents engagement and constructive conflict
    - Poor coordination across the value chain due to poor organizational design and un-collaborative culture
    - Inadequate number of effective down the line leaders and leadership development
    - Closed vertical communication – direction not clearly communicated downwards and lower levels unable to speak truth to power.

    These barriers impede an effective strategic management process: developing consensus within the senior team about strategic direction, communicating it effectively, redesigning the organization, developing/selecting managers who can lead strategic initiatives or new business units, and enabling honest upward feedback about the effectiveness of the organization and its leadership (Beer, 2009).
4. *The task force reports the unvarnished truth (Day 1 of Fitness Meeting).* Task force members, sitting in a "fishbowl" facing each other, with the senior team sitting and listening in an outer ring, feed back the "unvarnished" truth to the senior team. Each theme is illustrated with anonymous quotes and examples of difficulties in executing strategy given to them by interviewees. The feedback is powerful and rich and generally takes from four to six hours to report. The senior team is presented with ground rules that constrain them from acting defensively. These arrangements have been found to enable truth to speak to power safely and productively, and we consider them an essential element in making the functioning of the organization transparent. SRSD's task force identified all six silent barriers listed above in their own language and embellished them with grounded examples. The task force then departs and does not participate in organizational diagnosis and redesign at the next stage. Consultants then feed back their findings from interviews to the senior team, though this is typically anti-climactic given the rich and powerful data fed back by the task force. Our experience is that in most cases senior teams' perceptions of organizational effectiveness issues are not that different from that of task force members, though not communicated with the same sense of urgency as task forces report, suggesting that organizational silence is indeed a barrier to organizational adaptation.
5. *The senior team diagnoses the organization as a system (Day 2 of Fitness Meeting).* The senior team conducts a diagnosis of the data. They are assigned to do this individually the night before, using an alignment model such as the Star Model (Kates & Galbraith, 2007) or McKinsey's 7S model (Pascale & Athos, 1986), and seek to develop a consensus view. SRSD's senior team, like most others who have undergone the process, knew about most of the problems intellectually. The task force's feedback underscores the sense of frustration with the current state and motivates the senor team to act. Because the task force has employed an unstructured interview protocol, a rich and systemic picture of the organization emerges.
6. *The senior team redesigns the organization (Day 3 of Fitness Meeting).* The senior team develops a general redesign of the organization. Presented with alternative organization designs and their advantages and disadvantages by the consultants, SRSD's senior team chose a business by function matrix, redesigned the senior teams' role to support

the matrix, and developed a strategic management process that would allow rapid reallocation of resources to the fastest-growing businesses.

7. *The task force confirms and challenges the redesign.* Having developed a change plan, senior team members present it to the task force. The task force meets alone to critique the plan and prepare its feedback. SRSD's task force was very concerned about several aspects of the senior team's change plan including aspects of the proposed matrix design.
8. *The senior team revises the design of the organization.* The SRSD's task force feedback to the senior team was challenging and emotional. They were not only feeding back substantive concerns about the design but were testing the senior team's commitment to collaboration. The dialogue that emerged led to changes in the design of the matrix by the senior team and to better understanding by task force members of senior management's design logic.
9. *Mobilize the organization to change.* In a meeting of all those involved in SFP – the senior team, the task force and all those interviewed plus other key people who may not have been interviewed – the senior team reports what they heard from the task force and presents their change plan. The larger group is then engaged in discussion and provides further feedback.

SRSD's senior management decided to apply SFP every year as part of the annual planning process to learn how the new design was working. This led to strengthening and/or modifying the organization's design. For example, the organization developed a dual performance appraisal system, a process for filtering new business opportunities and sizing them to available resources, and a process for developing program managers. In effect, SFP proved to be a powerful ongoing learning process for adapting the organization's design and the skills, attitudes, and behaviors required to support it.

ORGANIZATIONAL PROTOTYPES AND DYNAMIC CAPABILITIES

New organizational designs succeed or fail not just on their merits but also on the capacity of the organization to enact a new design. New designs such as that introduced at SRSD require commitment to let go of old management practices and embrace new ones. They also require new skills and capabilities to enact new roles and responsibilities and develop new relationships. A "standardized" approach based on well-researched and understood principles for leading change such as SFP enables a truer test of the hard components of prototypical designs. Why? The large variance in softer components such as leader effectiveness in making a valid diagnosis, and in developing commitment to the design, is essentially eliminated. Moreover, when a standardized process like SFP is used, ongoing learning enables continuous improvement in the organizational prototype and better understanding of the multiple facets of the organization that must change to support the new prototype. In effect, SFP is a leadership platform for diagnosis and redesign that will reduce variance in executing the design and reveals the conditions necessary to enact the new design effectively. Thus, the organization itself becomes a laboratory that enables the development and testing of new, more effective designs and requisite behaviors.

By applying the SFP in organizations in various industries and with different strategic challenges, the SFP model can enable a deeper understanding of the circumstances that demand a new design and the best solution for those circumstances. This, in turn, would enable a more comprehensive and detailed understanding of strategy-organization archetypes (Miles & Snow, 1978). For example, what would an action researcher learn from systematic application of SFP in challenging circumstances such as the health care industry or joint ventures? While random examples of success and failure can always be found, a standardized organizational redesign process like SFP applied across many organizations facing common strategic challenges provides a systematic understanding of the barriers to effectiveness and a valid comparison of alternative designs. In this way, researchers would be able to discover the best prototypical design for a given strategic circumstance.

An organizational learning process such as SFP also sheds light on the problem of dynamic capabilities (Teece, Pisano, & Schuen, 1997). Zollo and Winter (2002: 340) define dynamic

capability as "a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness." The Strategic Fitness Process model helps an organization to generate and modify its operating routines. By applying SFP in different business circumstances and organizational cultures with different leadership patterns, scholar-consultants can develop a grounded dynamic capability theory and test it. For example, through an analysis of twelve SFP applications, we have begun that research (Beer, 2012). By comparing the extent to which each of the twelve organizations in the sample successfully employed SFP as an ongoing learning process, we were able to reach the preliminary conclusion that the kind of high commitment servant leadership culture at Hewlett Packard (at the time) enabled SRSD's leaders to ask for and accept honest feedback annually, thereby building SRSD's capabilities.

CONCLUSION

Dramatic and rapid changes in the environment of for-profit and not-for-profit enterprises require innovation in organizational design, and they require the development of dynamic capability – the capacity of the organization to reinvent itself over and over again. Unfortunately organizational silence, the inability of truth to speak to power, makes it difficult for senior leaders to learn in a timely manner from lower levels about barriers to effectiveness. Consequently, organizations go from crisis to crisis. Revolution rather than evolution is the primary means for change with resultant opportunity costs to the business and its leaders. The Strategic Fitness Process, a collaborative action research and intervention process, was developed to help senior teams invent and reinvent their organization. It has been employed successfully in several hundred organizations at the corporate, business unit, and operating unit level. Changes in organization structure, leadership team design and behavior, and the strategic management process have been made with subsequent improvements in organizational effectiveness and performance.

SFP is a standardized and collaborative leadership and change platform that allows a valid diagnosis and the development of a valid design to which senior managers, organization members, and scholar-consultants are committed. When applied by scholar-consultants in new and challenging situations, SFP can be a powerful action research process to invent organizational prototypes. Because it is a standardized process, researchers can eliminate variance in leadership and change effectiveness thereby making it possible to attribute success or failure to the design itself. When SFP is applied iteratively over time in the same organization scholars can conclude whether a learning process like SFP can be a means for developing dynamic capabilities. When applied across many organizations, SFP can enable scholars to learn about the cultural characteristics that underpin organizational learning and the development of dynamic capability.

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THE UNDEREXPLORED ROLE OF MANAGING INTERDEPENDENCIES FIT IN ORGANIZATION DESIGN AND PERFORMANCE

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CARINE PEETERS

Abstract: We argue that research on interdependencies fit is an underexplored variable in strategy and organization research and is the missing variable that differentiates the performance of "built to last" organizations from the rest. Interdependencies fit relates to how well activities and processes within the organization or between the organization and its environment mutually reinforce one another. We suggest that the major reason underlying variation in firm performance may be rooted in differences of whether and how firms manage interdependencies within and across an organization's strategic activities. Progress on researching interdependencies fit could be realized by focusing on strategically important activities, and the research challenge is to identify the unobservable processes and routines that underlie interdependencies fit.

Keywords: Interdependencies fit; modularization; architecture of complexity

A considerable body of research in the field of strategy and organizations focuses on explaining heterogeneity in firm performance. Scholars have presented various endogenous and exogenous explanations at micro and macro levels of analysis (e.g., individual, organization, industry level) (Bloom & Van Reenen, 2010; McGahan & Porter, 1997; Mithas & Krishnan, 2008). However, the puzzle of unexplained heterogeneity in firm performance endures. One stream of research focuses on interdependencies fit between sets of organizational dimensions as the source of effectiveness and variation in performance. Table 1 highlights a sample of organizational theories and studies of interdependencies fit for various sets of organizational dimensions. In addition, research on complementaritie—"doing [more of] one thing increases the returns to doing [more of] another" (Milgrom & Roberts, 1995: 181)—has gained increasing attention in recent years as a framework for exploring the mechanisms underlying interdependencies fit. A review of 108 empirical studies on complementarity by Ennen and Richter (2010) documents that empirical research on complementarities has mostly focused on fit involving two dimensions of interdependencies - between organization resources, organizational design, strategy and environment.

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Table 1. Sample of Organizational Theories and Approaches Emphasizing Dimensions of Interdependencies Fit

Organization Theory and Other Approaches	Dimensions of Interdependencies Fit
Resource-based view of the firm	Complementary assets play a crucial role in explaining sustainable competitive advantages and innovations (e.g. Stieglitz & Heine, 2007; Teece, 1986). In relation to acquisitions and alliances (King, Slotegraaf & Kesner, 2008; Rothaermel, 2001). Value from mergers and acquisitions is created only if firms' resources can be uniquely and strategically combined (fit) (e.g. Barney, 1991).
Institutional theory	Coercive Isomorphism - fit between organizational routines and processes and external environment (e.g. regulatory environment). Mimetic Isomorphism - alignment between organizational routines and processes and industry best practices (DiMaggio & Powel, 1983).
Contingency theory	Fit between the organization and its environmental contingencies (Donaldson, 2001; Drazin & Van de Ven, 1985; Venkatraman, 1989).
Organizational configurations	Fit between contextual factors, strategy, and organizational structure give the firm a selection advantage over other organizations lacking such fit (Miller, 1986; Miller & Friesen, 1984).
Other approaches	Fit between organizational strategy, structure, and process (Miles & Snow, 1978). Fit between environmental characteristics, employee characteristics, organizational characteristics, and managerial policies and practices, each of which must be consonant with the other three to achieve effectiveness (Steers, 1976). Fit between the practices that comprise a firm's production function (Lenox, Rockart, & Lewin, 2006, 2010; Levinthal, 1997; Rivkin, 2000). Fit between information technology and work organization (Bresnahan, Brynjolfsson & Hitt, 2002).

We build on and extend research on interdependencies fit by suggesting that organizational capabilities that effectively manage fit between interdependencies within and across strategic activities is a key explanatory mechanism of effective performance and competitive advantage, and is, in fact, the missing variable differentiating "built to last" organizations from the rest. In particular, we suggest that firms select certain activities as strategically important, and for these activities it can be expected that firms manage, achieve and sustain interdependencies fit. An activity can be a traditional function such as marketing, or, it can cut across functions such as innovation and supply chain management. It may cross organizational levels and sources of resources. Effectiveness in managing interdependencies fit within a strategically important activity affects the overall performance of this activity. Consequently, the greater the number of strategically important activities for which companies are able to effectively manage interdependencies fit, the higher the overall company performance.

Execution of activities involves configuring processes and routines, some of which may be difficult to observe. We particularly draw attention to the unobservable[1] and inimitable knowledge bases underlying routines and processes that promote interdependencies fit and, therefore, lead to sustained competitive advantage. We also discuss the implications for organization design practice. This perspective opens new directions for research in strategic management and organization studies.

ELEMENTS OF INTERDEPENDENCIES FIT IN ORGANIZATION THEORY AND BOUNDED RATIONALITY

Organizations are complex systems that include multiple interdependencies at various levels (Cyert & March, 1963; Simon, 1947). Figure 1 illustrates the many elements and levels at which interdependencies occur including, for example, interdependencies between individuals in the organization (Puranam, Raveendran & Knudsen, 2012); interdependencies

1 By "unobservable" we mean not directly perceived or discerned without in-depth understanding of the underlying behaviors and processes.

at the organizational level (Massini & Pettigrew, 2003); interdependencies between the organization and the environment (Volberda *et al.*, 2012); interdependencies at the industry level (Lenox, Rockart & Lewin, 2010); and interdependencies at the country level (Lewin, Massini, & Peeters, 2012).

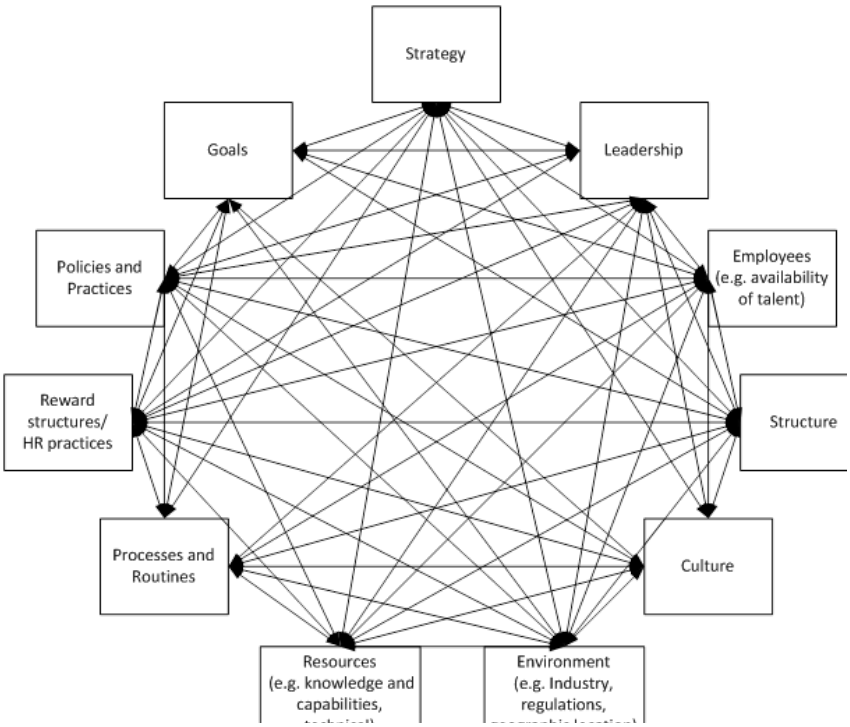

Fig. 1[2]**.** Organizational Design Interdependencies

Figure 1 demonstrates the enormous complexity involved in organization design choices. In reality, organization design cannot be expected to achieve optimal fit among all possible interdependent elements (Miller, 1992). In his discussion of the architecture of complexity, Simon (1962) argues that optimizing the design of an organization across all possible interdependencies is computationally not feasible. This bounded rationality drives the practice of decomposing the organization into manageable sub-elements. Simon's work gave rise to a line of research on modularization (e.g., Baldwin & Clark, 1997, 2000; Langlois, 2002; Orton & Weick, 1990; Sanchez & Mahoney, 1996), and indeed, as seen in Table 1, most subsequent conceptual discussions in the strategy and organization literature focus on a subset of dimensions of interdependencies fit.

As our point of departure, we concur with findings in the extant literature on organizational decomposition and modularization that achieving optimal organization design across all possible interdependencies is not logically or computationally feasible. However, we argue that interdependencies fit is most likely to be developed and observed for activities that the firm determines to be strategically important. High interdependencies fit in one activity does not necessarily imply high interdependency fit in other activities. Furthermore, since companies vary greatly in their strategic priorities, a strategic activity in one company may not be considered strategic in another company. The choice of which activities are deemed strategic is likely to be idiosyncratic and reflective of management intentionality (Hutzschenreute, Pedersen, & Volberda, 2007), and hence a key source of variation across companies. Companies that successfully manage interdependencies fit for a higher number of strategic activities are assumed to achieve a higher overall firm performance[3]. This is consistent with the conclusion of Burton, Lauridsen, and Obel (2002) that when organizations focus only on a subset of interdependent elements they will underperform.

2 Adapted from Leavitt (1965).
3 Siggelkow's (2011) analysis of the Vanguard mutual fund company offers an example of a firm that has thought through many levels of interdependencies fit.

INTERDEPENDENCIES FIT WITHIN A STRATEGIC ACTIVITY

An organizational activity involves critical interdependencies (e.g. processes, structures, resources), and organizations vary greatly in whether and how they manage the interdependency among these critical elements. The critical interdependencies may also occur across firms' boundaries, and between internal and external elements (Baldwin, 2012; Tushman, Lakhani, & Lifshitz-Assaf, 2012). For example, a critical interdependency in sourcing business services is the interdependency between the company and its providers. While some companies build a centralized organizational unit for managing specific dimensions of the relationship with the provider (e.g. risk compliance, performance metrics), other companies may not. This variation may be due to the strategic importance of the activity, the maturity level of the company/activity, path dependence, and more. The overall effectiveness of the activity depends on the extent to which the organization manages the critical interdependencies involving the activity.

FORMAL AND INFORMAL INTEGRATION MECHANISMS

The organization design literature discusses a wide range of integration mechanisms believed to be important in achieving coordination and fit across interdependencies that make up an activity. Formal structural elements and processes are further differentiated by unobservable process knowledge, capabilities, cultural values, and socially enabling mechanisms, which guide action (Ocasio & Joseph, 2006) and form the basis for achieving interdependencies fit. The unobservable interdependent processes themselves, however, can vary greatly in effectiveness (e.g., depth of process knowledge, quality of process, and accuracy and timeliness of underlying information) and play a crucial role in whether companies achieve a particular level of fit across the critical elements of an activity and between activities. Figure 2 illustrates structural or formal integration mechanisms and informal or process knowledge mechanisms that have been discussed in the literature and form the unobservable interdependencies fit mechanisms.

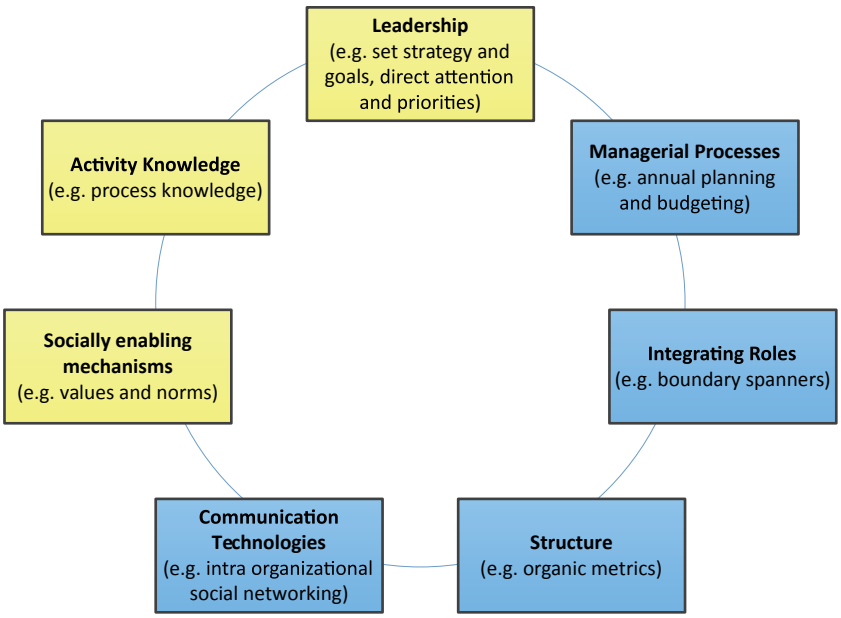

Fig. 2. Formal and Informal Integration Mechanisms

THE CENTRAL ROLE OF UNOBSERVABLE MECHANISMS

Socially enabling mechanisms such as process knowledge, cultural values, and leadership act as the "glue" between interdependencies within and across activities. These mechanisms collectively constitute the unobservable routines that guide firm-specific action and that

differentiate firms from one another. Furthermore, equifinality, by which "a system can reach the same final state from different initial conditions and by a variety of different paths" (Katz & Kahn, 1978: 30), is to be expected in the way companies configure and achieve interdependencies fit within and across activities. When companies achieve high interdependencies fit, the processes underlying this fit are unobservable and constitute inimitable capabilities that may be a source for sustainable competitive advantage (Barney, 1991). This is even more the case when the interdependencies fit occurs among a high number of activities or processes.

The often-discussed case of the 3M Company provides an example of the significance of cultural values and socially enabling mechanisms for creating an interdependencies fit which is inimitable and a source of competitive advantage. 3M is recognized and acclaimed for its culture of innovation. Many companies have attempted to imitate the 3M innovation model, but most have been unable to replicate the process knowledge, socially enabling mechanisms, and values that underlie the high interdependencies fit at 3M. Examples of unobservable values that are rooted in the 3M culture are demonstrated in such socially enabling "commandments" that guide behavior, such as "The Eleventh Commandment: Thou shall not kill a new product idea" and "Make a little, sell a little" as the 3M way for searching and valuing market signals that guide product decisions.

CONCLUSIONS AND IMPLICATIONS FOR ORGANIZATION DESIGN

Organization design theorists and practitioners focus for the most part on fit and misfit of organizational structure in prescribing "optimal design" (e.g. Burton, Obel, & DeSanctis, 2011). This Point of View article advances the argument that because of bounded rationality achieving optimal design across all possible interdependencies is not logically or computationally feasible. Instead, we suggest that for activities that firms determine to be strategically important it can be expected that organizations develop, manage, achieve and sustain interdependencies fit. This implies that firms will vary in which fit is most important and where misfit is considered acceptable.

Achieving interdependencies fit has its own dynamics of implementation, evaluation and reflection, and continuous improvement. In particular, interdependencies fit is a continuous and evolving process rather than an end state. Moreover, interdependencies fit needs to be understood and researched using qualitative methods designed to uncover firm-specific expression of formal and informal coordination and integration mechanisms (Lewin, Massini, & Peeters, 2011) of achieving interdependencies fit[4].

We underscore the strategic imperative for directing attention to strive for managing interdependencies fit beyond modular solutions. In other words, managers must adopt an organizational mindset to design and manage interdependencies within and across activities, involving the unobservable infrastructure of values and norms that guide actions as well as tacit process knowledge which collectively enables and supports specific interdependencies fit. Similarly, at the level of strategic planning, managers need to be more aware of creating interdependencies fit for strategically critical activities and deliberately creating inimitable unique capabilities that maintain interdependencies fit for sustainable competitive advantage. We conclude by stating that interdependencies fit is an underexplored mechanism of organization design and is the missing variable differentiating "built to last" organizations from the rest.

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4 Comparative qualitative "polar type" case study methodology can be a particularly powerful method for uncovering patterns and relationships within the data (Eisenhardt & Graebner, 2007).

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THE FUTURE OF ORGANIZATION DESIGN

AN INTERPRETATIVE SYNTHESIS IN THREE THEMES

RICHARD M. BURTON

Abstract: In the inaugural issue of the *Journal of Organization Design* (Vol. 1, #1, 2012), noted scholars and experienced practitioners presented their views on the future of organization design. The seven wise and provocative statements were subsequently discussed by members of the Organizational Design Community at a conference held at Harvard University on August 3, 2012. I was asked by *JOD* to monitor the discussion and identify the broad organization design themes that emerged. Although the discussion was wide ranging, three themes were noticeable. The first theme is that there are fundamentals of organization design, and all agreed that design involves creating a cohesive socio-technical system from a number of constituent elements. The second theme is that the boundaries of many newer organizational forms extend beyond that of the single firm, so the scope of organization design needs to expand to include ecosystems, collaborative communities, industries, and other supra-firm architectures. The third theme involves time and change, requiring a shift in focus from how organizations become stable and predictable to how they can become more agile.

Keywords: Organization design; new organizational forms

In today's global environment, organizational complexity and interdependence have increased due to globalization, technological development, the faster pace of economic life, and the continual need to change and adapt. Organization design theory and practice must keep pace with increased complexity and interdependence if it is to be useful.

FUNDAMENTAL CONCEPTS

Organization design addresses two fundamental issues: how to divide the organization's work into smaller units and then how to reassemble those parts into a meaningful whole. Complexity and interdependence arise naturally from this process and are at the heart of organization design (Alberts, 2012). Complexity is the number of different kinds of organizational units; interdependence is how they are related to each other. Given interdependence among the units, how can activities be coordinated? Coordination requires a balance between the creation of semi-independent units, or modularity (Baldwin, 2012), and the information-processing capacity of the organization to integrate activities within and across units (Galbraith, 2012). The law of requisite variety (Ashby, 1956) states that variety in the organization's internal environment must match the variety in the external environment. Given these fundamentals, Galbraith (2012) reminds us that, in many instances, "the future will look a lot like the past." Everyone agrees that complexity, interdependence, partitioning and modularity for partial independence, variety, and information-processing capacity are factors that influence how an organization's activities should be defined and coordinated. But do these factors necessarily mean the future will be much like the past?

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Miles (2012) places the organization in its environment and emphasizes what is outside, particularly customers and markets. The organization must have a strategy which links the outside and inside, and that strategy must be continually adjusted to fit the changing environment. Thus, the choice of strategy is an essential input to organization design. Design without purpose and strategy is meaningless as stated by Chandler (1962) in his famous dictum, "structure follows strategy." Steinmetz, Bennett, and Håkonsson (2012) remind us that the organization is not just structure; talent, leadership, and management systems are essential as well. Although the fundamentals of organizing are well understood, there are numerous pressures on existing organization designs. In many arenas, organizational boundaries are being expanded in order to achieve increased scale and scope.

ORGANIZATIONAL BOUNDARIES

The choice of the boundary of the firm or organization is a specification of what is inside and what is outside. However, the choice of what is in and what is out must go beyond simple transactions cost logic (Tushman, Lakhani & Lifshitz-Assaf, 2012). Traditionally, the boundary of the firm has been defined in terms of property rights: what is owned is inside, what is not owned is outside. Economic and accounting models, as well as Weberian bureaucracy, follow this definition. Authority and responsibility, and consequently control and decision rights, are based on property rights. Agency and incentives are easy to specify. However, the traditional logic behind the specification of organizational boundaries is too limited in today's world, as management may involve multiple firms or parts of multiple firms. In the future, the boundaries of organizations will become design choices, driven by the organization's strategy. Further, boundary limits will be explored using various simulation methods, as organizational prototyping becomes more practical (Puranam, 2012).

As organizational boundaries shift, what was outside can now be inside, thereby increasing complexity. Tushman et al. (2012) discuss a multiplicity of boundaries. Baldwin (2012) discusses business ecosystems which include multiple firms and stakeholders outside the firm. Steinmetz et al. (2012) discuss joint ventures and regulators, and Alberts (2012) discusses inter-organizational problems, power "at the edge," and decision rights which are not property based. With permeable and dynamic boundaries, agility becomes a more important feature than stability (Alberts, 2012). Agile organizations will be able to accomplish more than traditional organizations. Innovators of new products can now be outside the organization. Customers can be part of management, with direct access to the firm's inventory, and they can schedule production as well as design their own products. By deftly combining supply chains and outsourcing, a lead firm can schedule individual machines at its supplier plants. Regulators and public interest groups have decision rights, particularly with respect to safety, pollution, and other issues in the public interest, and firms can stretch their boundaries to allow such groups to participate in corporate decision making. Thus, coordination of activities is now shared in the moment, with instant transactions and inexpensive communications across multiple property rights boundaries to create an expanded domain and greater complexity of organization design.

TIME, CHANGE, AND INNOVATION

New concepts and perspectives will be needed if we want to incorporate time and change into the organization design process. Alberts (2012) posits that agility is the challenge – not the creation of stability and predictability. Although top-down hierarchical mechanisms are good for the control and coordination of standardized operations, bottom-up and outside-in efforts are required to nurture innovation. Steinmetz et al. (2012) emphasize the need for bottom-up change, noting that the market for talent will become increasingly important. Baldwin (2012) calls for greater emphasis on fostering creativity in problem solving, expanding the entrepreneurial role of everybody in the organization. Tushman et al. (2012) see self-organizing communities as an important source of innovation in the future. They argue that the best innovations will emerge from everywhere: employees, customers, suppliers, and even in some cases the general public. As organizations push for the ability to innovate

continuously, managers will demand theories and design choices that improve cycle times and open up the innovation process.

FUTURE OF ORGANIZATION DESIGN

The various conference discussions, stimulated by the seven statements on the future of organization design, confirmed that design is an essential part of organizing and managing. The fundamentals of organization design can help to create organizations that are able to deal with a variety of structured, largely predictable situations. It is now the challenge for scholars and practitioners to build on the fundamentals to understand the multiplicity of organizational boundaries and to incorporate time and change into organization theory and practice.

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