

THE PACE, SEQUENCE, AND LINEARITY OF RADICAL CHANGE

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The purpose of this research was to explore how the pace, sequence, and linearity of change can affect the outcome of radical transformations. Real-time data collected over 12 years showed that, contrary to popular belief, wide-scale rapid change was not a determining factor. However, early change to specific “high-impact” elements was found to be necessary for completing radical transitions. Further, analysis conducted at the suborganization level provided insight into the ways in which change unfurls in a nonlinear manner.

In recent years, a dominant theme within the change literature has been the contention that organizations go through long periods of evolutionary or incremental change interspersed with short, sharp revolutionary transitions (e.g., Fox-Wolfgramm, Boal, & Hunt, 1998; Miller & Friesen, 1984; Nadler & Tushman, 1989; Romanelli & Tushman, 1994). A common suggestion has been that revolutionary, or radical, change must be implemented rapidly (e.g., Miller & Friesen, 1984; Romanelli & Tushman, 1994); indeed, the very notion of revolution invokes visions of high-speed, large-scale change. The central tenet of this thesis is that rapid change is positive because it creates the momentum required to overcome the inevitable inertia that builds up over time (Miller & Chen, 1994). However, some scholars have argued that indiscriminate rapid change across an organization is neither an appropriate method for engaging in large-scale change, nor an accurate description of how it takes place (Child & Smith, 1987; Pettigrew, Ferlie, & McKee, 1992). Child and Smith (1987), for example, found that the program of change carried out at the British confectionary firm Cadbury was incremental in some parts of the organization, radical in

others. Others have argued that the whole notion of short, sharp bursts of change is erroneous and “in the background of the experience of many firms” (Brown & Eisenhardt, 1997: 1). Thus, although researchers agree that the pacing of organizational change is important, there is uncertainty as to the speed at which such change should be implemented. This lack of consensus is due in large part, perhaps, to the fact that very few studies have directly examined the pace of change, particularly with the time series data required to provide such insight (Pettigrew, 1998).

There is similar ambiguity when it comes to understanding the order in which different parts of an organization should be transformed. Making an argument comparable to that used in favor of fast-paced transitions, some scholars have asserted that change should be implemented rapidly throughout an entire organization, primarily to overcome inertia and prevent resistance from building up among members of the organization (e.g., Romanelli & Tushman, 1994). Gersick, for example, wrote that “fundamental change cannot be accomplished piecemeal, slowly, gradually, or comfortably” (1991: 34). Others have contended that changes should be introduced to different parts of an organization at different times. Some have argued for early change to those parts most central to the function of the organization (e.g., Hinings & Greenwood, 1988; Kanter, 1983), others, that radical change programs are most successful when more peripheral elements are changed first (e.g., Beer, Eisenstat, & Spector, 1990). Again, the lack of real-time longitudinal data has hampered theoretical advances in this area.

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A third area that has received little direct attention is the linearity of the change process. There is increasing evidence that organizations do not follow the linear transformation process that early change theorists described (e.g., Greiner, 1972). Indeed, Pettigrew and his colleagues (1992) described the notion of linear transition as “mythical.” Hinings and Greenwood (1988) expressed similar sentiments, arguing that while managers attempt to implement planned transitions in a linear manner, much change occurs in response to task exigencies and political pressures that are ill understood. As a result, the change process is more likely to be characterized by the introduction and subsequent withdrawal of various changes rather than by any “ordered and consistent revolution.” Useful as this work has been in outlining different paths that organizations facing internal or external pressures to change may follow, it has depicted change at the organization level. As such, very little is understood as to either the ways in which change unfurls among different elements within an organization, or the impact that changes across such elements may have on the overall outcome of the transition process.

Given the apparent importance of pace, sequence, and linearity to the change process and the lack of relevant direct empirical investigation, it is of little surprise that scholars have recently called for investigation into these dynamics (e.g., Huy, 2001; Pettigrew, Woodman, & Cameron, 2001). Consequently, the purpose of this research was to uncover the effects of pace, sequence and linearity on the outcome of a program of radical change.

PACE, SEQUENCE, AND LINEARITY

A considerable majority of empirical research within the change literature has focused upon evolutionary rather than revolutionary change (Huy, 2001). The two major reasons for this concentration are probably the difficulties inherent in introducing and implementing large-scale changes (e.g., Heracleous & Barrett, 2001) and the problems associated with studying such transitions over an extended period. This neglect of large-scale change is problematic because survival for many organizations will be predicated upon an ability to, at some point, negotiate some form of revolutionary transition (e.g., Allmendinger & Hackman, 1996; Pettigrew, 1985; Pettigrew & Whipp, 1993; Tushman & O'Reilly, 1996). Consequently, furthering understanding of revolutionary, or radical, change has practical as well as academic importance.

In order to define what we mean by radical change, we draw upon Greenwood and Hinings's

(1988, 1993) notion of archetypes. An archetype is a “set of structures and systems that reflects a single interpretive scheme” (Greenwood & Hinings, 1993: 1052). As such, archetypes can be conceived of as a collection of values and beliefs that are made manifest through particular structural arrangements. We can thus depict *radical change* as being a shift from one archetypal configuration to another, or a transition from a design that can be identified with no single archetype to one that has clear archetypal status. It is from this conception of radical change that we consider the notions of pace, sequence, and linearity.

Pace

The lack of direct investigation utilizing real-time data collected over the extended periods necessary to allow the change process to unfurl has significantly hampered understanding of the ways in which the pace of change impacts the outcome of a transformation process. Most of those studies that do offer at least tangential insight into the impact of the speed of transition were designed to explore some other aspect of organization function or design. As a consequence, the empirical evidence available is predominantly anecdotal and certainly not conclusive. Some of this evidence has indicated that change that proceeds in an evolutionary manner at a relatively slow speed is more effective. Braybrooke and Lindblom (1963), Hedberg, Nystrom, and Starbuck (1976), and Quinn (1980) are among those who have cautioned against organizations following courses of dramatic and pervasive transition, arguing instead for more gradual change that is seen as less disruptive and more manageable. Pettigrew et al. (1992) also found evidence of a need for radical change to be introduced slowly. Commenting on change in part of the British National Health Service (NHS), Pettigrew and his colleagues wrote, “It may be useful . . . to treat psychiatric service change as ineluctably prolonged, in need of a long-term view and persistent approach, and because it is a radical change involving ideological as well as action-driven changes, knowledge- and value-based as well as technical change, and multiple actors and agencies, to regard it as not susceptible to a ‘quick fix’” (Pettigrew et al., 1992: 174).

Despite these cautionary words, most researchers have suggested that for radical transformations to be accomplished, changes must be implemented rapidly. Romanelli and Tushman (1994), for example, found that the large majority of U.S. mini-computer firms that they studied accomplished their transformations via rapid and discontinuous

change over most or all structures and systems. Warren's (1984) analysis of Antioch College and Hackman's (1984) investigation of the airline People's Express also suggested that successful transformations are implemented quickly. However, the body of work in which the importance of the pace of change has become most apparent is probably Greenwood and Hinings's (1988, 1993; Hinings & Greenwood, 1988) work on "change tracks." "Tracks" constitute the varying paths that organizations may follow, intentionally or not, as they move from one design to another. According to Hinings and Greenwood (1988), a *reorientation track* describes a path taken by an organization that completes a program of radical change; a *nonreorientation track* is followed by organizations that start but fail to complete such a transition. The work on tracks offers some promise for understanding of the pace of change because "a key aspect of tracks . . . is the rate at which design arrangements become decoupled from the prevailing interpretive scheme and become reattached to suffusing ideas and values" (Greenwood & Hinings, 1988: 303). In other words, the speed at which change takes place is seen as integral to the change track followed.

Theoretically, the idea that organizations that engage in radical transformations must complete their changes quickly is appealing. The central thrust of this thesis is that rapid change is positive because it creates a synergy in which all parts of an organization pull together in a common direction. The rapidity of events prevents pockets of resistance among groups that feel that their power, both formal and informal, is threatened by the reorientation (Tushman & Romanelli, 1985). It also allows other changes—changes that are necessary but that have been put off during convergent periods of relative stability—to be carried out (Miller, 1982). Finally, fast-paced change overcomes the disruptive period of risk and uncertainty associated with any major transition as quickly as possible. In short, rapid change allows an organization to overcome the inertia that is usually the biggest obstacle to accomplishing large-scale transformations (Romanelli & Tushman, 1994). Consequently, although there is little doubt that our understanding of the effects of pace on the change process is underdeveloped (Pettigrew et al., 2001), we hypothesize that:

Hypothesis 1. The completion of a radical organizational transition is characterized by a rapid pace of change.

Sequence

Given that an understanding of the pace of change is clearly important for uncovering the dy-

namics of radical transformation, of equal importance is the sequence in which different parts of an organization are altered. However, it has been acknowledged that very little is known about the sequence of activities that takes place during a change process (Fox-Wolfgramm et al., 1998; Pettigrew et al., 2001; Van de Ven, 1992). Useful research on the sequencing of change activities has started to emerge. This work has focused upon issues such as strategies of implementation (Dutton, Ashford, O'Neill, & Lawrence, 2001; Huy, 2001), resource allocation and utilization (Pettus, 2001), and leadership styles (Denis, Lamothe, & Langley, 2001). Part of the utility of this work has been to provide evidence that the sequence in which change is implemented matters. This evidence is important because much of the literature on radical change has been based on the assumption that all elements of an organization are changed simultaneously. One of the most compelling examples of this has been the work of Romanelli and Tushman (1994), who found that those firms that accomplished large-scale transformations changed rapidly over most or all of their domains of activity, with the sequence of change apparently being unimportant. Despite the surge of interest in the sequencing of change, it is still unclear how the order in which different parts of an organization are altered impacts the outcome of the transformation process, again largely because of the lack of direct longitudinal investigation. Thus, at the moment, working knowledge of this area continues to be undertheorized.

The need to pay attention to the sequencing of change stems from the fact that structural and systemic elements of organizations are not neutral and value-free. On the contrary, members create provinces of meaning that incorporate interpretive schemes, intermittently articulated as values and interests, that form the basis of their orientation and strategic purpose within an organization (Ranson, Hinings, & Greenwood, 1980). These values and beliefs are more likely to be enshrined in some organizational elements than others. Thus, a key question concerns the order in which different elements are changed and the effect, if any, that this sequence will have on the outcome of the change process. Strategic imperatives such as resource allocation and leadership style, cited above, are implicitly tied to change sequencing because they inevitably affect the ways in which various parts of an organization will engage differently with the change process. Similarly, notions of organizational learning and diffusion will also lead to varying rates of change in different parts of an organization. These are important areas that require

investigation but that lie outside the remit of this paper. Our interest in value-infused elements leads to a more fundamental question regarding the propensity of an organization to complete a program of radical transition: the role of those organizational elements, commonly termed “high-impact” (Hinings & Greenwood, 1988; Kanter, 1983; Kikulis, Slack, & Hinings, 1995a), that have an important functional and symbolic role in the effective functioning of an organization. Thus, although we acknowledge that issues of sequence can be approached in a variety of ways, it is change, or lack of change, to high-impact elements upon which we focus here.

Some have suggested that implementing programs of radical transition requires that changes first be made to the more peripheral parts of an organization (e.g., Beer et al., 1990). This, it is argued, allows the generation of momentum that will subsequently allow changes to more contentious areas. However, the majority of evidence points toward the need to change more central elements early on. Pettigrew, for example, identified a planned move of the British-based Imperial Chemical Industries (ICI) London headquarters as “a signal that the changes in ICI were for real” (1985: 378). As one ICI director put it, “I see the . . . change as being the outward and visible sign . . . that signals to the outside world and the [internal] units that we are going to do something very different” (Pettigrew, 1985: 378).

Theoretically, the idea of changing high-impact elements early in a change process is compelling because their high symbolic value helps to convey the importance of the transition being instigated. While making changes to some little-used administrative policy may have little impact on the day-to-day running of an organization, changing who has decision-making authority over some important organizational function not only alters an important technical aspect of the operation, but also communicates to all the organization’s stakeholders that the transformation process is intended to significantly alter the ways in which the organization operates. Hinings and Greenwood (1988) provided evidence that early change to high-impact elements was significant for organizations on a reorientation track. Kikulis et al. (1995a) also suggested that the Canadian national sport organizations (NSOs) that they examined that managed to reorient to a new archetypal design altered their high-impact systems of decision making early on in the change process. However, in a separate study that explored the impact of change in decision-making structures in these organizations more explicitly, Kikulis et al. concluded that “a reorienta-

tion to a new design archetype does not necessarily go hand in hand with substantial qualitative shifts in the high-impact system of decision-making” (1995b: 295). They partially attributed this lack of conclusiveness to the fact that the data that they used were collected over four years, arguing that a longer study period might allow more definitive insight. In examining the sequence of change over a 12-year period, we anticipated being able to provide the empirical evidence necessary to significantly advance our understanding of this aspect of the change process. Thus, in keeping with the theoretical premise of the need to change high-impact elements early on, we propose that:

Hypothesis 2. The completion of a radical organizational transition is characterized by a change sequence that involves early change to high-impact organizational elements.

Linearity

In the discussion above, we outlined why various researchers have argued for early change to most if not all organization elements, to more peripheral elements, and to high-impact elements. These arguments can be read as implying that change is likely to unfurl in a linear manner. Indeed, many of the more prescriptive explanations imply that change is indeed implemented as a linear process (Greiner, 1972; Kotter, 1995). Very few studies have explicitly examined the linearity of the change process, but there is at least anecdotal evidence to suggest that the radical change process is not in fact linear. Kanter (1984), for example, found that the introduction of a participative management structure at Honeywell Defence Systems was characterized by considerable trial and error. Pettigrew and his colleagues similarly argued that in the NHS, “many change schemes fall by the wayside or are modified in process as circumstances, needs or ideas change” (1992: 201). We can thus start to appreciate the messy way in which change seems to unfold.

Denis and his coauthors (2001), in their analyses of changes in Québec hospitals, provided further insight into the linearity of the change process. They suggested that, to be effective, change leaders need to develop strong linkages within a leadership team (“strategic coupling”), between the leadership team and organization members (“organizational coupling”), and between the leadership group and key members of the environment (“environmental coupling”). While arguing that such coupling is vital to the achievement of large-scale change, they also acknowledged that it is inherently difficult to

maintain coupling at all three levels simultaneously. Consequently, they suggested, "Change tends to proceed by fits and starts, with sequential coupling and uncoupling occurring over time at different levels" (Denis et al., 2001: 810). A similar lack of continuity was uncovered by Heracleous and Barrett (2001), who found that attempts to introduce a system of electronic "placing" to the London insurance markets was characterized by delays, withdrawal, and the subsequent introduction of a different system because of the threat to traditional operating practices that was perceived by brokers and underwriters. Indeed, the uncertainty and resistance that Heracleous and Barrett (2001) uncovered is a primary reason why radical change programs seem to be characterized by nonlinear processes of implementation. Greenwood and Hinings (1988) also found evidence that delays, reversals, and oscillations, rather than a smooth, linear transition, characterize organizational change. They suggested that it is not just organizations following a nonreorientation track that will encounter such difficulties; it is also quite possible that organizations that follow a reorientation track will also experience delays and oscillations.

Thus, there appears to be a disjuncture between the normative conceptualization of change as unfolding in a predominantly linear manner and the more theoretically grounded academic evidence that suggests that radical change is instead characterized by delays and oscillations. A likely reason for this difference is an absence of research that has explored the ways in which different elements within organizations change over extended periods of time. This has resulted in a lack of detailed understanding as to how change unfolds at the suborganizational level. We start to address this ill-understood aspect of the transition process with our third hypothesis:

Hypothesis 3. Elements in an organization undergoing a radical transformation will change in a nonlinear manner.

METHODS

The focus for this study was a set of 36 Canadian Olympic NSOs. This group of organizations provided an excellent milieu in which to test our hypotheses for three reasons. First, it allowed us to study change in an entire population of similar organizations. Each NSO had a voluntary board of directors that had, and continues to have, ultimate responsibility for the organization. All received some level of public funding, and each employed paid staff to fulfill various roles. Thus, while there

were differences in terms of size and income, these organizations were, particularly at the start of our investigation, quite similar in the ways in which they were operated and structured, and in the context in which they existed.

Second, we were able to study the organizations during a distinct 12-year period that was quite probably the most turbulent in the history of Canadian amateur sport. This was important because change generally occurs during times of instability (Gersick, 1994), so research on transitions needs to focus on the behavior of organizations at these times. The first year of our study, 1984, was the start of an era in which Canada's NSOs were placed under intense pressure, primarily by the Canadian government, to change their operating structures, systems, and indeed, values. The last year, 1996, marked the point at which the government significantly reduced its role in the delivery of amateur sport. As such, 1996 has been described as the "end of the line for Canada's [amateur] sport system . . . the last product of Canada's golden age of sport spending" (Christie, 1997: A1). In this respect, we were granted an opportunity available to few who research outside the laboratory in that we were able to collect data on a population of organizations over a distinct epoch marked by discernable beginning and end points. The longitudinal design of our study was critical for trying to uncover the ways in which change took place (Monge, 1995; Romanelli & Tushman, 1994). As Pettigrew noted, studies of change are often limited because "few academic researchers studying change collect time series data" (1998: 284). Such data—vital if the pace, sequence, and linearity of the change process are to be uncovered—were central to this study.

Finally, within this population of NSOs there were clear examples of organizations that had been able to complete a program of radical change and of others that had not been able to accomplish it. We were thus able to compare how the organizations that were able to complete the transformation differed from those that were unable, notably with respect to the pace, sequence, and linearity of the varying change processes. As a consequence, we felt, our findings would be significantly stronger than if we had just been able to engage with organizations that had proven to be successful in their change efforts.

Throughout the 12 years of our research, the organizations that we studied were exposed to a variety of pressures. Dramatic change was instigated in 1983 when the federal government's Ministry of State for Fitness and Amateur Sport, through its agent Sport Canada, introduced its Best Ever Pro-

gram. Intended to assist winter Olympic NSOs to optimally perform at the 1988 Calgary Olympics, this program was expanded in 1984 to include the summer Olympic sports. Rather than just furthering the incremental shift toward professionalization and bureaucratization that had been ongoing since 1961, Best Ever was designed to bring about frame-breaking change within Canada's NSOs. It was intended that, instead of having the traditional design of an informal organization operated by volunteers with professional assistance, each NSO would become a professional bureaucracy controlled by professional staff, with volunteers reduced to a supporting role (Kikulis et al., 1992, 1995a; Macintosh & Whitson, 1990; Slack & Hinings, 1994). The research of Kikulis and her colleagues is particularly germane to our study, not least because they studied the same set of 36 NSOs. One key outcome of the work by Kikulis et al. (1992, 1995a) was the uncovering of three sector-specific archetypes, labeled "kitchen table," "boardroom," and "executive office."

The *kitchen table archetype* was the institutionally approved mode of operation for NSOs until the early 1970s (Kikulis et al., 1992, 1995a). In this form, volunteer control is emphasized. In fact, the authority of volunteers becomes institutionalized at a cognitive level in such a way that it becomes taken-for-granted by organization members (Zucker, 1977). Roles are not awarded on the basis of expertise or specialization but more as a result of loyalty, desire, and commitment to the organization. Little emphasis is accorded to formal planning, rules, or policies; the organization is run on an almost ad hoc basis aimed at satisfying its members.

With increased federal funding in the 1970s, the *boardroom archetype* became the legitimized form. Here, although the provision of development opportunities and participation are still valued, there is a greater emphasis placed on the development of elite athletes, opportunities for competition, and technical expertise. Administrative efficiency and effectiveness are also highly valued. The method of organizing still revolves around a volunteer-controlled hierarchy supported by professionals who make day-to-day operational decisions.

Finally, the *executive office archetype* was a direct result of the Best Ever program and the federal government's focus on high-performance athletics. In this design, the measure of success is the number of medals won at major competitions, such as Olympic Games and world championships. Technical expertise is valued, indeed required, in professionals and volunteers. The operation of the organization is devolved to the "more expert" professional staff, and the volunteer board is intended

to merely set organization policy and sanction professionals' decisions. More specialist staff are employed in key administrative and technical roles, and an emphasis is placed on the use of formal rules, regulations, and policies to guide the organization's functions. The purpose of the government-prescribed program was to get NSOs to become more professional and bureaucratic, changing what were, in 1984, still predominantly kitchen table-type designs for executive office archetypes. It is this change process that we focus upon here.

Data Collection

Data collection began in 1984 and was continued in 1986, 1988, 1992, and 1996. The initial two-year intervals followed by four-year lags were designed to provide greater insight during the crucial first four years of the change program than would have been possible if a four-year cycle had been used throughout. The four-year period was selected because it was coterminous with the major Olympic cycles and was thus the period around which NSOs carried out most of their strategic planning.

The qualitative and quantitative data used in the study were collected in various ways. The first source of data comprised the high-performance report that each NSO was required to complete as part of the initial quadrennial planning process in 1983–84. Each NSO's volunteer board of directors, often with input from professional staff and planning consultants hired by the federal government to provide technical assistance, prepared this highly detailed report. The report provided information about programs operated, board and committee structures, staff roles, the extent to which operations were standardized, and decision-making structures. Policies and procedures manuals, organization charts, and job descriptions were also analyzed. Interviews conducted with each NSO's senior professional, volunteer president, or Sport Canada consultant were used to confirm these data and obtain additional information. Further details are provided by Kikulis et al. (1995a). These data were used to determine the configuration of each NSO in 1984.

As a means to ascertain the nature of the various changes that took place over the next 12 years, a series of repeat interviews were carried out with key professional staff in each of the 36 NSOs. With turnover of personnel remarkably low, many of these organizations were characterized by the longevity of service of both volunteers and professionals (Macintosh & Whitson, 1990; Slack & Hinings, 1994). Consequently, we were frequently able to retain the same informant over several data collec-

tion periods. Further, as Slack and Hinings (1994) observed, when changes in personnel did occur, they tended to happen only incrementally, with replacements frequently being drawn from the Canadian amateur sport community. Consequently, new organization members often had a detailed knowledge of relevant past events and were rapidly socialized into existing norms and traditions. The collective organizational memory was therefore generally much more acute than it would likely be in an organization characterized by more rapid turnover and more diverse membership. Thus, a change in participant was not viewed as a major detriment as each interview was conducted with the senior person most directly involved in organizational and planning processes, a person almost invariably aware of the recent history of the organization. An occasional question was directed to another organization member if a specific piece of information was not forthcoming from the primary participant.

In total, 180 interviews were carried out over the 12 years of the study. A structured "pro forma" comprising a set of standard questions was used to guide the first half of the interview as a way to further maintain the consistency of the quantitative data. The topics covered included the extent to which an organization was differentiated in terms of subunits, teams, and personnel; the extent to which operations were formalized through the existence of job descriptions, policies and procedures manuals, certification programs, and the like; and the ways in which decisions were made with respect to issues such as coaching appointments and team selection. Further details on the individual scales and their constituent items are provided below and in the Appendix; the instrument is available from the authors on request. The second half of each interview consisted of a more free-ranging discussion of the changes that had occurred both in the particular NSO and in the Canadian amateur sport system as a whole. Each interview lasted between 90 minutes and two hours.

We used the quantitative data to determine the structural configurations of each organization at each of the data collection points between 1984 and 1996. The structural dimensions used for this purpose were specialization, formalization, and centralization. There were two reasons for adopting these measures. The first and most important is that, conceptually, they reflected the values that were driving the organizations to become more professional and bureaucratic. Canada's NSOs were being pressured to become more specialized by adding technical and administrative staff, while ascribing a more general policy construction man-

date to volunteers. It was also being stressed that NSOs should become more formalized in their operations. Sport Canada was adamant that job descriptions, policies and procedures manuals, criteria for team selections, and evaluation procedures needed to be better documented and that practices had to become better regulated both within and across organizations. Finally, pressures to decentralize decision-making authority to professional staff were the most controversial, symbolic, and far-reaching of all the changes that were being prescribed. This issue caused more conflict in NSOs than any other over the 12 years of our study, largely because of a reluctance among many volunteers to relinquish authority to hired staff. In determining levels of specialization, formalization, and centralization, we were therefore able to satisfy Romanelli and Tushman's (1994) demand that the selection of the domains across which change is measured should be based upon their importance and centrality to studied organizations' modes of operating.

The second reason for using these dimensions is that they have been theoretically and empirically established as measures of organizational structure (e.g., Kikulis et al., 1995a; Miller & Dröge, 1986; Pugh, Hickson, Hinings, & Turner, 1968; Slack & Hinings, 1994). Thus, as well as being appropriate for examining archetypal changes in NSO structures (Kikulis et al., 1995a, 1995b), they have also been shown to be robust in other institutional settings.

Specialization here refers to the degree to which an organization was differentiated in terms of administrative, technical, and support roles. We operationally defined five separate scales. *Technical specialization* was determined by examining the number of teams an NSO operated, the number of coaches used, the breakdown of the coaching staff by technical expertise and gender, and the existence of one or more committees involved with national team administration. *Support staff specialization* referred to the existence in a given NSO of positions that included assistant coaches, marketing assistants, and medical staff. *Professional specialization* was similarly calculated by determining whether individuals were employed in roles such as managing director, marketing director, and technical director. *Volunteer specialization* was assessed with questions concerning whether or not an organization had individuals filling various specialized positions, such as president, vice president for marketing, director of youth development, and so on. For each of the latter three scales, the response categories were "yes," "no," and "not applicable." Finally, a single-

item measure, *number of committees*, was created to account for the total number of subunits and committees within each organization.

Formalization was also measured using five scales, each consisting of between four and ten items. These covered administrative operations (*administrative formalization*), athlete services (*athletic services formalization*), evaluation procedures (*evaluation formalization*), support operations (*support services formalization*) and decision making (*decision-making formalization*). These scales measured the extent to which an NSO made use of formal plans, policies, and procedures, and the degree of engagement with formal monitoring, evaluation, and communication systems. Responses depended on the nature of individual items, ranging from a simple “yes,” “no,” or “not applicable” designation to a more complex rating on a Likert-type scale ranging from 0, indicating that no formal procedures existed, to 4, indicating that extensive formal procedures were in place. Particularly important was each informant’s response as to the degree of formalization and whether the NSO had become more or less formalized over the period since the previous data were collected.

The degree of centralization in each NSO was measured via four scales, each of which consisted of six decision-making items covering topics that were deemed central to the operation of the organization. These comprised questions regarding how decisions were made on the selection of national team athletes, participation in national team training programs, the selection of coaches, the development of coaches and officials, and which athletes should receive direct federal funding from the Athletes Assistance Program. The locus of final decision-making responsibility (*final decision maker*) was determined by asking each informant about the level at which particular decisions were made in his or her organization. For example, a decision made by a volunteer board of directors was given a score of 6; one made by an executive committee, a 5; by a senior manager, a 4; by a midlevel professional staff member, a 3; by a low-level staff member, a 2; and by a non-organization member (for instance, a marketing agency), a 1. A second centralization scale, *levels in making decision*, was used to measure the number of individuals from differing hierarchical levels that were involved in making each decision. Further insight was gained by counting which of the decisions in the six key areas were made by professional staff (*professional decisions*) and the number of those key decisions into which volunteer members had no input (*decisions without volunteers*).

In addition to allowing us to determine the design of each organization at each point in time, these data also allowed us to assess how each NSO changed along each of the scales over time and also to compare organizations with each other at particular points in time. Basic descriptive data pertaining to the scales are provided in Table 1.

Table 1 reports Cronbach’s alpha scores for the multi-item scales; number of committees, professional decisions, and decisions without volunteers were simple summed scales. With the exception of that for volunteer specialization, the alpha scores ranged from .61 to .80, with a median of .68, indicating that the scales had a level of internal consistency acceptable for this type of fieldwork (Kikulis et al., 1995a; Slack & Hinings, 1994). The lower reliability coefficient for the volunteer specialization scale suggested that administrative positions held by volunteers were not necessarily correlated. However, given the importance of volunteers to the functioning of NSOs, we followed the lead of both Kikulis et al. (1995a) and Slack and Hinings (1994), who faced an identical problem and chose to treat this scale as a collection of volunteer roles and thus retain it. Our confidence in the validity of the measures is based on the results of confirmatory factor analyses (CFAs) presented in Table 2. The goodness-of-fit indexes (GFIs), when considered in conjunction with the chi-square over degrees of freedom statistics, suggest that the scales retained acceptable levels of validity. Taken together, the reliability scores and the CFA results provided us with confidence as to the basic robustness of the scales over time.

Of course, archetypes represent ideal forms and are not, in fact, likely to be found in their purest forms (Miller & Friesen, 1984; Mintzberg, 1979). Table 3 shows how scores on each of the 14 scales would be distributed in a pure-form archetype. Following the lead of Kikulis et al. (1995a), we allocated “archetypal” status to an NSO that displayed appropriate scores on 11 or more of the 14 scales. Those NSOs with 9 or 10 appropriate scores were deemed to have achieved “embryonic” archetypal status. That is, they could be more closely associated with one archetype than with any other, but lacked sufficient characteristics to achieve full archetype status. Organizations that displayed 8 or fewer corresponding scales were labeled “schizoid,” indicating that they had significant numbers of characteristics of two different archetypes. We were thus able to classify each organization on the basis of certain conceptually determined criteria while allowing for the fact that empirically it is rare to find an organization with all the elements of a particular design.

TABLE 1
Means, Standard Deviations, Reliability Coefficients, and Correlations^a

Scale	Mean	s.d.	α^b	1	2	3	4	5	6	7	8	9	10	11	12	13
1984																
1. Technical specialization	10.68	2.54	.61													
2. Support staff specialization	2.47	2.31	.77	.42*												
3. Professional specialization	4.75	2.53	.70	.54**	.62**											
4. Volunteer specialization	8.17	2.35	.43	.31	.20	.45**										
5. Number of committees	8.58	4.89		.09	.04	.30	.29*									
6. Administrative formalization	5.61	2.44	.67	.36*	.32	.60**	.46**	.24								
7. Athletic services formalization	10.06	2.74	.68	.39*	.61**	.61**	.09	-.05	.57**							
8. Support services formalization	5.58	2.66	.75	.34*	.57**	.45**	.29	.07	.48**	.58**						
9. Decision-making formalization	12.17	3.65	.75	.04	.36*	.52**	.37*	.17	.38*	.14	.24					
10. Evaluation formalization	2.47	1.39	.63	.05	.42*	.54**	.19	.18	.51**	.53**	.47**	.25				
11. Final decision maker	24.39	4.01	.80	.89	-.20	-.11	.11	.15	.09	-.15	-.11	-.16	-.20			
12. Levels in making decision	10.48	2.47	.64	.04	.08	.09	-.13	.11	.16	.20	.13	-.12	.14	.49**		
13. Professional decisions	1.44	1.46	n.a.	.55	.37*	.22	-.01	-.05	.11	.37*	.35*	-.18	.26	-.54**	-.31	
14. Decisions without volunteers	0.94	1.12	n.a.	.45	.38*	.28	.15	-.01	.24	.49**	.56**	-.15	.35*	-.38*	-.28	.77**
1986																
1. Technical specialization	11.70	2.08														
2. Support staff specialization	3.22	2.04		.14												
3. Professional specialization	6.22	2.75		.44**	.26											
4. Volunteer specialization	8.56	2.62		.22	.08	.10										
5. Number of committees	10.14	5.02		.01	.24	.54**	.11									
6. Administrative formalization	7.78	1.85		.50**	.16	.32	.36*	.01								
7. Athletic services formalization	13.91	2.98		.22	.24	.35*	.02	-.00	.55**							
8. Support services formalization	8.33	2.04		.24	.38*	.29	.08	.21	.52**	.56**						
9. Decision-making formalization	13.69	1.95		.20	.07	.49**	.17	.21	.23	.07	.06					
10. Evaluation formalization	3.94	1.19		.19	.20	.27	.18	.09	.49**	.65**	.47**	.14				
11. Final decision maker	24.19	2.57		-.17	-.20	-.18	.18	.02	-.07	-.08	-.29	-.06	-.09			
12. Levels in making decision	10.67	2.00		-.26	-.16	-.05	.15	.25	-.08	-.01	-.03	.18	.11	-.16		
13. Professional decisions	1.67	1.59		.25	.36*	.16	-.02	-.13	.33*	.42**	.25	.19	.29	-.06	-.27	
14. Decisions without volunteers	0.72	1.00		.30	.37*	.06	-.10	-.27	.07	-.09	-.04	-.12	.03	-.30	-.40*	.35*
1988																
1. Technical specialization	12.38	2.25														
2. Support staff specialization	4.08	2.42		.28												
3. Professional specialization	6.47	2.86		.29	.24											
4. Volunteer specialization	8.22	2.43		.13	-.01	.37*										
5. Number of committees	10.28	5.40		.27	.30	.46**	.39*									
6. Administrative formalization	9.19	2.12		.15	.22	.37*	.12	-.11								
7. Athletic services formalization	14.66	3.55		.26	.44**	.31	.08	.03	.34*							
8. Support services formalization	9.44	2.68		.16	.24	.22	.16	-.04	.30	.70**						
9. Decision-making formalization	14.58	2.71		.24	.01	.32	.03	.21	.26	.40*	.47**					
10. Evaluation formalization	4.14	1.15		.29	.31	.21	.17	.17	.43**	.49**	.58**	.56**				
11. Final decision maker	23.67	2.06		.06	-.15	.13	.25	.21	-.02	.01	-.07	.34*	.18			
12. Levels in making decision	11.11	2.53		.11	-.01	-.06	-.05	.08	.15	.05	.06	.41*	.26	-.03		
13. Professional decisions	1.81	1.64		.07	.55**	.19	-.13	-.14	.35*	.43**	.27	.03	.14	-.11	-.11	
14. Decisions without volunteers	0.94	1.31		-.04	.20	-.05	-.45**	-.18	.01	-.13	-.04	-.31	-.36*	-.54**	-.16	.49**
1992																
1. Technical specialization	12.58	2.87														
2. Support staff specialization	3.72	2.13		.14												
3. Professional specialization	6.44	3.03		.27	.26											
4. Volunteer specialization	7.75	2.49		.24	.40*	.12										
5. Number of committees	10.56	6.52		.26	.21	.56**	.45**									
6. Administrative formalization	9.83	2.14		.17	.41*	.38*	.51**	.32								
7. Athletic services formalization	16.08	3.62		.21	.44**	.41*	.09	.09	.41*							
8. Support services formalization	11.03	2.52		-.11	.34*	.29	.15	.12	.34*	.64**						
9. Decision-making formalization	15.56	2.82		.18	.30	.37*	.05	.17	.43**	.41*	.42*					
10. Evaluation formalization	4.89	1.56		.23	.28	.24	.05	.01	.40*	.52**	.55**	.58**				
11. Final decision maker	22.06	3.09		.24	-.12	-.04	.01	.01	-.04	-.10	-.18	-.24	-.03			
12. Levels in making decision	10.78	2.82		.14	-.02	.02	-.06	-.04	-.03	.06	-.10	.24	.12	.03		
13. Professional decisions	1.94	1.96		-.09	.29	-.02	-.09	-.14	-.02	.16	.27	.15	.12	-.58**	-.06	
14. Decisions without volunteers	0.97	1.42		-.10	.17	-.02	-.08	-.00	.03	.08	.19	-.07	-.16	-.31	-.08	.55**

TABLE 1
Continued

Scale	Mean	s.d.	α^b	1	2	3	4	5	6	7	8	9	10	11	12	13
1996																
1. Technical specialization	13.74	3.19														
2. Support staff specialization	2.33	1.72		.42*												
3. Professional specialization	5.25	3.58		.61**	.75**											
4. Volunteer specialization	6.47	2.94		.09	.07	.33*										
5. Number of committees	9.75	6.42		.29	.40*	.66**	.58**									
6. Administrative formalization	10.48	3.17		.15	.21	.26	.06	.18								
7. Athletic services formalization	19.48	4.27		.27	.56**	.41*	-.08	.12	.43**							
8. Support services formalization	11.89	3.08		.46**	.66**	.61**	.15	.37*	.37*	.74**						
9. Decision making formalization	17.92	3.46		.25	.42*	.40*	-.23	.29	.47**	.57**	.61**					
10. Evaluation formalization	5.66	2.24		.40*	.41*	.28	-.21	.05	.32	.66**	.55**	.53**				
11. Final decision maker	23.26	2.71		-.19	-.44**	-.25	-.06	-.18	-.06	-.46**	-.50**	-.36*	-.48**			
12. Levels in making decision	9.51	2.82		.04	.09	-.01	.13	-.18	.21	.36*	.33	.14	.30	-.21		
13. Professional decisions	2.44	2.13		.00	.35*	.13	-.07	-.12	.08	.27	.27	.17	.13	-.60**	.36*	
14. Decisions without volunteers	1.00	1.33		.02	.22	.01	-.07	.04	.03	.34*	.27	.12	.32	-.53**	.15	.48**

^a $n = 36$.

^b The nature of the study, an investigation of organizational transitions using longitudinal data in an environment characterized by pronounced changes in institutional pressures over the duration of the study, prompted us to present only reliability estimates on the data collected in 1984. This decision was consistent with Kimberly's (1976) caution against relying on test-retest reliability measures for longitudinal studies. We therefore followed the example of Kikulis et al. (1995a), who argued that as changes were implemented over time, it was probable that some scaled items would change more than others. We likewise stress that our interest was in organizational change and in the degree and direction of that change. Thus, a reliable score in 1984 was taken as an indication that the scales in and of themselves were reliable enough for use over the entire change period.

* $p < .05$

** $p < .01$

Two-tailed tests.

Like Greenwood and Hinings (1993) and Kikulis et al. (1995a), we also had to create cutoff points to differentiate between low, medium, and high scores for each scale. With 36 NSOs and five data collection points, we had 180 individual scores for each scale. The method that proved conceptually and methodologically most sound was to designate the lowest third of each of the scale scores "low," the middle third "medium," and the upper third "high." This method was particularly sensitive to the changing pressures to which these organizations were exposed over the 12 years of the study. It took account of the likelihood of NSOs being much less professional and bureaucratic at the start of the change process than at the end, but it also catered for the probable occurrence of some organizations undergoing reversals, delays, or oscillations.

We also required some determinant as to what constituted a successful reorientation. In our study, an organization had to satisfy two requirements to gain this designation. First, it had to achieve, and maintain until 1996, executive office archetype status. The federal government considered a successful transition to be a shift to an executive office archetype through completion of the changes described earlier, and it therefore appeared logical for us to adopt the same criterion. Second, we needed to differentiate between radical and incremental

change. Hinings and Greenwood (1988) suggested that an organization that changes from one archetype to another goes through several stages. We followed their logic to develop a schematic of the change stages, which is illustrated in Figure 1. In order for a change to be considered radical, the NSO in question had to have started the transition process from a position outside the embryonic executive office archetype. This criterion ensured that any NSO attaining executive office status had to have undergone substantial transformation. In fact, none of the organizations here corresponded to an embryonic or full executive office archetype in 1984, so they all met this criterion.

We also wanted to ensure that achieving executive office status would not be an artifact of an NSO's starting design. In our study, unsurprisingly, organizations did begin their transition paths from different starting designs, five to be precise. However, NSOs from each different starting point either reoriented to the executive office archetype or achieved embryonic executive office status during the 12 years of the study. Thus, although they did not always achieve the final step to full executive office status, we are confident that this was not a consequence of their starting positions. The 12 years of the study provided ample time for any of the organizations involved in the study to reorient.

TABLE 2
Results of Confirmatory Factor Analyses^a

Scale	1984	1986	1988	1992	1996
Technical specialization GFI	.83	.88	.85	.96	.81
χ^2	27.79	29.78	26.43	32.74	32.04
<i>df</i>	20	20	20	20	20
Probability > χ^2	.11	.07	.15	.04	.04
Support staff specialization GFI	.84	.65	n.a.	n.a.	n.a.
χ^2	39.67	172.65	n.a.	n.a.	n.a.
<i>df</i>	35	54	n.a.	n.a.	n.a.
Probability > χ^2	.27	<.001	n.a.	n.a.	n.a.
Professional specialization GFI	.76	n.a.	.56	n.a.	n.a.
χ^2	82.50	n.a.	222.30	n.a.	n.a.
<i>df</i>	65	n.a.	104	n.a.	n.a.
Probability > χ^2	.07	n.a.	<.001	n.a.	n.a.
Volunteer specialization GFI	.72	n.a.	n.a.	n.a.	n.a.
χ^2	108.59	n.a.	n.a.	n.a.	n.a.
<i>df</i>	90	n.a.	n.a.	n.a.	n.a.
Probability > χ^2	.09	n.a.	n.a.	n.a.	n.a.
Number of committees GFI	n.a.	n.a.	n.a.	n.a.	n.a.
Administrative formalization GFI	.92	.94	.96	.93	.90
χ^2	9.01	7.47	5.84	8.29	10.51
<i>df</i>	9	9	9	9	9
Probability > χ^2	.44	.59	.76	.50	.31
Athletic services formalization GFI	.79	.80	.82	.83	.74
χ^2	55.58	49.99	40.48	36.40	62.26
<i>df</i>	35	35	35	35	27
Probability > χ^2	.01	.05	.24	.4	.00
Support services formalization GFI	.89	.87	.82	.90	.90
χ^2	20.31	20.41	27.05	14.44	15.40
<i>df</i>	14	14	14	14	14
Probability > χ^2	.12	.12	.02	.42	.35
Decision-making formalization GFI	.97	.88	.84	.84	.84
χ^2	2.22	20.84	24.44	19.84	19.21
<i>df</i>	9	9	9	9	9
Probability > χ^2	.99	.01	<.001	.02	.02
Evaluation formalization GFI	.95	.99	.92	.92	.97
χ^2	3.51	0.86	6.94	6.45	2.23
<i>df</i>	2	2	3	2	2
Probability > χ^2	.17	.65	.07	.04	.33
Final decision maker GFI	.87	.88	.85	.83	.89
χ^2	12.28	18.16	22.36	28.28	11.40
<i>df</i>	9	9	9	9	9
Probability > χ^2	.20	.03	<.001	<.001	.25
Levels in making decision GFI	.91	.84	.79	.84	.83
χ^2	7.94	20.06	34.02	22.25	25.32
<i>df</i>	9	9	9	9	9
Probability > χ^2	.54	.02	<.001	.01	.00
Professional decisions GFI	n.a.	n.a.	n.a.	n.a.	n.a.
Decisions without volunteers GFI	n.a.	n.a.	n.a.	n.a.	n.a.

^a We carried out these confirmatory factor analyses using SAS/STAT Proc Calis.

The GFIs are, on the whole, highly acceptable for data in general, and for longitudinal data in particular. For those scales in which the (that is, $\text{Pr} > \chi^2$ is greater than .05), this is likely because the relatively small sample increased the likelihood of making a type I error (erroneously rejecting the scale). The fact that all of the scales have chi-square over degrees of freedom values of less than 4, with most being around 2 or 3, suggests that we can be confident in the validity of the scales over time (Bollen, 1989). It should be pointed out that CFA is not appropriate for summed scales (here, number of committees, professional decisions, and decisions without volunteers). Also, dichotomous indicator scales (here, professional, volunteer, and support staff specialization) sometimes have identical item means and variances (indicated by "n.a." in the table). This is not particularly surprising and does not diminish the integrity of the scales.

RESULTS AND DISCUSSION

Eight NSOs reoriented over the 12 years. That is, they had all started outside the executive office

archetype or embryonic executive office in 1984, and by 1996, or before, had managed to achieve and retain full executive office archetypal status (see Table 4). For example, NSO 11 had an embryonic

TABLE 3
Profiles of Archetypes^a

Attribute	Kitchen Table	Boardroom	Executive Office
Specialization			
Technical specialization	Low	Medium/High	High
Support staff specialization	Low	Low/Medium	High
Professional specialization	Low	Medium/High	High
Volunteer specialization	Low/Medium	Medium/High	Low/Medium
Number of committees	Low/Medium	High	Low/Medium
Formalization			
Administrative formalization	Low	Medium/High	High
Athletic services formalization	Low	Medium/High	High
Support services formalization	Low	Medium/High	High
Decision-making formalization	Low	Medium/High	High
Evaluation formalization	Low	Medium/High	High
Centralization			
Final decision maker	High	High	Low/Medium
Levels in making decision	Low	Medium/High	Low
Professional decisions	Low	Low/Medium	High
Decisions without volunteers	Low	Low/Medium	High

^a Adapted from Kikulis et al. (1995a).

boardroom design in 1984; by 1988 it had moved to a schizoid boardroom/executive office design; by 1992 it had embryonic executive office status; and by 1996 it had transformed into an organization with full executive office status. By contrast, 28 NSOs failed to make the transition to an executive office archetype. Therefore, in order to facilitate comparisons between organizations that were successful in completing the program of radical change and those that were not, we split the population into two groups: group 1 contains the 8 organizations that reoriented, and group 2 comprises the 28 NSOs that did not.

Hypothesis 1 states that organizations that are able to complete a radical transition are characterized by a rapid pace of change. We found no support for this thesis. Utilizing the approach of Greenwood and Hinings (1988), we determined the pace of change by measuring the amounts of change activity that took place. Our contention was that if fast-paced change early on in the transition process was necessary in order to reorient, there would be more change activity in those organizations that reoriented than in those that did not.

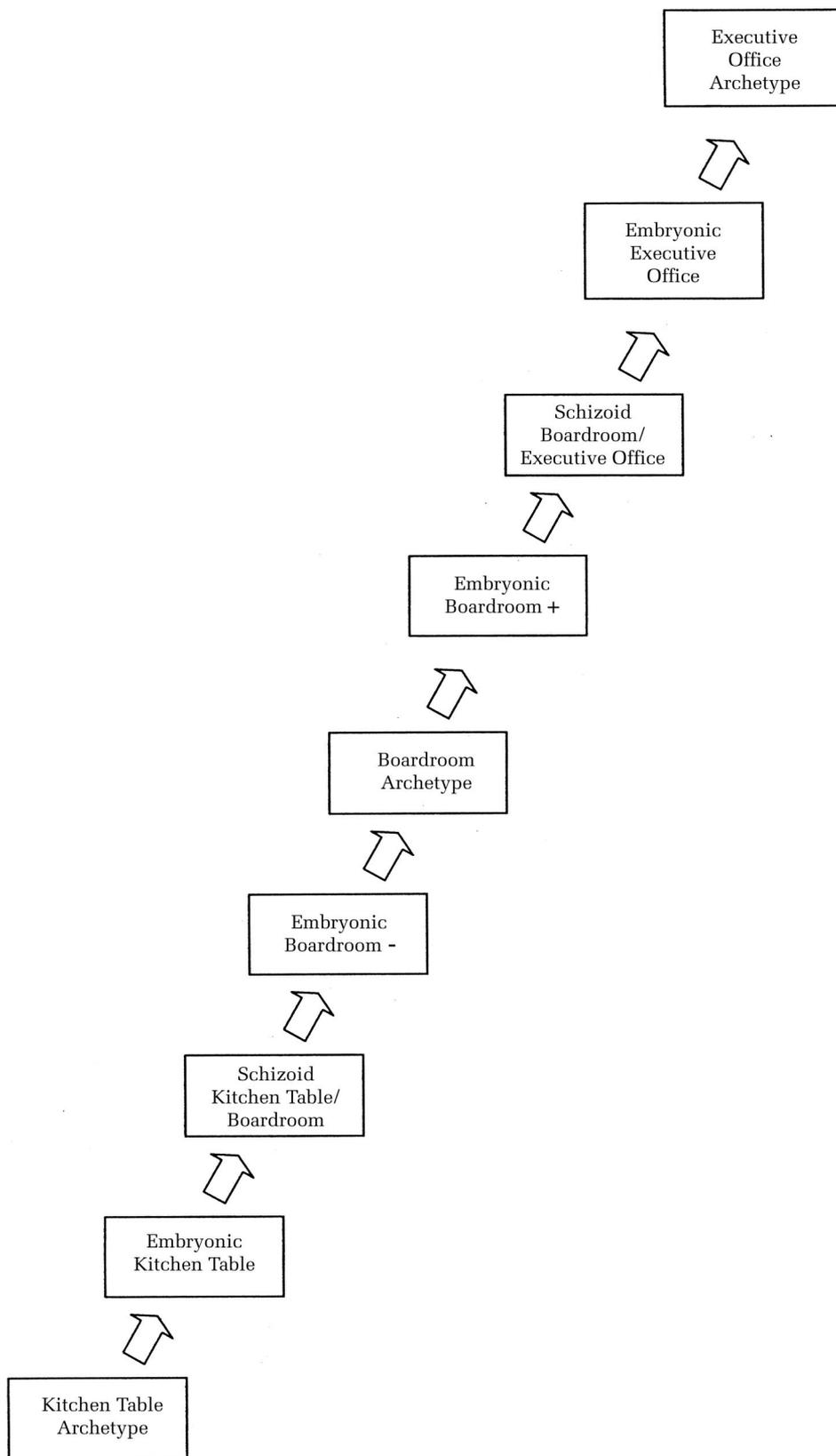
We used two measures to examine this hypothesis. Our initial approach was to calculate standardized scores from absolute values of change. We used absolute values for two reasons. First, although the nature of the prescribed changes and the starting positions of the organizations led us to expect ratings on most of our scales to increase, it was also likely that some scales (for example, final decision maker and volunteer specialization) would

change in a negative direction. Second, over the 12 years of the study, NSOs were exposed to a variety of pressures that would result in some organizations at some times going through reversals. Absolute values standardized to a mean of 0 and standard deviation of 1 allowed us to capture the magnitude of varying directions of change in a summative manner.

From these standardized scores, a mean was generated indicating the relative amount of change that took place in each group of NSOs between 1984 and 1986, 1986 and 1988, 1988 and 1992, and 1992 and 1996. Table 5 reports these results. A positive score indicates that an above-average amount of change took place over that time period; a negative score denotes a lower-than-average amount of change activity. It is clear that although more change took place over the first two years than over the following six years in group 1 NSOs, a similar scenario unfolded in group 2. There is no significant difference between the amount of early change that took place in those NSOs that reoriented and those that did not.

Of course, it is not just the pace of change that matters, but also the nature of the changes being made. It can be seen in Table 4 that between 1984 and 1986, 31 of the 36 NSOs moved toward the executive office design; only 3 NSOs retained the same design that they began the period with; and 2 reversed, with one of these, NSO 22, reversing only marginally. In other words, the vast majority of the change activity recorded between 1984 and 1986 was a result of NSOs becoming more professional

FIGURE 1
Stages of Transition in the Change Process^a



^a The plus and minus designations indicate whether the embryonic boardroom organizations are more or less professional and bureaucratic than the true boardroom archetype.

TABLE 4
Changes over Time in the Designs of the National Sport Organizations^a

NSO	1984	1986	1988	1992	1996
1	Schizoid executive office/boardroom	Embryonic executive office	Executive office archetype	Executive office archetype	Executive office archetype
2	Schizoid boardroom/kitchen table	Schizoid executive office/boardroom	Schizoid executive office/boardroom	Schizoid executive office/boardroom	Schizoid executive office/boardroom
3	Schizoid kitchen table/boardroom	Embryonic boardroom –	Schizoid boardroom/executive office	Embryonic executive office	Schizoid executive office/boardroom
4	Embryonic kitchen table	Embryonic boardroom –	Schizoid boardroom/kitchen table	Embryonic kitchen table	Schizoid executive office/boardroom
5	Schizoid executive office/boardroom	Embryonic executive office	Executive office archetype	Executive office archetype	Executive office archetype
6	Kitchen table archetype	Schizoid boardroom/kitchen table	Schizoid boardroom/executive office	Schizoid kitchen table/boardroom	Kitchen table archetype
7	Kitchen table archetype	Embryonic kitchen table	Schizoid boardroom/kitchen table	Kitchen table archetype	Kitchen table archetype
8	Schizoid kitchen table/boardroom	Embryonic boardroom +	Schizoid executive office/boardroom	Embryonic executive office	Schizoid executive office/boardroom
9	Embryonic kitchen table	Schizoid kitchen table/boardroom	Schizoid boardroom/kitchen table	Schizoid boardroom/kitchen table	Schizoid executive office/boardroom
10	Embryonic kitchen table	Embryonic boardroom –	Embryonic boardroom –	Boardroom archetype	Schizoid executive office/boardroom
11	Embryonic boardroom –	Embryonic boardroom +	Schizoid boardroom/executive office	Embryonic executive office	Executive office archetype
12	Schizoid kitchen table/boardroom	Embryonic boardroom –	Embryonic boardroom +	Embryonic boardroom +	Schizoid executive office/boardroom
13	Kitchen table archetype	Schizoid boardroom/kitchen table	Schizoid boardroom/kitchen table	Boardroom archetype	Embryonic kitchen table
14	Embryonic kitchen table	Schizoid boardroom/kitchen table	Embryonic boardroom +	Embryonic executive office	Schizoid boardroom/executive office
15	Embryonic kitchen table	Kitchen table archetype	Schizoid executive office/boardroom	Schizoid executive office/boardroom	Schizoid executive office/boardroom
16	Embryonic kitchen table	Embryonic kitchen table	Schizoid boardroom/kitchen table	Schizoid kitchen table/boardroom	Schizoid executive office/boardroom
17	Kitchen table archetype	Schizoid kitchen table/boardroom	Schizoid boardroom/executive office	Schizoid executive office/boardroom	Schizoid executive office/boardroom
18	Schizoid boardroom/kitchen table	Schizoid boardroom/kitchen table	Embryonic boardroom +	Embryonic executive office	Embryonic executive office
19	Kitchen table archetype	Boardroom archetype	Boardroom archetype	Schizoid executive office/boardroom	Embryonic executive office
20	Embryonic kitchen table	Schizoid boardroom/kitchen table	Schizoid boardroom/kitchen table	Schizoid boardroom/executive office	Embryonic executive office
21	Kitchen table archetype	Embryonic boardroom +	Schizoid executive office/boardroom	Schizoid executive office/boardroom	Schizoid executive office/boardroom
22	Schizoid executive office/boardroom	Schizoid boardroom/executive office	Schizoid executive office/boardroom	Schizoid boardroom/executive office	Executive office archetype
23	Schizoid kitchen table/boardroom	Boardroom archetype	Schizoid boardroom/executive office	Embryonic executive office	Embryonic boardroom +
24	Schizoid kitchen table/boardroom	Schizoid boardroom/kitchen table	Schizoid boardroom/kitchen table	Schizoid boardroom/executive office	Kitchen table archetype
25	Schizoid kitchen table/boardroom	Schizoid boardroom/executive office	Schizoid executive office/boardroom	Schizoid executive office/boardroom	Schizoid executive office/boardroom
26	Kitchen table archetype	Schizoid kitchen table/boardroom	Embryonic boardroom –	Embryonic executive office	Embryonic executive office

TABLE 4
Continued

NSO	1984	1986	1988	1992	1996
27	Schizoid kitchen table/ boardroom	Schizoid boardroom/executive office	Schizoid boardroom/ executive office	Embryonic executive office	Embryonic executive office
28	Embryonic kitchen table	Schizoid boardroom/executive office	Schizoid boardroom/ executive office	Embryonic boardroom +	Schizoid executive office/ boardroom
29	Kitchen table archetype	Embryonic kitchen table	Embryonic boardroom +	Embryonic executive office	Schizoid boardroom/ executive office
30	Schizoid boardroom/ executive office	Embryonic executive office	Embryonic executive office	Executive office archetype	Executive office archetype
31	Embryonic kitchen table	Schizoid kitchen table/ boardroom	Schizoid kitchen table/boardroom	Schizoid boardroom/ kitchen table	Embryonic executive office
32	Schizoid executive office/boardroom	Schizoid executive office/ boardroom	Embryonic executive office	Embryonic executive office	Executive office archetype
33	Embryonic boardroom –	Embryonic boardroom +	Schizoid executive office/boardroom	Executive office archetype	Executive office archetype
34	Embryonic boardroom –	Boardroom archetype	Embryonic boardroom +	Embryonic executive office	Executive office archetype
35	Schizoid kitchen table/ boardroom	Schizoid executive office/ boardroom	Schizoid boardroom/ kitchen table	Schizoid boardroom/ executive office	Embryonic executive office
36	Schizoid boardroom/ kitchen table	Schizoid boardroom/ executive office	Embryonic boardroom +	Embryonic executive office	Embryonic executive office

^a In a schizoid design, the designation is a function of the proportion of elements from each archetype. For example, “Schizoid kitchen table/boardroom” represents a design in which most elements fit the kitchen table archetype and the remainder fit the boardroom archetype. Unsurprisingly, there were no schizoid kitchen table/executive office designs. An embryonic form indicates that while the organization has nearly achieved archetypal status, it lacks certain key characteristics. See Figure 1 for more details on the path of transition among organizational forms.

TABLE 5
Change Activity over Time^{a, b}

Time	Group 1 Change	Group 2 Change	Total Change Activity
Change period 1: 1984–86	.20 (.33)	.27 (.25)	.24 (.29)
Change period 2: 1986–88	–.43*§ (.27)	–.34*§ (.14)	–.38*§ (.21)
Change period 3: 1988–92	–.32‡ (.25)	–.12 (.20)	–.22‡¥ (.24)
Change period 4: 1992–96	.29 (.32)	.27 (.23)	.28 (.27)

^a Group 1 contains the NSOs that reoriented, group 2 the NSOs that did not reorient. Means and standard deviations (in parentheses) of the standardized scales are shown.

^b *: Difference between change periods 1 and 2 significant at the .05 level.

§: Difference between change periods 2 and 4 significant at the .05 level.

‡: Difference between change periods 1 and 3 significant at the .05 level.

¥: Difference between change periods 3 and 4 significant at the .05 level.

and bureaucratic and moving toward the prescribed executive office design.

This point is reinforced by our second approach, an examination of the ways in which change unfolded across individual scales. Table 6 illustrates how the scale data, following a natural logarithmic transformation, changed over time. With data that predominantly showed growth, the transformation allowed us to stabilize the variance and thus more clearly expose differences between groups over time than would otherwise be apparent. Only 4 of

the 14 scales showed significant differences between groups over the first two years of the change program (see the column labeled “Group × 1984–86 Change”). Indeed, for 2 of these 4 scales, organizations that did not ultimately reorient showed greater change in the prescribed direction, toward the executive office archetype, than did those NSOs that reoriented. Thus, although 9 of the scales did show a significant change over the first two years (see the “Change from 1984 to 1986” column), in most cases the rate of change was sim-

TABLE 6
Comparison of Change in Reorienting and Nonreorienting NSOs and Group Effects over Time^a

Variable	1984		Overall Difference in Group Means	Change from 1984 to 1986	Group × 1984–86 Change	1988		Overall Difference in Group Means	Change from 1986 to 1988	Group × 1986–88 Change	1992	Overall Difference in Group Means	Change from 1988 to 1992	Group × 1988–92 Change	1996	Overall Difference in Group Means	Change from 1992 to 1996	Group × 1992–96 Change	
	1984	1986																	
Technical specialization																			
Group 1	2.59	2.65	12.67***	5.34*	0.34	2.71	15.11***	3.30 [†]	<.001	2.76	12.88**	0.80	1.51	2.81	12.63**	3.21 [†]	0.33		
Group 2	2.33	2.44				2.49				2.48				2.58					
Support staff specialization																			
Group 1	1.52	1.40	7.75**	2.33	5.50*	1.59	1.96	5.27*	0.01	1.49	1.74	0.71	<.001	1.31	5.75 [†]	3.58 [†]	0.98		
Group 2	0.54	1.12				1.33				1.23				0.67					
Professional specialization																			
Group 1	2.11	2.25	15.10***	5.85*	1.17	2.31	17.36***	0.54	0.09	2.28	17.33***	0.07	0.07	2.15	14.25**	3.40 [†]	0.75		
Group 2	1.31	1.69				1.72				1.72				1.35					
Volunteer specialization																			
Group 1	2.30	2.23	2.15	<.001	1.27	2.24	1.20	0.08	0.15	2.19	2.17	0.67	0.08	1.67	0.06	27.09***	13.15**		
Group 2	2.06	2.14				2.10				2.01				1.92					
Number of committees																			
Group 1	2.06	2.41	0.39	4.65*	0.64	2.48	1.65	0.35	0.17	2.51	2.48	<.001	0.08	2.24	1.04	2.96 [†]	1.92		
Group 2	2.01	2.18				2.19				2.17				2.14					
Administrative formalization																			
Group 1	2.00	2.31	8.80***	16.34***	0.24	2.42	12.73**	15.69***	0.68	2.48	9.56**	3.35 [†]	0.01	2.52	5.53*	0.58	<.001		
Group 2	1.64	2.03				2.20				2.27				2.30					
Athletic services formalization																			
Group 1	2.58	2.80	11.15**	31.56***	1.83	2.85	5.70*	2.64	0.01	2.90	4.48*	6.89*	0.55	3.13	4.98*	33.93***	0.58		
Group 2	2.25	2.60				2.65				2.75				2.93					
Support services formalization																			
Group 1	2.07	2.27	6.25*	14.20**	3.08 [†]	2.41	2.51	15.19***	0.29	2.48	1.71	11.41**	2.14	2.65	2.50	4.29*	2.06		
Group 2	1.58	2.11				2.22				2.40				2.43					
Decision-making formalization																			
Group 1	2.67	2.73	4.60*	4.39*	1.28	2.82	5.71*	4.24*	0.52	2.88	5.19*	10.59**	<.001	3.02	5.49*	35.35***	0.04		
Group 2	2.44	2.62				2.66				2.73				2.86					
Evaluation formalization																			
Group 1	1.40	1.67	7.93**	11.47**	1.77	1.64	7.56**	0.18	0.89	1.77	2.12	2.81	0.05	2.01	3.24 [†]	1.52	0.56		
Group 2	0.76	1.39				1.47				1.57				1.63					
Final decision maker																			
Group 1	3.22	3.17	0.15	0.19	0.51	3.20	0.12	0.02	2.30	3.13	0.39	4.78*	0.01	3.12	0.09	1.28	1.47		
Group 2	3.20	3.21				3.18				3.10				3.17					
Levels in making decision																			
Group 1	2.42	2.31	0.16	0.29	3.84 [†]	2.34	2.34	0.90	0.01	2.33	1.17	0.58	0.10	2.25	0.49	1.88	0.16		
Group 2	2.36	2.42				2.45				2.41				2.27					
Professional decisions																			
Group 1	0.84	0.92	5.94*	0.25	0.02	0.92	2.95 [†]	0.16	0.16	0.34	0.24	1.15	3.13 [†]	1.29	0.65	5.64*	6.01*		
Group 2	0.19	0.33				0.41				0.56				0.54					
Decisions without volunteers																			
Group 1	0.76	0.10	5.76*	3.90 [†]	3.37 [†]	0.10	0.32	0.37	0.37	-0.04	0.02	0.13	0.13	0.48	0.97	1.07	2.23		
Group 2	-0.11	-0.13				-0.01				-0.01				-0.10					

^a Natural logarithmic transformations of the scale means for group 1 and group 2 are listed under each year; all other columns contain *F*-statistics. The “Overall Difference in Group Means” values are irrespective of any changes over time. The “Change from” columns depict the overall impact of time on the scales, irrespective of group. The interaction columns note the group effects on the changes over time.

[†] *p* < .10
* *p* < .05
** *p* < .01
*** *p* < .001

ilar across both groups. If Hypothesis 1 had been supported, we would have found those organizations that reoriented changing more rapidly in the first two years than those that failed to complete the transformation across most, if not all, of the scales. This is clearly not the case. Thus, we can reasonably conclude that fast-paced change across an organization early on in the transition process is not sufficient to bring about lasting, long-term transformation.

Our findings here somewhat contradict those of Romanelli and Tushman (1994), Warren (1984), and Hackman (1984), who all suggested that large-scale adjustments need to be made throughout an organization early in a change process if radical transformation is to be completed. In fact, there is some evidence to support those theorists who have argued that radical change should be implemented slowly and carefully (e.g., Hedberg et al., 1976; Pettigrew et al., 1992). Although Table 5 shows very little difference between the relative levels of change activity experienced by our group 1 and group 2 NSOs, Table 4 suggests that changes were implemented at differing rates. Not one of the eight organizations that reoriented did so in the first two years of the change program. Three NSOs in group 1 did achieve embryonic executive office archetype designs, but no organization could make the major changes required to reorient in just two years. Further, it can be seen from Table 4 that of those organizations that reoriented, only NSOs 11 and 33 moved through two of the transition stages depicted in Figure 1 between 1984 and 1986. The other six exhibited relatively minor (NSOs 1, 5, 22, 30, and 34) or no (NSO 32) apparent design changes over the first two years. By contrast, nine NSOs in group 2 (2, 8, 19, 21, 25, 27, 28, 35, and 36) underwent relatively major adjustments (that is, they moved through three or more of the transition stages) between 1984 and 1986. However, none of these went on to achieve executive office status.

In line with the theoretical underpinnings of our first hypothesis, the discussion thus far has concentrated upon fast-paced change early in a transition. It is, of course, quite possible that a period of rapid change will take place later in the process. Indeed, Table 5 strongly supports this contention, indicating that NSOs in both groups had similar amounts of total change activity between 1992 and 1996 and between 1984 and 1986. Examination of Table 4 shows where this change activity was translated into meaningful design changes. Organizations 3, 4, 6, 9, 13, 15, 16, 17, 18, 20, 24, 26, 29, 31, and 35 each exhibited a period of fast-paced change *after* 1986, though in the case of NSO 13 it was in the direction opposite to that demanded by Sport Can-

ada. However, not one of these NSOs reoriented. Thus, of the 36 NSOs that were studied here, 22 underwent a period of rapid change in the prescribed direction that resulted in a major change in organizational design. Not one of these NSOs, however, went on to reorient, forming a stark contrast to the more sedate progress made by all of those NSOs that did attain executive office status. The association of successful reorientation with slower implementation is probably a consequence of the political sensitivity of the changes that were being introduced—in particular, the way in which volunteers were being pressured to relinquish much of their authority. As Pettigrew and his colleagues observed, the need to develop positive relationships among those integrally involved in a change process “through small pragmatic steps and attention to trust-building” (1992: 201) should not be underestimated, a notion further reinforced by some of the qualitative data presented later.

In Hypothesis 2, we suggested that organizations that are able to complete an archetypal transition exhibit a sequence that starts with changing their high-impact elements—here, their decision-making structures. If this were the case, we would expect to have found two things: first, that professional staff in group 1 organizations were given more autonomy to make decisions than those in group 2, and second, that group 1 staff were actually making more decisions than those in group 2, in which we would expect volunteer directors to retain decision-making authority. Our results clearly support these suppositions.

The first point of interest is the levels in making decision scale in Table 6. This scale indicates that, between 1984 and 1986, there was significant change in the number of hierarchical levels involved in making decisions: in group 1 NSOs the number dropped, but in group 2 it increased ($F = 3.84, p < .06$). This change needs to be considered in the context of our findings regarding the other centralization scales. First, there is no significant change in the locus of decisions (final decision maker) or the number of decisions made by professional staff (professional decisions) for either group 1 or group 2 NSOs. However, when we examine the professional decisions scale more closely, most notably the “Overall Difference in Group Means” column for 1984–86, an interesting tale starts to unfurl. This metric, which accounts for the overall variation between groups, is only really of interest when such variation cannot be attributed to changes made over time. Thus, in the professional decisions scale, we find a significantly greater level of professional decision making in group 1 organizations than in group 2 NSOs ($F = 5.94, p < .05$),

and we find that this difference does not change over time. In other words, in the NSOs that were able to reorient, a significant shift toward allowing professional staff to make decisions had occurred prior to 1984. Thus, there was no *perceived need* to change this level of authority in group 1 organizations; unsurprisingly, there was no *desire* to change it in group 2 NSOs. The lack of change in this scale is reflected in the lack of change in the scale measuring the locus of decision making, final decision maker.

With the corresponding drop in the levels in making decision scale in group 1 organizations, it is apparent that professional staff were not only continuing to make decisions, but also that they had to deal with fewer hierarchical levels in doing so. Typically, prior to the transformation, decisions were made by committees, often after investigation and recommendations had been made by lower-level committees and/or professional staff. Although this practice certainly continued in group 2 NSOs, and in fact appeared to increase, given the data presented in the levels in making decision scale, levels of consultation significantly decreased in the NSOs that reoriented. Such a decrease would have been important not only functionally, but also symbolically, because of the message that it relayed throughout the organizations. It is worth reiterating that a central thrust of the proposed government-driven transformation of these organizations was to get professional staff making decisions, rather than volunteers. When combined with the results of the changes in the final decision maker scale, changes to the levels in making decision scale indicate that professional staff were being accorded greater decision-making authority and autonomy in those NSOs that reoriented.

These results support the contention put forward by Hinings and Greenwood (1988) and Kikulis and her colleagues (1995a) regarding the importance of early change to high-impact decision-making systems. As Hinings and Greenwood pointed out, "Such changes symbolize the coming transformation and act to make it happen" (1988: 114). The increase in the number of hierarchical levels involved in decision making in group 2 NSOs indicates that the volunteers in these organizations were keen to resist the prescribed changes by retaining or even extending their involvement in decision making.

There is a slight caveat to this commentary. The decisions without volunteers scale depicts the number of decisions in which volunteers were not involved. Table 6 shows that this declined markedly in group 1 organizations over the first two years while remaining relatively constant for group

2 ($F = 3.37, p < .1$). This pattern of findings suggests that although group 1 NSOs were undoubtedly changing in the prescribed direction, volunteer board members were still keen to retain some participative role in making key decisions. In other words, although professional staff were being given more decision-making responsibility, volunteer board members were insistent on retaining input into the decisions being made. Frequently this involved little more than a rubber stamping by a board or committee of a professional's decision, an act that reflected the constitutions of organizations governed by volunteer boards of directors. An example of this is provided by NSO 1. The organization's executive director informed us that "business units" responsible for the development of different aspects of the organization had been created. These units were intended to maximize the impact of professional staff expertise while recognizing the need for volunteer involvement.

Each unit has a volunteer committee addressing a specific program area and each of them has a senior staff position. The senior staff position clearly affects their input [into] decisions that the volunteers might make, but in actuality it's the volunteers that carry policy for approval to the . . . Board level and then the staff member is responsible for implementing those policy decisions. Some [professional staff] do a great job and are directing volunteers hopefully in the right direction and are assuming a leadership role within that group and are received well.

It was clear from our interviews that the general consensus from the volunteers in the reorienting NSOs was to let the professional staff get on with running the organizations. The managing director of NSO 30 informed us in 1988 that the changes initiated by the organization had "resulted in a far better interface between the volunteers and the professionals. . . . The volunteers now let the professionals get on with the job." These comments were reiterated when he was asked in 1996 what he thought had been the most significant change over the preceding years.

I think it has been the realization by our [volunteer] Board of Directors and [volunteer] Executive Committee that if we are going to make it, it is because we have assembled a good team of professionals working for the organization.

Study participants from the other reorienting organizations expressed similar comments, providing further support for Hypothesis 2: if an organization is to accomplish radical change, it must make early changes to its high-impact elements. Not only do such changes technically after the operation of the organization; they also carry a symbolic message

that clearly informs internal and external stakeholders that the unfolding transition is wide-ranging and intended to be long-lasting.

Hypothesis 3 states that elements in an organization undergoing a radical transformation will change in a nonlinear manner. Again, we find compelling support for this idea with our scale-level analysis of change over time. In Table 4, we can see that 5 NSOs followed, in the language of Greenwood and Hinings (1988), an “oscillatory track” (that is, they oscillated back and forth between different designs), and 8 experienced a “reversal” (at some point they moved from a more professional and bureaucratic design to one that was less so); the other 23 NSOs appeared to move in a linear manner with no pronounced changes of direction. However, when the individual scale scores are examined, it becomes apparent that there was much less linear change than is initially apparent, particularly when it came to changing the more contentious parts of the organizations. Using a multivariate analysis of variance (MANOVA) and polynomial contrasts, we examined the trend toward the means for each scale over each time period. Table 7 shows that 7 of the 14 scales changed in a linear manner in each group. The other scales, by contrast, followed nonlinear paths that included significant oscillations, delays, and reversals.

Importantly, of these 14 total occurrences of linear scale changes, 10 were scales pertaining to the levels of formalization in the organizations. In other words, as Beer et al. (1990) might have predicted, smooth, linear transitions occurred almost exclusively in areas that were uncontroversial, easy to implement, and relatively insignificant with respect to their impact on the traditional operating methods of the organizations. For example, members of an NSO could quite easily satisfy a Sport Canada directive that their organization have an equal opportunities manual or evaluation procedures for all technical and administrative staff, even if subsequently they were not used. Two of the other scale changes were in areas that primarily measured the extent to which each organization became technically more advanced, most notably in terms of changes to teams and personnel. Given that these alterations were largely financed by additional funding from Sport Canada, they were also relatively simple and uncontroversial. However, implementing changes to an organizational element such as decision-making structures—with the associated transfer of power from volunteers to professionals—was, by contrast, much more difficult and contested. Unsurprisingly, change in such areas was much more likely to be characterized by delays and reversals.

There are several reasons why the different ele-

TABLE 7
Linearity, 1984–96^a

Variable	<i>t</i>
Technical specialization	
Group 1	3.91**
Group 2	3.66**
Support staff specialization	
Group 1	-0.58
Group 2	0.89
Professional specialization	
Group 1	0.65
Group 2	0.30
Volunteer specialization	
Group 1	-4.85**
Group 2	-1.67
Number of committees	
Group 1	0.58
Group 2	0.69
Administrative formalization	
Group 1	4.19**
Group 2	8.65***
Athletic services formalization	
Group 1	7.22***
Group 2	10.04***
Support services formalization	
Group 1	5.73***
Group 2	9.10***
Decision-making formalization	
Group 1	5.39**
Group 2	7.13***
Evaluation formalization	
Group 1	4.33**
Group 2	5.16***
Final decision maker	
Group 1	-1.70
Group 2	-1.95 [†]
Levels in making decision	
Group 1	-1.34
Group 2	-1.39
Professional decisions	
Group 1	n.a.
Group 2	1.41
Decisions without volunteers	
Group 1	n.a.
Group 2	0.27

^a A significant *t*-value indicates rejection of the null hypothesis that the variable changed in a nonlinear manner. Thus, a significant *t* shows a linear trend and a nonsignificant *t* suggests a nonlinear trend, such as a quadratic, cubic, or quartic curve. These would indicate delays, reversals, and/or oscillations. An “n.a.” indicates that the test was not appropriate because of the existence of common means and variances at two different points. However, the data reported in Table 6 suggest that these variables changed in a nonlinear manner characterized by delays and reversals.

[†] $p < .10$

** $p < .01$

*** $p < .001$

ments within the organizations changed in nonlinear ways. First, as we have stressed throughout, the changes that were being implemented were diamet-

rically opposed to the culture that had built up in most of these organizations. Consequently, opposition to the changes in many NSOs resulted in some of the introduced changes having to be withdrawn and then reintroduced in either a slightly different form, or at a different time, when members of the organizations were likely to be more receptive to the proposed changes. This scenario resembles that discovered by Barrett and Cammann (1984) in their investigation of the ways in which change unfolded at National Steel Corporation.

Second, the NSOs were being pressured into making changes the outcomes of which nobody, not even the Sport Canada consultants who assisted with the implementation of the transition, could be sure. In Canada, as in other countries, amateur sport organizations had traditionally been operated in an informal manner, primarily by volunteers. How would these organizations react to the change in decision-making emphasis from volunteer to professional? How would they cope with the required large-scale increases in strategic planning? How would the massive increases in federal funding be handled? How would members react to a pronounced shift in evaluation criteria, from participation and satisfaction of members to high performance and international success? Such issues created an uncertainty that resulted in experimentation as alterations were made, found to be unsuitable, withdrawn, and replaced by a new set of changes. In fact, the quadrennial planning process itself that drove the initial changes was withdrawn in 1992 in favor of a less bureaucratic system believed to be easier to manage.

Finally, there were substantial changes over the duration of the study in the contextual pressures to which NSOs in Canada were exposed. For example, following Ben Johnson's failure of a drug test at the 1988 Olympics, a federally appointed Royal Commission headed by Charles Dubin conducted an investigation into drug abuse in Canadian amateur sport. One of the recommendations of a report that found evidence of wide-scale drug use among Canadian athletes was a de-emphasis of high-performance sport. Federal Minister for Sport Jean Charrest suggested that Canada's coaches needed to emphasize ethics rather than winning in an attempt to "redefine the cultural values" of sport (*Toronto Star*, 1988: C3). Thus, for a short while greater emphasis was placed on grassroots participation rather than on the elite performances that had become the prescribed focus of NSOs.

In addition, NSOs had to cope with substantial increases and then decreases in federal funding, which peaked in 1988 at CDN\$86m but was cut by 1996 to CDN\$48.6m (Jollimore, 1996). In fact, seven

of the organizations from which we gathered data (rhythmic gymnastics, ski jumping, Nordic combined, archery, weight lifting, handball, and luge) had their federal funding totally eliminated in 1996. Even the NSOs that retained their funding had to cope with drastic reductions. This led to all of the NSOs in our study more actively seeking alternative sources of income, such as television rights fees, corporate sponsorship, increased membership fees, and even private donations. Inevitably, some were more successful at this than others.

A third example of a shift in the contextual pressures to which these NSOs were exposed came with the announcement of a philosophical move to a more "athlete-centered" system based on a series of high-performance centers (Christie, 1997). Previously, the intent had been to create a centralized bureaucracy, with the vast majority of NSOs housed in a single building in Ottawa; now, money started to be directed toward the creation of a network of high-performance centers across the country.

Such broad changes in external pressures, a seemingly inevitable accompaniment to extended periods of change, render a linear transformation extremely unlikely. Thus, we are able to offer support for Hypothesis 3 and suggest that organizations that enter programs of radical change are likely to encounter a process characterized by delays, reversals, and oscillations.

The significance of this finding should not be underplayed. It is highly likely that those seeking to implement change will be able to bring about quite substantive adjustments to more peripheral parts of an organization in a linear manner. Even if there are disagreements about some aspects of the changes being implemented, it is unlikely that active and coordinated dissension will mobilize around issues considered to have a marginal effect on the functioning of the organization and, in particular, individuals' roles within it. Consequently, consistent, iterative implementation in a linear manner is, as we found here, quite possible. However, in more contentious areas, such as decision making, change will have a pronounced impact on the ways in which people operate and thus is much more likely to be contested. It is therefore much more likely that change in these areas will have to be more carefully considered and will be characterized by delays and oscillations.

CONCLUSIONS

Key Findings and Implications

In the introduction to a special research forum in the *Academy of Management Journal* intended to

outline some of the key issues that researchers studying organizational change should consider. Pettigrew and colleagues (2001) suggested that an important gap in the literature concerned the lack of research focused on the pace and sequence of organizational change. The work presented here is an attempt to contribute to understanding of this underdeveloped area. There has been an almost taken-for-granted assumption in much of the literature that radical organizational transitions depend upon rapid change across entire organizations. In contrast, our findings suggest that rapid change throughout organizations is not only insufficient to bring about radical change, but may even be detrimental to its outcome. The organizations that we studied that completed programs of radical organizational change were characterized by initial bursts of change activity followed by relatively sedate progress toward the desired endpoint. This process allowed opportunities for trust to be established and productive working relationships to be developed. What is important is the *sequence* in which organization elements are altered. Our research clearly shows the importance of changing high-impact decision-making elements early in a transition process. Thus, even though change may progress at a slower pace after the initial generation of momentum, the early alteration to high-impact elements sends a clear message that the changes being implemented will be substantive and enduring.

We also provide insight into the messy ways in which change unfolds across organizations. When we consider the transition process at the archetypal level, we see a preponderance of what appear to be smooth "stepwise" changes from one design to another. However, when we examine changes that took place at the suborganizational level, we see a tendency for change to be characterized by oscillations and reversals. This is particularly the case when we consider changes to the more contentious parts of the studied organizations. We found that NSOs had little difficulty making relatively substantial changes to levels of formalization—changes clearly seen as unlikely to affect the balance of power within the organizations. Conversely, change to decision-making systems, while the most important when it came to making radical transitions, also proved to be the most difficult to introduce.

Our work has direct and clear implications for managers involved in large-scale transition initiatives. First, managers need to be cautious about attempting to implement large-scale changes rapidly and simultaneously across an organization. Such action appears to be an ineffective and dis-

ruptive way of bringing about change. Instead, managers appear to be better advised to spend time building relationships with key stakeholders involved in the change process. Establishing trust appears vital for accomplishing, and building upon, early changes to key high-impact elements. In addition to serving a functional purpose, change to elements central to the operation of an organization, such as decision-making structures, will send a powerful symbolic message to organization members as to the importance of the changes taking place. However, managers overseeing programs of radical transformation need to plan changes to high-impact elements with sensitivity. While they may be important in determining whether or not a transformation will be successful, high-impact elements will also likely be the most contentious parts of an organization to alter, and thus changes to them may precipitate most resistance. If they are not carefully planned and introduced, changes to high-impact elements may subsequently need to be withdrawn and possibly modified, inevitably slowing the change process and likely decreasing its probability of success.

Future Directions and Limitations

Our focus here has been on the ways in which certain dynamics affect the outcome of programs of radical transformation. However, as happens with much research, our work has opened up at least as many questions as it answers. Consequently, there are a number of areas that require further exploration, some of which we touch on here. First, there is a need for empirical research that explores, in particular, the reasons *why* the pace, sequence, and linearity of change vary across organizations. Pettigrew (1985, 1987) has discussed the role of leadership in organizational change; Amis, Slack, and Hinings (2002) examined the role of values in the change process; others have explored the influences of changes in the political-economic (e.g., Allmendinger & Hackman, 1996) and/or institutional environments (e.g., Greenwood & Hinings, 1996). However, none of this work has explicitly examined the ways in which these imperatives affect the pace, sequence, and/or linearity of the change process. Further, the ways in which particular constellations of commitment to change, power relationships, and environmental jolts affect the pace, sequence, and linearity of change need to be much better understood.

Second, our work has defined the pace of change as being either comparatively fast or comparatively slow. However, there are clearly variations in pace that we have not captured, particularly variations

that pertain to key events in the transition process. Recent work that has drawn attention to event-based conceptualizations of time rather than those conditioned to a clock or calendar offer great potential here (e.g., Ancona, Okhuysen, & Perlow, 2001; Zaheer, Albert, & Zaheer, 1999). Assessing pace in this way could offer context-specific measures that would allow greater insight into how pace varies over time and how these variations impact change outcomes.

Third, in addressing the notion of high-impact elements, we have chosen to direct our attention to one, albeit one very important, aspect of sequencing. Other issues to do with the order of change—for example, resource allocation (Pettus, 2001), organizational learning, and diffusion of knowledge—are also likely to provide useful insight into scholars' understanding of radical change. Whalen-Berry, Gordon, and Hinings's (2003) examination of how leadership, communication, training, and participation operate in different ways at different stages of a change sequence offers some insight here.

In light of these questions, a number of important areas tied to pace, sequence, and linearity require further examination. Although aggregate analyses across several organizations of the type documented here are clearly useful, we feel that the type of detailed insights that we call for above requires a finer-grained approach. Thus, individual case studies that document in detail the dynamics of change in single organizations in other institutional contexts (e.g., Huy, 2002; Pettigrew, 1985) would appear to have particular utility in advancing understanding of the pace, sequence, and linearity of change.

The work reported here has some clear limitations. When carrying out longitudinal research based on data collected in real time over a number of years, it is important to realize that some indicators of reliability and validity may not reach the levels recorded on data collected in more closed settings. As we found, over time some degree of noise and variability is inevitable. Consequently, interpretation of data should take into account the realities of the methods and context of the research. For example, studying how change *varies* over time makes it somewhat inevitable that scale reliabilities will be unstable. Further, the population in which we collected data was fixed at 36 organizations, which we subsequently split into two groups of 8 and 28. The size of these groups does further compound some of the difficulties in attaining high validity and reliability scores. For example, in our work, some of the scales have lower goodness-of-fit and Cronbach's alpha values than those reported in

some other studies. However, most such scores in other work are reported on larger samples, include scales with only two to five items, and use data collected at one point in time. The nature of our study yielded relatively small groups, several scales with more than five items, and data collection over multiple time periods. Even so, when considered in combination, the GFIs, chi-square over degrees of freedom values, and Cronbach's alpha scores indicate that the scales are robust and held up well over an extended period. However, our findings do suggest that researchers should consider the potential methodological limitations associated with longitudinal research when designing similar studies and interpreting their findings.

A further methodological issue concerns the length of time over which data should be collected in order to uncover the full extent of organizational transitions. Kikulis and her colleagues (1995b) found that 4 years was an insufficient period of time in which to uncover the full extent of the changes that were taking place in the NSOs that they studied. Greenwood and Hinings similarly suggested that the 8-year period over which they collected data, although "considerably longer than that usually found in organization theory research . . . was too short" (1993: 1075). Our work suggests that 12 years was an appropriate period for studying the cyclical effects of change in the present population, for it took that long for the second wave of large-scale change to become evident (see Table 5). Our 12 years of study also embraced a distinct period in the life of these organizations. That said, the necessity of studying organizations in their context and of taking into account the institutionally specific nature of archetypes and change dynamics (Child, 1988; Child & Smith, 1987) means that care is needed in generalizing these findings to other sectors. What is clear is that longitudinal research designs that use real-time data are vital to efforts to uncover the dynamics of strategic change and that, to echo Pettigrew et al., further such research is required if scholars and managers are to gain productive insight into what remain relatively poorly understood facets of the change process.

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APPENDIX

Scale Items Used for Collecting Structural Data^a

Complexity

- Differentiation among international teams
- Gender distinction of teams
- Differentiation of teams by discipline
- Distinctive coaches for individual national teams
- Differentiation of coaches by discipline
- Existence of full-time and part-time national coaches
- Existence of national teams committees
- Total number of committees and organizational subunits
- Different types of international athletes (senior, junior, etc.)
- Existence of different professional positions
- Existence of different volunteer positions

Formalization

- Level of job descriptions for paid staff
- Level of job descriptions for volunteers
- Existence and specificity of work plans
- Existence and specificity of policies and procedures manuals
- Degree of terms of reference for committees
- Level of formal performance criteria used to assess high-performance athletes
- Level of on-going physiological monitoring
- Level of on-going psychological monitoring
- Use of personal performance files
- Level of formal talent identification systems
- Existence of a formal athlete agreement
- Complexity of planned competition schedule
- Development of athlete training programs
- Degree of contact between national coaches and athletes
- Use of systematic training camps
- Degree of formal coaching certification programs
- Use of the Coaching Association of Canada
- Use of formal symposia/meetings for coaches
- Degree to which elite coaching development system used
- Degree to which officials' development system used
- Existence of a medical support program
- Existence of a formal research program
- Level of formalization for selection of national athletes
- Level of formalization for selection of athletes for federal funding
- Level of formalization for selection of coaches
- Level of formalization for selection of athletes for the National Training Program
- Level of formalization for coaching development
- Level of formalization for officials development
- Degree of formalization for national team coaches evaluations
- Degree of formalization for professional staff evaluations
- Degree of formalization for program evaluations
- Degree of formalization for officials' evaluations
- Extent of formal communication systems

Decision Making

- Level of selection of national team athletes
- Level of selection of athletes for funding
- Level of selection of coaches
- Level of selection of athletes for the National Team Program
- Level at which decisions are made regarding coaching development
- Level at which decisions are made regarding officials' development

- Number of levels involved in the selection of national team athletes
- Number of levels involved in the selection of athletes for funding
- Number of levels involved in the selection of coaches
- Number of levels involved in the selection of athletes for the National Training Program
- Number of levels involved in decisions made regarding coaching development
- Number of levels involved in decisions made regarding officials' development
- Number of final decisions made by professional staff
- Number of decisions in which volunteers have no input

^a Depending on the item, each informant was asked to provide a Likert-type response indicating the degree to which a particular phenomenon was present in his or her organization (e.g., the degree of formalization for national coaches evaluations); a dichotomous response indicating the presence or absence of an organizational characteristic (e.g., a paid marketing director); or a numeric response (e.g., the number of committees in the organization). Further details on the instrument used are available from the authors.



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