

Chapter 1

Innovative Forms of Organizing:

Trends in Europe, Japan and the USA in the 1990s

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INTRODUCTION

Here at the beginning of the twenty-first century the trumpets of change are heralding the appearance of innovative forms of organization. Some management writers have suggested a widespread sense of revolution in the form, character and process of contemporary organizations. In their attempts to capture and portray these changes in form there has been a notable tendency to invent new phrases. These phrases often imply the appearance of new types of organizations, but the emphasis is not just on new organizational forms or structures, but also new processes and systems. Thus we are variously persuaded of the rise of the network and cellular form, (Miles et al., 1997), the federal organization (Handy, 1992), the postmodern flexible firm (Volberda, 1998) and the individualized corporation (Ghoshal and Bartlett, 1998). In the accounts of Hammer and Champy (1993, pp. 14–15), Miles et al. (1997) and Ghoshal and Bartlett (1998, pp. 6–8), the contemporary shift in organizational paradigm is equivalent to the emergence of the multidivisional structures (M-Form) of Du-Pont and General Motors in the 1920s. The M-Form is being overtaken by the N-Form (Hedlund, 1994). These are important claims which thus far have not been subject to substantial and broadly based empirical inquiry.

But why are organizations in transition? As ever, big questions are rarely answered by single causes. There appears to be a convergence of economic, technological, informational, industrial and political factors driving the emergence of innovative forms of organizing (Hitt et al., 1998; Fenton and Pettigrew, 2000a). Heightened international competition in a globalizing economy is pushing firms to think and act globally and locally. (Hamel and Prahalad 1996). There are efficiency drives to reduce costs, pressures to concentrate manufacturing resources regionally and to simplify complex matrix structures by de-emphasizing country organizations. Internationalizing firms are strengthening internal networks between functions, divisions, countries and regions in order to speed the transfer of skill and knowledge and are investing in alliances and other partnerships to compete through co-operation. Technological change is shortening product life cycles in many industries and pressurizing firms to build organizations with greater flexibility. Advances in information and communication technologies are enabling network formation and utilization and permitting a quantity and quality of hierarchical control and lateral knowledge sharing previously considered impossible. Deregulation has also been an enormous driver both of increased economic competition and of cultural and people change in organizations. New skills, knowledge, attitudes and standards are now required in industries and firms previously sheltered from competition (Pettigrew and Whipp, 1991).

These multifactor explanations for the emergence of new forms of organizing are clearly suggestive of broader and deeper explanations for change than just the efficiency motives of managers and entrepreneurs. Max Weber (1927) had, of course, long since contended that particular forms of organization appear at specific moments in time embedded within existing social, economic and technological conditions. Thus the industrial age gave rise to the bureaucratic organization with its emphasis on hierarchy, stability and control. The present era of change is portrayed by Heydebrand (1989) as the result of the transition from industrial to post-industrial capitalism. Drawing on Bell's (1973) analysis, Heydebrand notes that this shift from commodity production to service delivery and intellectual technologies is the defining characteristic for the emergence of post-industrial forms. Heydebrand's (1989) particular form of political-economic explanation prophesies the 'reappearance of clanlike, neopatrimonial, flexible, informal, decentralized yet culturally integrated network relations in postmodern organizations.' (1989: 327). But the rise of such practices is never linear, universal and complete. The traces of the previous era in terms of formal rationality, fixed hierarchies and division of labour and norms of formal interaction and deference may persist to different degrees into the new era. Old forms may persist and coexist with new variants thus demanding from the analyst of change observational lenses which include historical sensitivity within particular societies and organizations and comparative awareness between societies and organizations.

The above kind of international comparative and longitudinal research is still rare in the social and management sciences. This book is the summative representation of a programme of research designed and executed to deliver such comparative and time series data on Innovative Forms of Organizing (INNFORM). The INNFORM programme was a collective endeavour of an international research network led from Warwick Business School in the UK, but involving six other European universities and one university each from the USA and Japan. The programme of research had a progress aim, a performance aim and a process aim:

- The progress aim was to map the extent of innovation in forms of organizing in a large sample of firms in Europe, Japan and the USA in 1992–93 and 1996–97.
- The performance aim was to test the performance consequences of these new forms of organizing.
- The process aim was to examine the managerial and organizational processes of moving from more traditional forms of organizing.

These ambitious aims involved making substantial commitments of people and other resources and taking some big intellectual and managerial risks. Most of the risks paid off but some didn't, and we devote Chapter 15 of this volume to discussing the lessons learnt from this multidisciplinary, multi-methods and multiresearch-site study.

Beyond the above three aims the INNFORM programme was guided by an evolving set of core questions and a particular form of organizational analysis which we hoped would deliver theoretical insights and empirical findings on the *what*, *why* and *how* of the emergence of innovative forms of organizing. Later in this chapter, when we have assessed some of the most important literature on innovative forms, we will outline some of the specific questions and frameworks which shaped and derived from our work. Here it is enough to say that we were curious about four classes of questions:

- the origins of innovative forms;
- trends in their emergence in firms in different national, industrial and regional contexts;
- the very micro processes of their development in organizations adopting innovative forms;
- the consequences for the organizations and managers who experimented with changes in their organizational forms and practices.

Behind these four classes of questions lay some deeper prerequisites which shaped our form of organizational analysis. We started with the organization as the unit of analysis, for that is obviously where any experimentation with innovative forms was taking place. We used the literature as it was in

1995–96 when our programme started (plus some early pilot case studies) to identify demonstrable indicators of the emergence of new forms. After a flirtation with some of the early ideal types being touted in the literature, we set aside any search for network forms of organizing, or ‘n’ or cellular form. We concentrated our search for patterns in the emergence of the indicators rather than assuming a priori that those indicators coalesced into new types of organizations. We sought to map trends in these organizational innovations in firms with different degrees of knowledge intensity and internationalization. Our international comparative analysis in Europe, Japan and the USA allowed us to explore whether there was any convergence in the patterns of innovating between regions and nation states, or whether divergent forms of capitalism (Whitley, 1999) were shaping alternative innovation pathways in different parts of the world.

Time was also a crucial enabler of our analysis. An essential principle of our method was to catch reality in flight (Pettigrew, 1997a, 1998a). Trends in the emergence of innovative forms can only be assessed in the light of a temporal analysis. So our survey instrument tried to map the emergence of innovative forms at two time points 1992–93 and 1996–97. And our case studies, to different degrees, had a retrospective and a real time component. In some of our cases these temporal observations allowed a process analysis where we could examine the origins, development, decay and further evolution of innovative forms. We also dealt directly with important questions of consequence. This occurred most obviously in our assessment of the performance implications of experimentation with new forms. We also addressed consequence questions in examining cycles of on-going organizing and strategizing in some of our firms and the implications of heightened organizational complexity triggered by innovative forms.

This second and summative book from the INNFORM programme of research is different in scale and intellectual character from *The Innovating Organization* which was edited by Pettigrew and Fenton and published in 2000. The earlier book had three purposes:

- to offer a comprehensive and critical assessment of the literature on innovative forms of organizing;
- to present 8 of our 18 European case studies as illustrations of innovative organizational transformations;
- to offer a cross-case analysis of those eight case studies.

In tackling these three purposes, *The Innovating Organization* only addressed the process aim of our research and hinted (through our European surveys data set) of the progress aim. In this summative volume we directly tackle all three aims of the INNFORM programme. We offer analyses of trends in innovative forms of organizing in Europe, Japan and the USA and draw on comparative case analysis from the majority of our 18 European case studies.

Crucially we illuminate these empirical analyses by raising and developing three core analytical and theoretical themes in our work. Thus Part 1 of this volume focuses on the theme of organizing/strategizing and illustrates and develops this theme with a set of case studies from Swedish, German, Swiss and Dutch firms. Part 2, meanwhile, picks up the crucial consequences and performance theme in examining complementarities, change and performance. After the introductory Chapter 6, which establishes the theme, there are again three chapters which, in different ways, develop the complementarities and performance link. Chapter 7 does this through the econometric analysis of our survey findings and Chapters 8 and 9 by offering complementary analyses of the *what*, *why* and *how* of building systems of innovation. This complementarities theme is illustrated by six of the eight UK case studies from the INNFORM database. Part 3 of this volume picks up the issue of Managing Dualities. A key finding from our survey and case study work was that as firms are building more innovative and flexible forms so they are making simultaneous and apparently contradictory changes. This tendency for modernizing firms to be building hierarchies and networks and attempting to both centralize and decentralize (among other dualities) illustrates well the consequence and process dimensions of our inquiry. Again in Part 3, after the introductory Chapter 10, we draw on both our survey and case study findings to develop the crucial practical theme of managing dualities.

Part 4, the concluding part of this volume, comprises two chapters. Chapter 14 draws together many of the theoretical and empirical threads from the INNFORM programme and offers a range of concluding thoughts about the content of our work. Given the scale, complexity and challenges of the INNFORM programme, in Chapter 15 we decided to offer an account and analysis of the social production of knowledge in conducting this programme of research. Here we provide some analysis and concluding observations on the how of our work, including the special challenges of international collaborative inquiry enriched also by a partnership with PricewaterhouseCoopers.

INNOVATIVE FORMS OF ORGANIZING

At the beginning of their comprehensive review of the research and writing on new or innovative forms of organizing Fenton and Pettigrew (2000a) offered the following conclusions: the body of literature on new forms is proliferating in scale and intellectual diversity and has yet to be united under an overarching theory or perspective and therefore may only be weakly classified as a research focus. They catalogue the field's theoretical diversity and note that the range of contributions cover perspectives such as inter-organizational theory (Powell, 1990; Perrone, 1997); network theory (Granovetter, 1982, 1992; Uzzi, 1997; Polodny and Page, 1998); knowledge-based

views (Hedlund, 1994; Nonaka, 1994; Grant, 1996); complementarities (Milgrom and Roberts, 1995; Ichniowski et al., 1997) and relational perspectives (Ghoshal and Bartlett, 1990; Roth and Nigh, 1992; Ghoshal and Nohria, 1993; Easton and Araujo, 1994). However, in among this diversity of levels of analysis, conceptual language and theoretical perspectives is the agreement that the form, process and role of organizations had fundamentally changed at the end of the twentieth century, and continue to do so.

But if the direction of change is so evident why is there such diversity of language and emphasis to capture the content and process and often assumed speed of change? There are many candidate explanations for this conundrum. It appears that the loose focus of interest in innovative forms has built into it a double ambiguity. Different scholars choose to define organizational form differently and where they offer a definition of what is new or innovative in forms, there may also be multiple definitions on offer. This double ambiguity has led us on the INNFORM programme to attempt precision in defining organizational form (below we focus on changing structures, processes and boundaries) and also what is new or innovative. Thus we propose four instances of innovation as guidelines in choosing our 18 case studies. In the first instance, innovation may refer to a genuine widespread organizational innovation, such as the development of the multi-divisional form in the 1930s, or the possibility of its equivalent in the 1990s. Secondly, innovation may be some novel combination of organizational processes and/or structures not previously associated. Thirdly innovation could refer to some novel combination of previously associated structures and/or processes. Finally, innovation could be some organizational initiative which is new for the industry sector in that particular economy but more generally may not be new. The important criterion was that the changes which the organization adopted were perceived as new by their members. Thus the INNFORM view of organizational form and of newness of form attempts to capture both the features and indicators of form and recognizes that such indicators are sensitive to the perceptions and opinions of those creating and responding to the forms (McKendrick and Carroll, 2001; Ruef, 2000; Polos, Hannan and Carroll, 2002).

In our original successful proposal to the UK Economic and Social Research Council (ESRC) for funding for this research (Pettigrew, Whittington and Conyon, 1995), we scanned the literature on innovative forms at that time and identified the following linked characteristics or features:

- radical decentralization of profit responsibility to operating units, and reliance on internal contracting mechanisms;
- flattened organizational hierarchies;
- restricted head office roles, with top management focused on knowledge creation and dissemination;

- a shift from 'command and control' management styles to 'facilitate and empower';
- highly elaborate formal and informal internal communication systems, lateral as well as hierarchical;
- extensive use of ad hoc interdivisional and interfunctional conferences, task forces and teams rather than rigid organizational compartmentalization;
- the deliberate construction and use of internal labour markets for the dissemination of knowledge.

This list of indicators seemed plausible at the time, but it was based upon a shaky and somewhat untheorized empirical base. Part of the problem was that in the mid-1990s in the field of organization structure and design, practice had far accelerated ahead of empirical analysis. This is, of course, a familiar enough issue in the various fields of management research where there is a long tradition of practitioners taking action and research agendas than following the practice. In this kind of situation it is somewhat easy for the researchers to be beguiled by the trumpets of novelty being loudly blown by the consultants influencing the early adoption of new managerial innovations. As many have commented, management theory and practice is a fashion industry and at the early stages of proclaiming novelty a new mobilizing language has to be found to capture the attention of practitioners and scholars alike. So the 1990s literature on innovative forms has been replete with attention-directing language such as the rise of the boundaryless organization, the centreless organization, the federal and network organization. Amplified by a limited set of case study examples, such imagery often drives home a strong and resonant aspect of any novel set of organizational practices, but such writing gives us only a limited picture of the wider landscape of change.

Nevertheless, as DiMaggio (2001) and others have argued, this imagery of the innovating firm began to coalesce around some core themes. There seemed to be three obvious emphases in this practice-based literature: first, the emphasis on greater permeability of organizational boundary and the development of networks, co-operative relations and alliances within and between organizations; secondly, the trend to flatten the hierarchies of more traditional organizations and to build more co-operative forms of managerial style; and thirdly the associated drive to develop more creative, responsive and learning orientated organizations which could cope with the tougher competitive conditions at the end of the twentieth century.

Drawing on a range of literature way beyond the practice based writing on innovative forms, Fenton and Pettigrew (2000a) also identify three highly interrelated themes permeating these literatures. The three themes are labelled by Fenton and Pettigrew (2000a) as:

- the globalizing firm and its changing boundaries;
- the knowledge firm in the knowledge economy;
- networks and the socially embedded firm.

The first of these themes picks up the pressures on globalizing firms to shift their goals from economizing to adding value. Thus the economies of scale derived from vertically integrated firms are giving way to a focus on core competencies while other activities are being outsourced. The work of Ghoshal and Bartlett, 1990, 1995 in particular has led to a reconceptualization of the global firm as an entity for capturing and utilizing strategic internal competencies. In these kinds of global firms there is a heightened emphasis on organizing requiring complementary changes in processes and structures.

The knowledge firm in the knowledge economy has been successfully refined to become more inclusive, not just of the preoccupations of so-called knowledge intensive firms in newer industries, but also of the knowledge and learning related needs of more mature firms in older industries. Deep within this theme is the recognition that competitive performance is no longer just about positioning based upon tangible assets, but is also an innovation contest resting on combinations of tangible and intangible resources. The emphasis on learning and knowledge creation and use is now explicitly built into organizational analysis and development as firms seek both to collect and connect knowledge within and without their traditional organizational boundaries.

The theme of networks and the socially embedded firm places inter-organizational relations and network formation and use at the heart of the organizational agenda. Here the focus of organizing is on the character and patterns of relationships and exchange which occur in a variety of intra-firm and inter-firm networks, alliances, and other co-operative engagements. The belief is that such network and relational practices will provide a context for learning and offer rapid transfer of knowledge and ideas into action, hence increasing the responsiveness and creativity of the firm. As firms add value via relationships and require even greater internal and external interdependence to create, share and transfer knowledge, so the basis for organizational activity and configuration is centred on relationships and the wider social context in which the firm is embedded.

There is a clear overlap between the three themes identified by Fenton and Pettigrew (2000a) and DiMaggio (2001). Both sets of authors also recognize the interconnections between three elements. Whittington et al. (1999) also argue that features of new forms of organizing maybe mutually reinforcing: 'Flatter structures demand more interactive processes; interaction is concentrated within more tightly drawn organizational boundaries; narrower focus reduces the need for tall hierarchies of control' (Whittington et al., 1999: 588). All this is suggestive that new forms of organizing may have to proceed in a systemic and related way and not in a piecemeal fashion. We

will return to this issue of holistic and complementary change in Part 2 of this volume.

As we write in 2002 the two widest and deepest assessments of the literature on innovative forms of organizing are to be found in Fenton and Pettigrew (2000a) and DiMaggio (2001). These authors come to a remarkably similar set of conclusions about the state of knowledge of the emergence of new organizational forms. Both catalogue the diverse, fragmented and limited nature of empirical inquiry and theoretical development; both note the absence of a unifying theory to interpret the empirical findings which do exist; and both recognize the, at times, prescriptive and apocalyptic writing in the practitioner orientated literature and the consequent difficulty for the reader to disentangle what has been found from what the author would like to see.

These authors also comment strongly on the partial nature of empirical enquiry on innovative forms. Fenton and Pettigrew (2000a) refer to the predominance of exceptional cases in and out of extraordinary sectors or geographical locations, while DiMaggio (2001) refers to the study of eccentric companies in idiosyncratic competitive environments.

There is the additional challenge in studying an emergent process that truth is the daughter of time (Pettigrew, 1990). Few of the empirical studies prior to the INNFORM programme had either spatial width or temporal depth. Observations and prophesies were being made about a complex and possibly discontinuous process of change from limited cases, often in a single society and predominantly from atemporal data sets. At the beginning of his analysis of the twenty-first century firm DiMaggio (2001: 5) notes the absence of mapping studies of innovative forms, 'the literature is far richer in striking examples of purported trends than in careful empirical studies documenting the scope and incidence of change'. He follows this (2001: 6) by bemoaning the lack 'of careful analyses that take into mutual account business firms (other than the largest multinationals) in different regions of the globe'. And then at the end of his treatise (2001: 215) he brings together the spatial and temporal deficiencies of new forms of organizing research by proclaiming, 'a major priority for the research community should be to establish systems that collect trend data on the structure, governance and behaviour of organizations comparable to that now collected routinely for human beings'. Five years earlier it was these sorts of challenges which motivated the INNFORM network to design and execute a study of innovative organizational forms which put spatial and temporal context at the very heart of the research.

THE INNFORM PROGRAMME

As we have indicated, the INNFORM programme of research had a progress, a performance and a process aim. The goal was to map the extent

of development of innovative forms in the 1990s, test for the performance consequences of any such changes and study the process of emergence of the new forms. These aims required a multimethod research strategy and the collection of time series data. Survey methods and multivariate statistical analyses were used to achieve the progress and performance aims of the research, and case studies of 18 European firms were utilized to achieve the process aims. The core funding for the research team in the UK was provided by the ESRC and PricewaterhouseCoopers, supplemented by funds from the consortium of organizations who supported the Centre for Corporate Strategy and Change at Warwick Business School. Further additional funding was supplied by the other university teams who were part of the INNFORM network. PricewaterhouseCoopers were not just co-funders of the research, they were also co-producers and co-disseminators. Two directors of PricewaterhouseCoopers, Chris David and David Shaw made notable contributions to the development and impact of the research.

Crucially, the research also required the active and sustained co-operation of colleagues from Duke University (the USA), Erasmus University (the Netherlands), ESSEC (France), Hitotsubashi University (Japan), IESE (Spain), Jönköping University (Sweden) and St Gallen University (Switzerland). The lead researchers from each of these institutions are respectively Arie Lewin, Frans van den Bosch, Hamid Bouchikhi, Tsuyoshi Numagami, Carlos Sanchez-Runde, Leif Melin and Winfried Ruigrok. Richard Whittington, the co-principal investigator of the research, was at Warwick Business School when the research was initiated, but worked at Oxford University throughout the conduct of the research. The Warwick team at various times has involved Martin Conyon, Evelyn Fenton, Silvia Massini and Simon Peck.

We often portray the INNFORM programme as a network studying networks. How this network was built, maintained and motivated was a crucial input to the progress and impact of this research effort and some of the intellectual and managerial challenges of making this network work are discussed in the concluding chapter of this volume. It goes without saying that this programme could not have achieved its aims without the active and sustained commitment of all members of the international network.

SURVEYING INNOVATIVE FORMS OF ORGANIZING IN EUROPE, JAPAN AND THE USA

The INNFORM survey design began from an examination of the literature on new organizational forms and three mini-case studies of innovative organizations. We also benefited from the strengths and limitations of survey instruments developed to identify patterns of restructuring in US firms (for example, Markides, 1996) in the late 1980s and early 1990s. Many of these

instruments appeared ill-adapted to the new competitive landscape and, in any case, were not developed specifically to test for new forms of organizing. Accordingly, our own survey instrument was eclectic and adaptive in design. In the intellectual debates (initially in the Warwick team) and then more widely in our international network, we decided it was premature to follow the managerial literature at that time, which was attempting to portray the evolution of new forms of organizing as the emergence of various ideal types such as network or federal or horizontal forms of organization. Instead we searched the literature for patterning in terms of likely indicators of emergent change and then sought some validation of the relative importance of such empirical indicators in the three UK pilot case studies and the experiences of our international collaborators. This early intellectual debate was a crucial stepping stone in the project's development and a key part of the early team building for the research.

The review of literature we did on new forms of organizing to prepare the INNFORM survey instrument revealed a wide list of indicators of organizational change. (See Whittington et al. (1999) for a more in-depth presentation of this literature.) We decided to cluster these indicators of contemporary change under the headings of *changing structures*, *changing processes*, and *changing boundaries*. Here we define the three main dimensions, draw out some of the significant interdependencies between them and also indicate the limited extent of systematic and large-sample surveys of innovative forms of organizing. Figure 1.1 summarizes nine areas of change measured in the INNFORM survey.

CHANGING STRUCTURES

The new competitive environment has put traditional hierarchical structures under a dual pressure. First, the heavy hierarchical layers of middle managers have become too expensive; second, these layers have impeded the information flows and quickness of response necessary for flexibility and innovation. As a result, firms have apparently been resorting to widespread delayering in order to remove these expensive barriers to action (Freeman and Cameron, 1993; Zeffane, 1992).

The removal of layers has been accompanied by increased decentralization, both operational and strategic. Increased operational decentralization – for example in areas such as product design and marketing – has been necessary both to improve response times and to harness the on-the-ground knowledge of operating managers. Strategic decentralization – for example, increased responsibility for investment decisions – increases the profit-orientation and accountability of business managers, incentivizing them in an increasingly competitive environment (Pettigrew, 1999b). ABB's business managers are even reported to be able to retain profits in their local balance sheets from year

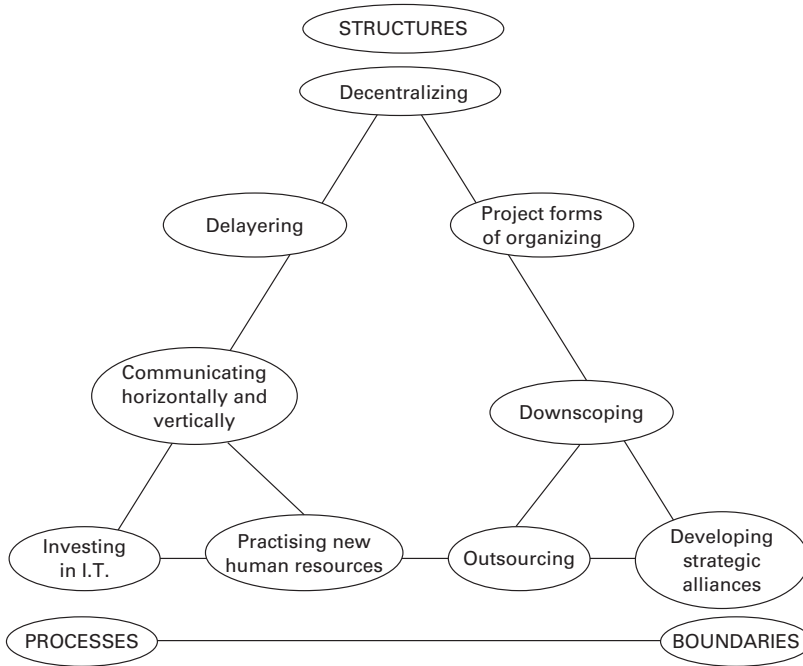


FIGURE 1.1 *New forms of organizing: the multiple indicators*

to year (Bartlett and Ghoshal, 1993). Decentralization into smaller units promotes cross-functional and cross-boundary teams. In place of rigid traditional structures, organizations are increasingly shifting towards more flexible, project-based forms of organization. Structures are therefore taking on a more horizontal character, projects being the vehicle for bridging the 'divisions' of traditional divisional organization (Ghoshal and Bartlett, 1995).

CHANGING PROCESSES

The flexibility and knowledge required in the new knowledge economy requires intensive interaction, vertical and horizontal. Learning organizations are communication-intensive, requiring new investments in information technology (IT). These unite different parts of the organization in intense exchanges of information. A key dimension of these flows is horizontal, promoting 'co-adaptive' exploitation of cross-business synergies. These flows of information are moving outwards as well, to embrace suppliers and customers through electronic data interchange (EDI) and similar initiatives (Jarvenpaa and Ives, 1994). The new communication-intensive organization allows still further process innovation, in terms of participation, polycentricity and flexibility (Fulk and DeSanctis, 1995).

For these processes to work, the hard infrastructure of IT needs to be underpinned by 'softer' investments in human resources. As Ghoshal and Bartlet (1998) have insisted, the new strategies and structures require new ways of managing and new kinds of managers. Whittington and Mayer (1997) suggest that the human resources (HR) function has become central to making the new forms of organization work. These new human resource management (HRM) practices have two broad dimensions for the emerging model of organization: those concerned with supporting horizontal networking and those concerned with maintaining organizational integration.

The new HR fosters horizontal processes in a variety of ways. Growing use of corporate-wide conferences, seminars and similar events is reported, as companies seek occasions on which to bring together key personnel for exchange. Companies are increasingly seeing their key resource as their people and the knowledge they carry, so that corporate-wide management of careers across organizational boundaries is becoming important (Quintanilla and Sánchez-Runde, 2000). These horizontal processes need integration, too, within a corporate sense of purpose (Van Wijk and Van den Bosch, 2000). High profile leadership and corporate mission building are necessary to provide the sense of shared corporate identity on which exchange can be built. Investment in managerial development plays a key part in cementing a common purpose within a 'boundaryless organization', as at GE. Here the deliberate cultivation of cross-unit teams and cross-unit communications are key functions (Nohria and Ghoshal, 1997; Pettigrew, 1999b; Fenton and Pettigrew, 2000).

CHANGING BOUNDARIES

Large scale drives high hierarchies; wide scope stretches horizontal relationships (Jacques, 1990). Delaying and more interactive processes are likely to be accompanied, therefore, by decreased scale and increased focus on narrower spans of activities. This correlate of changing structures and processes is reinforced by increased competitive pressures forcing companies to focus on 'core competencies', redrawing their boundaries around what constitutes or supports their true competitive advantage (Prahalad and Hamel, 1990).

This pressure is reflected in the widely observed shifting of business towards smaller, decentralized units (Zenger and Hesterley, 1997). Hierarchy and scale can hamper the strategic flexibility required for competing in increasingly hyper-competitive environments. The shift in scale is often reinforced by strategic downscoping and the abandonment of conglomerate strategies, leaving firms focused on areas of advantage (Hoskisson and Hitt, 1994). Even within particular product-market domains, firms appear increasingly to be outsourcing value-chain activities of low value or strategic significance, with a wide range of non-core activities from training and

research and development (R&D) subcontracted. Where superior skills or resources exist outside the firm, firms are making increased use of strategic alliances to supplement and sometimes enhance their own competencies. In sum, whether by alliances, outsourcing or downscoping, firms appear to be drawing in their boundaries around narrower spheres of activity.

The above review of trends in organizational change reveals a patchwork quilt of conjecture and pockets of evidence to suggest that some dimensions of change may be occurring faster than others. The distinctive contribution of our survey was, first, to measure all the indicators of change together, secondly to measure them over two time points (1992–93 and 1996–97) and thirdly to examine the extent to which the dimensions cohere: were some firms innovating predominantly in the areas of structures, or processes, or boundaries? And what is the extent of these changes?

Unusually for a survey instrument of this kind, respondents were asked to compare their organization in 1992 with 1996. (In the US study the two time points were 1993 and 1997.) This is, of course, a limited timescale within a process of organizational change which probably started some time before and is continuing now. However, problems of reliable respondent recall precluded a longer period of retrospection, and the periods 1992–96 and 1993–97 certainly included considerable pressure for change in Europe, Japan and the USA.

An initial questionnaire was tested with a large group of executive MBA students; a further refined version was piloted on a small sub-sample of large UK firms. After certain adjustments, the questionnaire was mailed during 1997 to the chief executives of large and medium-sized (that is, with more than 500 employees) independent, domestically owned firms throughout Western Europe. For the UK, these were the largest 1500 independent businesses by employment; for the remainder of Western Europe, there were 2000 large and medium-sized firms sampled in proportion to home-country GDP. Although relying on single respondents, our targeting of chief executives was designed to elicit as comprehensive a view as possible and is in line with widespread practice given the difficulties of obtaining multi-respondent returns from large-scale surveys. Except for the Dutch and Scandinavian samples, the Continental European questionnaires were translated by native speakers into German, Italian, Spanish or French, as most appropriate, and checked for accuracy by local team members. We re-mailed to initial non-respondents and subsequently used telephone follow-ups. The overall response rate was 13.1 per cent, comparable to other recent European surveys of organizational change (Ezzamel et al., 1996).

Corresponding to their original sampling proportions, the largest group of respondents were UK (40.7 per cent) and German (15.9 per cent); no other country accounted for more than 10 per cent of responses. Tests for the UK sample indicated no response biases for size, industry or profitability.

The Japanese survey instrument was translated into Japanese by colleagues from Hitotsubashi University. Only very minor changes were made

in the survey instrument to reflect the Japanese context. In order to improve the response rate, the survey was sent out with an appropriate covering letter by the Japanese Institute of Science and Technology Policy (NISTEP). The questionnaire was mailed in 1997 to the chief executives of 1000 large and medium-sized companies with more than 500 employees/independent domestically owned firms in Japan. The response rate for the Japanese survey was a commendable 25.7 per cent.

With the UK, Western European and Japanese surveys completed in 1997 the decision was made early in 1999 to carry out a US survey. Agreement was reached with colleagues at Duke University in the USA to administer the INNFORM standardized survey instrument and PricewaterhouseCoopers provided additional financial support. In the summer of 1999, the US survey was mailed to a sample of the 1500 largest independent domestically owned firms in the USA. This time (to reflect the timing of the survey) CEOs were asked to report on the same indicators of organizational change, but at the five-year time points 1993 and 1997. Seventy-nine useable survey instruments were returned – a response rate of 5.3 per cent. Tests for this US sample indicated no response biases for size, sector or profitability indicating that the sample who responded to the survey instrument were representative of the 1500 firms surveyed.

There are no large-scale published surveys mapping the extent of development of new forms of organizing in Europe, Japan and the USA and no studies comparing the three regions. There are, of course, a number of good studies (particularly done by Lincoln and his colleagues, for example, Lincoln and Kalleberg, 1990) comparing US and Japanese organizations in the 1980s and then in the 1990s. These studies variously indicate that, compared to the US, Japanese manufacturing organizations have taller hierarchies, less functional specialization, less formal delegation of authority but more de facto participation in decisions by lower levels of management. The picture presented in these studies of Japanese firms is of a highly integrated and interdependent set of factors embedded in Japanese institutions, the interlinkages between large and medium-sized firms in the Keiretsu arrangements, and the form and processes within Japanese firms which accumulatively help to build a highly adaptive and flexible form of organizing in Japan. Thus in large Japanese firms, life-term employment and promotion through seniority are said to provide a platform for the building of generalist skills which are enabled by frequent job rotation and regular training. Innovation in product development is said to be encouraged by elaborate processes of organizational and individual learning. Strong hierarchies are combined with equally strong processes of horizontal co-ordination which encourage both knowledge creating and sharing (Aoki, 1990; Nonaka and Takeuchi, 1995). The above features of Japanese organizations led us to expect that at least some of the innovative forms of organizing in Europe and the USA were already present in some of the Japanese firms. But were the

economic and business pressures in Europe in the 1990s pushing European firms towards greater change in their structures, processes and boundaries? And what impact, if any, were equivalent pressures in Japan and the USA in the 1990s having on the content and pace of organizational change there?

COMPLEMENTARITIES AND PERFORMANCE

In addition to surveying trends in the emergence of new forms of organizing, we also sought to examine any associations between organizational change and performance. Here we have built upon recent theorizing about the potential virtues of complementary change (Milgrom and Roberts, 1990, 1995). Our approach in using complementarities thinking is analytically broader than previous research which thus far has tended to focus on functional areas such as HRM (for example, Ichniowski et al., 1997).

The notion of complementarities develops a line of thought in organizational theory that leads through contingency theory to configuration theory. Complementarities thinking follows contingency theory in seeing performance as dependent on 'fit' between key organizational variables, such as size and structure (Donaldson, 1996). However, it goes beyond the reductionist, disaggregated one-to-one comparisons of contingency theory to address the multilateral kinds of fit required for organizational effectiveness (Drazin and Van de Ven, 1985; Meyer et al., 1993). Here the notion of complementarities comes close to configuration theory, with its emphasis on the holistic, aggregated and systemic nature of organizational phenomena (Miller, 1987, 1996). This configurational approach has pushed performance analysis beyond simple interactions between disaggregated variables to a more aggregated comparison of the performance of whole types (Miles and Snow, 1978; Hambrick, 1983; Drazin and Van de Ven, 1985).

The complementarities notion starts from this configurational appreciation of the holistic nature of organizations, but adds two twists. The first twist is to stress the dangers of transitions. Milgrom and Roberts (1995: 181) describe the basic notion of complementarity as 'doing *more* of one thing *increases* the returns to doing *more* of another' (italics in original). The performance benefits of any change are dependent, therefore, upon the nature of other potentially complementary changes. In analysing the 'modern manufacturing' model, for example, Milgrom and Roberts (1990) suggest that the introduction of computer-aided design (CAD) technology pays best when associated with complementary inventory production, marketing and management policies. Here Milgrom and Roberts are not making the simple pairwise assumptions about performance relationships found in much contingency theory; rather they are insisting on the potential for complex, multiple interactions between changes, so that performance relationships

are likely to be at least three-way and practices may reinforce the effects of other practices in either a positive or negative direction according to what else is going on at the same time. This interdependence is very characteristic of configurational theory, but complementarities stresses the implications for change: 'changing only a few of the system elements at a time to their optimal values may not come at all close to achieving all the benefits that are available through a fully co-ordinated move, and may even have negative payoffs' (Milgrom and Roberts, 1995: 191). The focus shifts from comparison between whole types to the gap in between, where the transition from one type to another is incomplete. The complementarities notion warns strongly of a possible J-curve relationship between change and performance, with partial implementation potentially worse than the starting point.

Complex interdependence also suggests the second twist on traditional configurational analysis, a reintroduction of the disaggregated approach to performance testing. Typically, configurational research has compared the relative performance of configurations as a whole (Ketchen et al., 1997). Configurations are treated as something of a black box, with no analysis of the contribution of individual elements to the performance of the whole or testing of systemic effects over and above the sum of individual contributions. However, the claim from complementarities that performance benefits depend upon combining the full set of complements suggests a simultaneously aggregated and disaggregated approach that compares the contribution of individual practices with the performance payoffs of them all together. Practices that are associated with positive performance when combined with their complements may be found to have negative effects when taken individually. Moreover, as Ichniowski et al. (1997) argue, complementarity among practices implies that the magnitude of the performance effect of the full system is larger than the sum of the marginal effects from adopting each practice individually. When analysed together, the individual effects on performance should be exhausted by the full-system effects.

The complementarities notion therefore extends the configurational approach in two ways. First, complementarity theory makes performance predictions that go beyond simple binary-type comparisons of one configuration with another and emphasize the problems of being caught with partial initiatives in between. Second, complementarity theory insists on a simultaneously aggregated and disaggregated analysis, both to define the conditionality of individual effects on other effects and to ensure that full-system effects outweigh individual component effects.

Overall, complementarity theory proposes both that high-performing firms are likely to be combining a number of practices at the same time and that the payoffs, to a full system of practices, are greater than the sum of its parts, some of which taken on their own might even have negative

effects. The survey-based and case study findings on complementarities and performance are presented in full in Part 2 of this volume.

THE CASE STUDY QUESTIONS AND ANALYSIS

The research strategy of the INNFORM programme has been to use complementary methods to pose complementary questions with the aim of identifying complementary findings. The third aim of our research required posing a different set of process questions from those used in the survey and implementing the comparative longitudinal case study methodology (Pettigrew, 1990, 1997a).

The survey findings could tell us a great deal about the what of innovation by exposing trends in the pattern of change within and between our nine indicators at our two time points of 1992–93 and 1996–97, but the survey results are silent on the how and why of innovation. The main purpose of our case study work was to pose and answer a series of process questions about the origins, initiation, sequencing, development, decay, consequence and impact of innovative forms of organizing. Figure 1.2 lists the 18 European case studies.

Given the scale of the BP and Unilever organizations, we decided to use these large systems as sources of two cases each. One case explored the overall process of corporate organization change and the other case took a slice across the organization to examine network formation and use.

The 18 case studies above were designed with three main objectives:

- 1 To analyse the processes and practices of the emergence, development and management of innovating forms
- 2 To examine how and why the subset of our firms who attempted complementary change managed that process over the time period from the late 1980s to 2002
- 3 To offer a wider platform for empirical analysis and theoretical development than that which was possible given the feasible length and necessary restrictive set of indicators of change in our survey instrument.

We have already discussed the four criteria of ‘newness’ we used to choose our cases in order that they would consistently and adequately illustrate movement towards, or conceivably away from, innovative forms. In addition to debating and agreeing the criteria for choice of case studies, the INNFORM network also discussed and agreed a set of analytical questions for each case. The questions included: an analysis of the drivers for innovation; the content, scope, sequencing and depth of change; the process sequencing of the innovation; barriers and facilitators of change; instances of differential pace of change and consequences and unresolved management

BP Organization Development 1985–2002 – UK
BP Knowledge Management Network – UK
Unilever Organization Development 1987–2002 – UK/Netherlands
Unilever Global Hair Products Network – UK/Netherlands
Ove Arup and Partners – UK
Coopers & Lybrand Europe – UK
Spencer Stuart – UK
Davis, Langdon & Everest – UK
ABB – Swiss/Swedish
Hilti – Swiss/Lichtenstein
Siemens – German
Trumpf – German
Internationale Nederlanden Groep (ING) – Netherlands
Rabobank – Netherlands
Fremap – Spanish
AGBAR – Spanish
Saab Training Systems – Swedish
Östgöta Eskilde Bank – Swedish

FIGURE 1.2 *The 18 case studies of the INNFORM programme*

issues in implementing the new forms of organizing. Each case also had theoretical objectives to provoke and inspire debate in the field of organization design (Fenton and Pettigrew, 2000a).

Sets of cases were also chosen with the objective of illustrating and developing theoretical and empirical ideas, in particular thematic areas. Previous research and writing on professional service organizations (PSOs) by, for example, Hinings et al. (1991), Greenwood and Lachman (1996); and Lowendahl (1997) has focused attention on organizational change. The global and networked character for PSOs also suggested that they were settings where experimentation would be taking place with innovative forms of organizing. The Warwick team thereby chose four global PSOs with aspirations to become global networks as a focal point for their investigations. (See, for example, Fenton and Pettigrew in Chapter 9 of this volume.)

The second objective in using our case study work has been to build on our statistical findings regarding the association between complementary change initiatives and firm performance. From our survey results we knew little of the *what*, *why* and *how* of the creation and re-creation of complementary change in firms over time, and of how managerial choices and changes may deliver performance improvement. Four of our 18 case studies offered the potential to pose and answer analytical questions about the relationship between complementary change and performance. Two of these, BP and Unilever, are used to explore complementarities in action in Chapter 8 of this volume.

The greater contextual depth and temporal quality of case study research provides opportunities to pose and answer *how* and *why* questions. The inductive and interpretative quality of case study work also provides

scope for theory building and novel empirical pattern recognition. Probably the two best examples of this in the INNFORM programme are developed in Parts 1 and 3 of this volume, where we explore theoretical ideas and some illustrative case examples on organizing/strategizing and also develop the empirical and managerial theme of dualities in the modern corporation.

PATTERNS IN THE EMERGENCE OF INNOVATIVE FORMS OF ORGANIZING IN EUROPE, JAPAN AND THE USA 1992–97

Building on a range of theoretical traditions in organizational analysis, we expected to find both slow and unequal diffusion of new forms of organizing across our three regions (Fligstein and Freeland, 1995; Calori et al., 1997; Whitley, 1999; Whittington et al., 1999; Whittington and Mayer, 2000). Large firms only slowly adopted the M-form, the previous substantial organizational innovation (Dyas and Thanheiser, 1976; Whittington and Mayer, 2000) and population ecologists have long argued for the liabilities of newness consequent upon change and its corollary that novelty was most likely to come from either new entrants in a population of firms, or firms associated with radical technical innovations (Baum, 1996).

There is also some evidence and theoretical interpretation that the particular historical legacies and institutional structures of different national environments may influence the diffusion of organizational practices. In their review of the literatures on corporate forms and governance arrangements in 1995, Fligstein and Freeland contend that the world is not converging on a single form of organization. This conclusion is echoed to some degree in DiMaggio (2001), but he is more open in assessing the dual pressures for convergence and divergence in organizational practices between nations. DiMaggio's review recognizes pressures from globalization processes and the international system, which encourage convergence. He also argues that the idea systems of management today have such an international quality that they may be encouraging convergence in the beliefs of managers and then in their actions. This convergence is a movement towards 'project-based work and team organization; flatter, more horizontal organizations that rely on long-term interdependent relations with external parties; and extensive efforts to leverage capabilities across a wide range of activities' (DiMaggio, 2001: 68). But these convergent pressures at the international system level are in turn faced by issues of receptivity and resistance at the nation state and organizational levels of analysis, which in turn create different forms and speed of adaptation at local levels. Later in this volume Lewin et al. argue for the potency of natural institutional configurations in explaining variation in the diffusion of novel organizational practices between nations. This line of argument had previously been developed by Whitley (1999), who noted that divergent forms of capitalism were enabled by significant differences in societal institutions and agencies such as the

state, capital and labour markets, and dominant beliefs about trust, loyalty and authority.

A second force for the unequal diffusion of new organizational practices may be different business environments and sectoral conditions. Thus Hedlund (1994) and Nonaka and Takeuchi (1995) have linked new initiatives in organizations to the knowledge intensity of sectors and firms. Equally, exposure to the dynamics of international competition (Zahra and O'Neill, 1998) and the complexity of multinational operations (Bartlett and Ghoshal, 1989) are identified as drivers of innovative organizational forms. International businesses can therefore be expected to be more innovative organizationally than more local ones.

In analysing our survey findings we thereby were curious about any convergence or divergence in the patterns of change in structures, processes and boundaries across the three regions. Were we seeing parallel change, convergent change or divergent change across the three regions? Was there any evidence of differential pace of change across the regions? And for the commentators who had projected revolutionary change in the development of new forms of organizing, were these forms supplanting or supplementing existing organizational arrangements? Finally, did the knowledge intensity and degree of internationalization of the firm appear to be strong drivers for the adoption of the new organizational practices we were measuring?

In order to make our research findings as accessible as possible we have used a series of five figures (Figures 1.3 through 1.7) to present descriptive trends of change statistics. Underpinning these figures are statistical tables which include tests for statistical significance. There is no space in this introductory chapter to include all these tables but we have included Table 1.1, Organizational indicators in Europe and Japan and the USA, as an example. In Table 1.1 the statistically significant differences between regions are shaded in grey. The reader may also wish to be reminded that, because the time point of surveying varied across the three regions, the European and Japanese results are for 1992 and 1996 and the US results are for 1993 and 1997.

The answers to questions in the INNFORM survey were mostly structured in a five-point Likert scale for both 1992–93 and 1996–97. For example, the question on the adoption of a project-based structure asked chief executives to indicate the extent to which the corporate structure was organized according to that form.

The possible answers for both 1992–93 and 1996–97 were: 1 = none; 2 = little; 3 = moderate; 4 = much; 5 = great. In general, the percentages in the following figures represent the proportion of organizations answering 4 or 5 in the five-point Likert scale. The missing data under HR (human resource innovations) in Figure 1.4 and outsourcing in Figure 1.5 are because of the way those questions were posed in the survey instrument. The INNFORM survey instrument is included as an Appendix at www.sagepub.co.uk/resources/pettigrew.htm

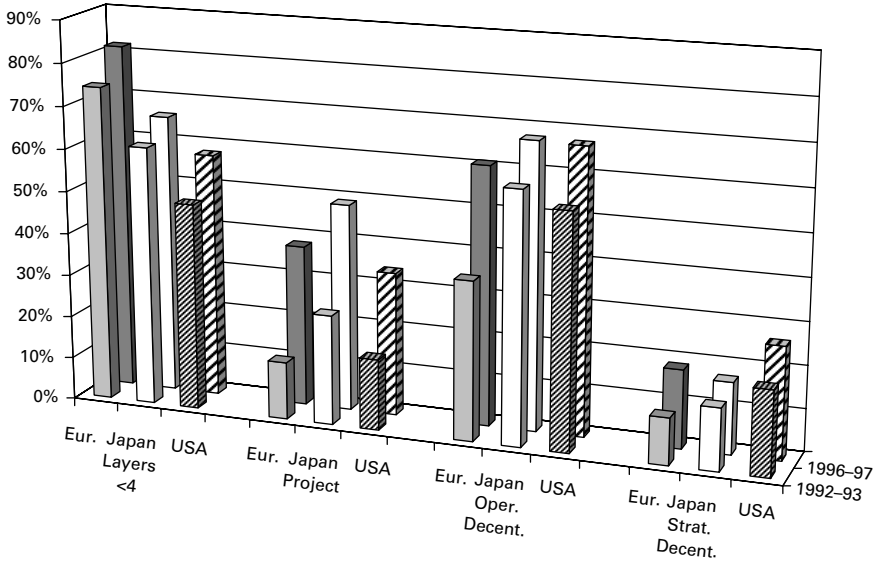


FIGURE 1.3 Organizational structures, 1992-93 and 1996-97

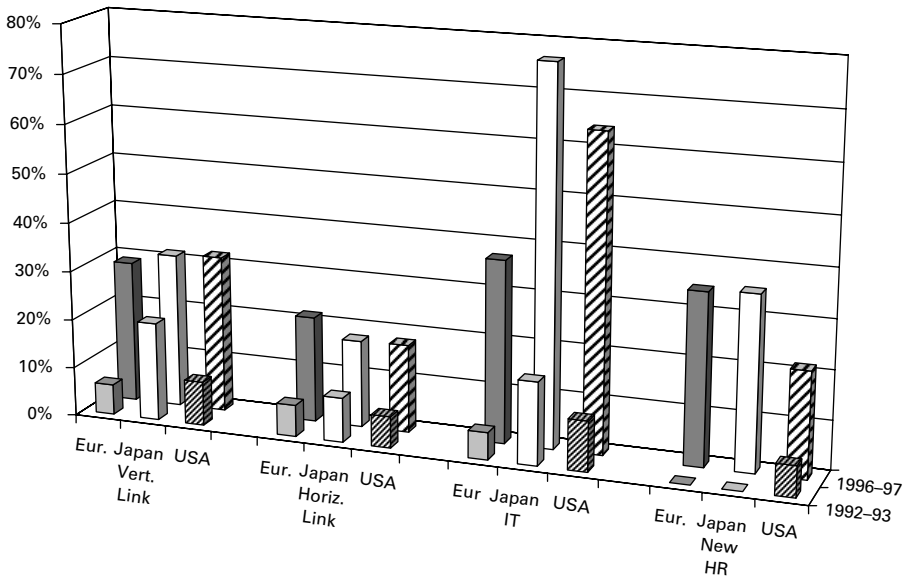


FIGURE 1.4 Organizational processes, 1992-93 and 1996-97

Figures 1.3, 1.4, 1.5 and 1.6 and Table 1.1 show the adoption of organizational innovations in structure, processes and boundaries across the three regions for 1992-93 and 1996-97. The nine indicators of new forms of

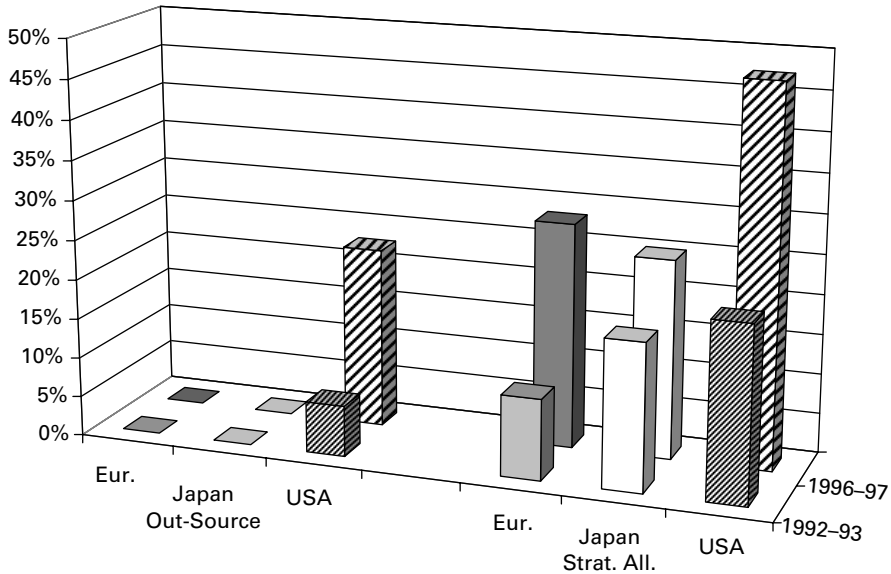


FIGURE 1.5 Organizational boundaries, 1992-93 and 1996-97

organizing correspond to the categories pictured in Figure 1.1. The overwhelming finding is a common direction of change, but from different starting points and involving some variation in pace across the three regions. Figure 1.3 shows that between 1992-93 and 1996-97 there is evident structural change with movement towards flatter, more fluid and decentralized structures with strong development of project structures and operational decentralization in Europe. Figure 1.4 indicates that underlying these structural changes were considerable process changes, most notably in the development of both vertical and horizontal linkages and investment in IT. The picture on boundary changes is more complex and will be discussed below.

Table 1.1 shows the descriptive statistics across the regions at the two time points and, in the grey shading, the main statistically significant differences. At 1992-93 and again at 1996-97, the most significant differences are between Europe and Japan and Japan and the USA. Japan had the most developed operational decentralization, project form development, and vertical and horizontal linkages at 1992. US firms claimed the most strategic alliance formulation in 1993 and this pattern was perpetuated in 1997. Over the two time points, European firms relatively speaking increased their adoption of project forms, operational decentralization, and both vertical and horizontal links, but in 1996 there were still statistically significant differences between Europe and Japan in number of hierarchical layers, project formation and operational decentralization. The most notably statistically significant differences between Europe and the USA at the two time points

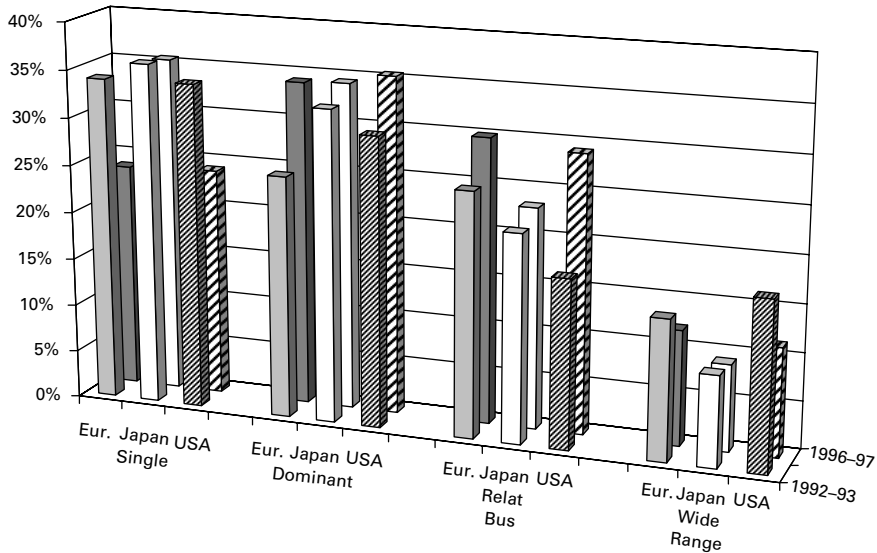


FIGURE 1.6 *Business diversification 1992-93 and 1996-97*

were greater hierarchical levels, more IT investment and greater alliance formation in the US firms.

Figure 1.6 Business diversification, 1992-93 and 1996-97 shows the responses to our survey question on the extent of diversification across the three regions. This figure (and Table 1.1) show that there was downscoping (de-diversification) among the firms with the widest product portfolios, but also a reduction in the number of firms with single product businesses – overall indicating some movement towards related diversification across the sample as a whole.

Figures 1.3 through 1.6 revealed the form of organizational arrangements in the three regions at 1992-93 and 1996-97. We have also examined elsewhere (Whittington et al., 1999; Pettigrew et al., 2000) the extent of change between the two time points within Europe and between Europe and Japan. Here we add the picture of change with the US trends. Relative to Japanese and US firms, European firms indicated a greater increase in emphasis or importance to changes in project formation, and operational and strategic decentralization over the period 1992-93 to 1996-97. Very high levels of process changes were indicated in all three regions with the biggest increases in IT being in Japan and the USA and the biggest increases in vertical and horizontal linkages and the HR innovations occurring in Europe and the USA. There was a tremendous increase in emphasis given to outsourcing across all three regions in the period 1992-93 to 1996-97 and a greater attachment to alliance formation in Europe and the USA compared with Japan. US

TABLE 1.1 Organizational indicators in Europe and Japan, 1992 and 1996, and USA, 1993 and 1997

	Europe 1992	Japan 1992	US 1993	Chi-2 (prob.) EUR-JP	Chi-2 (prob.) EUR-US	Chi-2 (prob.) JP-US	Europe 1996	Japan 1996	US 1997	Chi-2 (prob.) EUR-JP	Chi-2 (prob.) EUR-US	Chi-2 (prob.) JP-US
	3	4	5				3	4	4			
Layers: median Less than 4	74.3	61.1	48.7	25.084 (0.000)	11.762 (0.001)	20.103 (0.000)	81.8	65.9	57.7	31.595 (0.000)	22.210 (0.000)	1.672 (0.434)
Projects	13.5	25.8	16.7	14.853 (0.002)	14.735 (0.000)	0.481 (0.488)	38.0	48.8	33.8	8.475 (0.014)	0.405 (0.525)	4.541 (0.033)
Op Dec	37.3	59.1	55.3	30.306 (0.000)	27.473 (0.000)	8.580 (0.003)	60.9	67.4	67.1	3.172 (0.205)	1.061 (0.303)	0.003 (0.960)
Str Dec	11.0	14.6	20.0	5.200 (0.074)	1.740 (0.187)	4.746 (0.029)	18.4	16.8	26.3	3.421 (0.181)	2.549 (0.110)	3.277 (0.070)
Vert links	6.2	20.1	9.0	31.191 (0.000)	30.170 (0.000)	0.824 (1.000)	29.0	31.5	32.1	0.614 (0.736)	0.468 (0.494)	0.009 (0.927)
Horiz links	6.4	9.1	6.4	1.696 (0.428)	1.568 (0.211)	0.000 (0.991)	21.6	17.7	17.9	1.679 (0.432)	1.461 (0.227)	0.002 (0.963)
IT	5.6	16.9	10.3	23.204 (0.000)	23.293 (0.000)	2.483 (0.115)	37.2	76.6	64.1	104.422 (0.000)	99.929 (0.000)	4.783 (0.029)
New HR	-	-	6.3	-	-	-	34.9	35.4	21.5	5.845 (0.045)	0.022 (0.882)	5.345 (0.069)
Outsourcing	-	-	6.4	-	-	-	-	-	25.6	-	-	-
Str all (>10% Totass)	10.2	18.5	22.0	7.889 (0.019)	4.853 (0.028)	6.057 (0.014)	28.3	25.0	47.5	10.363 (0.006)	0.454 (0.500)	9.108 (0.003)
Diversification: Single	34.3	35.9	34.2	0.234 (0.890)	0.226 (0.634)	0.001 (0.980)	23.7	35.4	24.1	10.668 (0.005)	10.118 (0.001)	3.449 (0.063)
Dominant	25.4	32.7	30.4	4.067 (0.131)	3.874 (0.049)	0.853 (0.356)	34.1	34.4	35.4	0.053 (0.974)	0.004 (0.948)	0.030 (0.862)
Rel. bus.	25.6	21.8	17.7	2.890 (0.236)	3.410 (0.065)	2.268 (0.132)	29.9	23.2	29.1	3.380 (0.185)	3.316 (0.069)	1.098 (0.295)
Wide range	14.7	9.5	17.7	4.678 (0.096)	1.154 (0.283)	0.478 (0.489)	12.1	9.1	11.4	1.314 (0.518)	1.310 (0.252)	0.352 (0.553)

Observations: Europe = 439; Japan = 257; USA = 79

Source: INNFORM programme

firms increased their downscoping activities the most over the period 1993 to 1997, with only 11 per cent of European firms doing so and a minimal number of Japanese firms attempting de-diversification.

We now extend our analysis and explore the pace of change between organizations in the three regions and examine whether changes in organizational practices are adopted in an incremental or more radical way. The literature on technological innovation characterizes radical innovations as fundamental and clear departures from existing practice. Incremental innovations are defined as minor improvements or simple adjustments in current technology (Dewar and Dutton, 1986). We compared the percentage profiles of the changes in the adoption of organizational innovations during the period 1992–93 to 1996–97. As we have seen, most organizations were moving towards an increasing adoption of the innovations measured in our survey. We defined the changes between 1992 and 1996 as follows: a negative value in the difference between the value reported in 1996 and the value in 1992 in the five-point Likert scale corresponds to a reduction of the emphasis of certain organizational innovations. We denote this negative value as *Against the trend*. A positive difference of 1 in our scaled questions is an *Incremental* change; and a difference greater than one is a *Radical* change. *No change* indicates the percentage of companies which did not change the emphasis of the organizational indicators during the four years.

In Table 1.2 we compare the profiles of European, Japanese and US firms over the period 1992–93 to 1996–97 and test for statistically significant differences between the percentage profiles of each organizational innovation.

Table 1.2 indicates that all the innovation profiles (structures, processes and boundaries) show statistically significant differences between Europe and Japan and all the profiles with the exception of adoption of project forms show statistically significant differences between Japan and the USA. Only in two of the structural indicators (de-layering and project) and one process indicator (new HR practices) are there statistically significant differences between Europe and the USA.

The relatively low percentages in the *Against the trend* category for all three regions confirms that there is parallel change occurring between 1992–93 and 1996–97. European and US firms show much higher percentages of radical change compared with their Japanese comparators over this period. The only notable exception to this is in IT innovations, where 38.8 per cent of Japanese firms claim radical changes between the two time periods, although this is much less than the equivalent European (49.7 per cent) and US (57.7 per cent) percentages.

There is now a well-established literature in organization theory (Child, 1984) indicating that many large firms simultaneously adopt more than one logic of organizing in grouping their activities. Thus firms can be seen to be grouping their assets by product and service, geographical region, function and in terms of project form. The INNFORM survey instrument

TABLE 1.2 Incremental and radical changes in European, Japanese and US organizations, 1992–96

	Structures				Processes				Boundaries				
	De-layer	Proj-form	Oper. Dec.	Strat. Dec.	Vert. Links	Horiz. Links	Info. Tech.	New HR	Out-source	Strat. Alli.	Down-scope	R&D intens	Internat.
Europe													
Against trend	14.3	6.1	9.6	6.9	2.9	4.3	2.1	3.4	5.5	1.7	19.2	2.5	3.2
No change	54.0	46.2	46.5	55.5	18.3	22.9	8.8	4.1	31.4	68.1	69.4	70.0	63.5
Incremental	18.6	23.3	21.4	25.8	57.4	53.9	39.4	48.9	53.0	23.8	2.3	24.2	29.4
Radical	13.1	24.3	22.4	11.7	21.4	18.9	49.7	43.6	10.1	6.4	9.1	3.3	3.9
Radical + incr	31.7	47.6	43.8	37.5	78.8	72.8	89.1	92.5	63.1	30.2	11.4	27.5	33.3
Japan													
Against trend	8.0	3.2	2.8	4.7	2.0	1.2	0.0	8.7	3.6	0.7	2.4	4.9	2.4
No change	77.5	63.6	81.5	80.6	40.6	40.6	8.2	20.1	34.0	89.6	94.5	89.0	87.7
Incremental	12.1	23.2	13.0	11.9	53.9	56.3	52.9	64.6	57.3	9.6	3.1	6.1	9.9
Radical	2.4	10.0	2.8	2.8	3.5	2.0	38.8	6.7	5.1	0.0	0.0	0.0	0.0
Radical + incr	14.5	32.2	15.8	14.7	57.4	58.3	91.8	71.3	62.4	9.6	3.1	6.1	9.9
US													
Against trend	23.7	0.0	18.4	13.3	1.3	2.6	1.3	1.3	3.8	3.4	25.3	4.0	2.5
No change	39.5	73.8	48.7	50.7	15.4	20.5	6.4	15.2	37.2	55.9	57.0	72.0	53.2
Incremental	15.8	20.0	17.1	25.3	59.0	50.0	34.6	45.6	44.9	35.6	15.2	21.3	35.4
Radical	21.1	6.2	15.8	10.7	24.4	26.9	57.7	38.0	14.1	5.1	2.5	2.7	8.9
Radical + incr	36.9	26.2	32.9	36.0	83.4	76.9	92.3	83.6	59.0	40.7	27.7	24.0	44.3
Chi-2 (prob)	42.4 (0.000)	28.4 (0.000)	89.8 (0.000)	46.7 (0.000)	64.6 (0.000)	46.5 [^] (0.000)	11.9 [^] (0.000)	88.8 (0.000)	6.8 (0.079)	20.7 ^{^^} (0.000)	60.6 [^] (0.000)	45.2 [^] (0.000)	48.3 [^] (0.000)
EU-JP	9.4 (0.025)	10.5 ^{^^} (0.001)	6.5 (0.091)	3.6 (0.305)	0.9 [^] (0.624)	3.0 (0.226)	1.9 [^] (0.388)	6.7 [^] (0.034)	2.1 [^] (0.345)	2.4 ^{^^} (0.124)	6.5 (0.088)	0.8 (0.847)	5.5 [^] (0.064)
Chi-2 (prob)	55.0 (0.000)	1.2 ^{^^} (0.277)	49.0 (0.000)	28.3 (0.000)	41.9 [^] (0.000)	53.4 [^] (0.000)	9.1 [^] (0.011)	48.9 [^] (0.000)	8.5 [^] (0.014)	25.6 ^{^^} (0.000)	69.6 [^] (0.000)	66.7 ^{^^} (0.000)	10.1 ^{^^} (0.001)

Source: INIFORM Programme Survey

[^]one cell had a frequency <5 and was aggregate to the neighbour; ^{^^}two cells had a frequency <5 and were aggregate to the neighbours

included a question which asked our sample to indicate the extent to which their corporate structure was formally organized by product, geography, function and project. Each organization was asked to compare 1992–93 with 1996–97 and indicate the extent of the emphasis on the four structural groupings on a five-point scale: none, little, moderate, much and great. We took the project-based structure to be the closest to the characterization of innovative forms in the literature and were interested in the relative adoption of the four logics of organizing over the time period 1992–93 to 1996–97. If we found over this period an overwhelming change towards the project-based structure, this would represent at least some evidence for the new supplanting the old. If, however, any rise in the project form was occurring alongside the corresponding adoption of the other three logics of organizing then this was some evidence to support a more incremental innovation pathway – organizations would be supplementing the old with the new and not supplanting the old with the new. Figure 1.7 shows some very interesting results about the extent to which innovative forms are supplementing or supplanting existing forms in Europe, Japan and the USA.

The clear picture in Figure 1.7 is of a rise in the emergence of project forms of organizing in all three regions, with Japan having the highest adoption rate in 1996 from the highest base level in 1992. However, the very substantial rise of project forms of organization in Europe, Japan and the USA does not appear to be at the expense of other logics of organization. The clear message from these results is of new forms of organizing supplementing, rather than supplanting, existing forms.

Thus far we have only summarized the general trends in new forms of organizing across the three regions by time period. However, following our earlier discussion, we also expect variation to occur according to company-specific business characteristics such as knowledge intensity and degree of internationalization. We now summarize our results in Table 1.3, linking knowledge intensity (proxied by R&D expenditure as a percentage of total sales) and internationalization (measured by percentage of sales outside the company's domestic market) to the extent of organizational change.

Table 1.3 illustrates the effect of the two business contingencies, knowledge intensity and internationalization, on the adoption of organizational innovations in 1996. Knowledge intensity is proxied by R&D expenditures as a percentage of the firm's turnover. There is an overlap between knowledge intensity and R&D expenditures, but they are not equivalent because R&D is a more specific form of knowledge, a subset of scientific and technological knowledge, whereas knowledge intensity normally refers to a wider set of attributes including information and skills (see for example Tidd et al., 1997; see also the May–June 2002 special issue of *Organization Science* on Knowledge, Knowing and Organizations, 13 (3)). The knowledge intensity variable used in the regression models is a binary variable which identifies organizations spending more than 3 per cent of their turnover in R&D (they

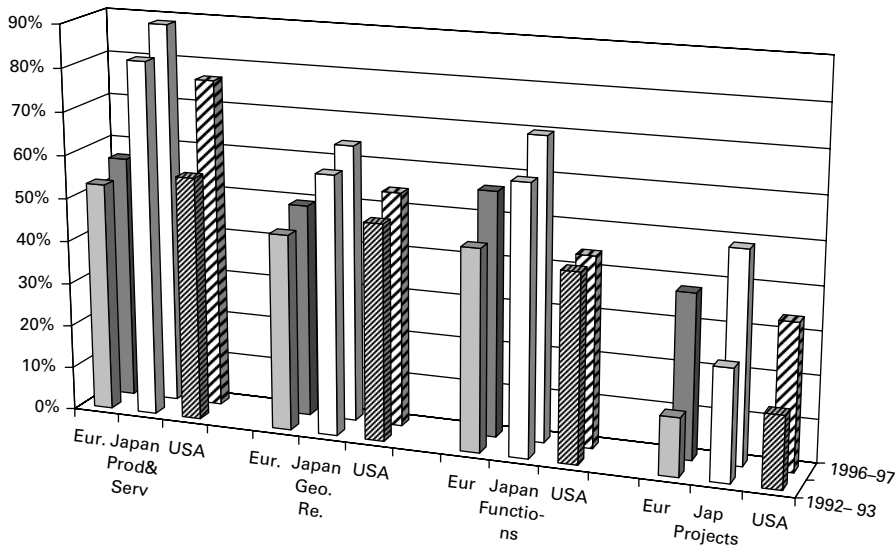


FIGURE 1.7 *Organizational logics, 1992–93 and 1996–97*

are 21 per cent of the European sample, 32 per cent of the Japanese, and 31 per cent of the US). The indicator for high internationalization is also a binary variable which discriminates companies with foreign operating businesses producing products and services in more than ten countries for the Europe and Japan samples, and more than 15 countries for the USA sample. These thresholds correspond to about 30 per cent of the companies in the samples in the three regions. We tested for alternative thresholds, but the results are fairly robust and do not vary substantially when using different cutoffs, except in one case discussed below.

We only find one common result across the three regions: that a high degree of internationalization increases the probability of engaging in strategic alliances. This result is consistent with standard international business and international management literatures according to which multinational enterprises tend to establish international partnerships to explore new markets or to gather knowledge about local markets (see, among others, Contractor and Lorange, 1988 and 2002; Nooteboom, 1999).

Apart from this result, the effects of R&D and internationalization appear to influence the adoption of different organizational innovations in the three regions. In Europe, high R&D intensity increases the probability of organizing by projects, introducing a high degree of strategic decentralization and downscoping, in the US it increases the probability of intensifying horizontal linkages, and in Japan it does not have any effect on the probability of adopting organizational innovations. This last finding may be surprising

TABLE 1.3 The effect of knowledge intensity and internationalization on the adoption of organizational innovations

	Europe			Japan			USA		
	Knowledge intensity	Internationalization	Chi-2 (prob)	Knowledge Intensity	Internationalization	Chi-2 (prob)	Knowledge intensity	Internationalization	Chi-2 (prob)
De-layering	0.178 (0.140)	0.268** (0.136)	6.73 (0.034)	0.073 (0.207)	0.136 (0.212)	0.68 (0.712)	-0.238 (0.324)	0.534 (0.333)	2.68 (0.262)
Projects	0.406*** (0.136)	0.121 (0.132)	11.31 (0.004)	0.280 (0.169)	-0.140 (0.174)	2.97 (0.226)	0.239 (0.313)	0.005 (0.327)	0.65 (0.722)
Operational decentraliz.	-0.053 (0.137)	0.201 (0.134)	2.28 (0.320)	0.184 (0.177)	0.293 (0.184)	4.59 (0.101)	0.329 (0.342)	-0.732** (0.342)	4.74 (0.094)
Strategic decentraliz.	0.337** (0.151)	0.548*** (0.146)	23.06 (0.000)	0.210 (0.192)	0.058 (0.200)	1.49 (0.475)	0.063 (0.328)	-0.145 (0.347)	0.18 (0.913)
Vertical linkages	0.211 (0.139)	-0.070 (0.137)	2.34 (0.311)	0.010 (0.175)	0.370** (0.178)	4.59 (0.101)	0.478 (0.341)	-1.071*** (0.399)	8.44 (0.015)
Horizontal linkages	0.227 (0.143)	-0.177 (0.144)	3.36 (0.186)	-0.115 (0.196)	0.303 (0.196)	2.44 (0.295)	0.778** (0.370)	-0.648 (0.432)	5.34 (0.069)
New HRM practices	0.178 (0.141)	0.054 (0.135)	2.07 (0.356)	0.226 (0.186)	-0.049 (0.196)	1.46 (0.482)	0.806 (0.436)	-0.518 (0.393)	4.47 (0.107)
IT	0.216(*) (0.136)	0.226* (0.132)	6.76 (0.034)	-0.262 (0.185)	0.477** (0.205)	6.49 (0.039)	0.160 (0.323)	0.324 (0.342)	1.53 (0.467)
Outsourcing	-0.066 (0.139)	0.367*** (0.138)	7.16 (0.028)	-0.040 (0.172)	0.266 (0.180)	2.21 (0.331)	0.166 (0.319)	0.509 (0.339)	3.17 (0.205)
Strategic alliances	0.073 (0.142)	0.471*** (0.141)	12.89 (0.002)	0.268 (0.171)	0.414** (0.178)	9.91 (0.007)	0.076 (0.349)	0.977** (0.417)	6.92 (0.031)
Downscoping	0.354** (0.170)	0.104 (0.171)	5.43 (0.066)	-	-0.187 (0.470)	0.17 (0.682)	0.136 (0.366)	-0.315 (0.403)	0.65 (0.723)

*p < 0.1; ** p < 0.05; *** p < 0.01. Europe N = 439; Japan N = 257; USA N = 79

Source: INNFORM Programme Survey

because it is commonly accepted that the success of R&D intensive firms also requires greater attention to organizational structures and processes that enhance their absorptive capacity (Cohen and Levinthal, 1990), such as, for example, sharing R&D knowledge, increasing decentralization and introducing information systems. As we discussed elsewhere (Pettigrew et al., 2000), and in the context of the evolution of organizational routines and their comparisons between Western and Japanese organizations (Massini et al., 2002), this might be because Japanese firms tend to adopt the organizational innovations investigated by the INNFORM survey regardless of their main activity and these organizational innovations tend to reflect the institutional context and culture of Japanese organizations.

The degree of internationalization affects a higher number of organizational changes compared to R&D in all three regions, but in contrasting ways. In Europe, highly internationalized firms are more likely to introduce high strategic decentralization, invest in IT, outsource and engage in strategic alliances. In Japan, highly internationalized companies, in addition to strategic alliances and IT, are also more likely to develop stronger vertical linkages. However, in the US, apart from high probability to engage in strategic alliances, we find contrasting and somehow counterintuitive results. Highly internationalized American companies are more likely to have more centralized operational decision making and less strong vertical linkages. These results suggest that although these companies are more likely to have weaker linkages between headquarters and subunits, for example for marketing and advertising or technical personnel, they do not have autonomy to run operations. These results emerge in the USA in the case of 15 or more foreign operations (and also with higher thresholds), but do not appear to be significant when we used the same, lower (ten) number of foreign operations as for the other samples.

Our findings may be summarized as follows:

- 1 There is evidence of a common direction of change, but from different starting points and with some variation in pace across the three regions.
- 2 There is evidence of parallel change in structures, processes and boundaries, but little evidence as yet to support the thesis that organizations are converging towards a single type of form.
- 3 Across the three regions there is greater evidence of boundary and process changes than structural changes in the period 1992–97.
- 4 Our assessment of incremental and radical change across the three regions allows the following conclusion: European and US organizations show much higher percentages of radical change compared with their Japanese comparators.
- 5 The findings do not confirm previous conjecture about revolutionary change in forms of organizing. Innovative forms of organizing are emerging across the three regions, but they are supplementing not

supplanting existing forms. The new is emerging alongside and within the old, rather than replacing the old.

- 6 For our European, Japanese and US samples, strategic alliance formation was positively and significantly related to the extent of internationalization of the firm.
- 7 By 1997 there were still big statistically significant differences between Japanese, European and US firms in their forms of organizing. In 1996 Japanese firms had more hierarchical levels, more project formation and more operational decentralization than their European comparators. By 1997 US organizations had more hierarchical levels, more IT investment and greater alliance formation than their European comparators.

These empirical findings are among the first attempting to map the extent of diffusion of innovative forms of organizing across three important regions of the globe. They help to clear up some of the conundrums about the emergence of innovative forms, but they, in turn, stimulate further questions. In Chapter 7 of this volume we pose and answer some important questions about complementarities in organizational innovation and performance. In Chapter 12 we return to deepen our exploration of whether forms of organizing are converging or diverging across nation states and regions. Here we should also remind ourselves that our results capture the emergence of innovative forms at two time points only and further research is necessary to make sense of what is still a moving target and an emergent process.

We move on in this volume to broaden and deepen our exposure and interpretation of our findings. In Part 1, which follows, we develop the theme of the inseparability of organizing/strategizing. Part 2 displays and interprets our findings on complementarities, change and performance, in Part 3 we pick up the important empirical and policy theme of managing dualities in the innovating organization. Finally, in Part 4 we offer our two concluding chapters on the content and process of our work.