company's spectacular growth arises from behaviors that are evolved, not designed—this is the essence of self-organization. Self-organization does not mean giving people a mission, standing back, and seeing what happens. Capital One moves forward because it stimulates thousands of experiments, selects those that clear the firm's vicarious selection system and perform well in test markets, and retains the successful concepts through a high level of automation and service.

Our world is becoming more complex because it is becoming more interconnected, and ubiquitous connections allow communities of specialists to flourish. In addition, the best minds, particularly among younger people, are increasingly likely to participate in networks that give them considerable local autonomy. In such a world, designed enterprises will find it increasingly difficult to compete with organizations whose behaviors are evolved, not planned. The question that readers of this chapter can expect to confront is not whether their firms will embrace self-organization but how their firms will survive competition from companies like Capital One if they do not.

7

Heterarchy

Distributing Authority and Organizing Diversity

David Stark

The epochal transformation taking place in the societies of Eastern Europe and the former Soviet Union offers an extraordinary social laboratory to study processes of organizational change. Standard accounts tend to emphasize discontinuities. Indeed, the surprising rapidity of the collapse of communism throughout the Soviet bloc, the election of democratic governments who face an entirely new array of political challenges, and the sweeping embrace of market mechanisms and private property all made it seem that the world had changed in the moment of a breath. Exhale communism, inhale capitalism. Now, however, after nearly a decade of developments, including war in former Yugoslavia and stalled reforms in Russia, some analysts are attuned to continuities. The outbreaks of ethnic rivalries, the persistence of nondemocratic political forces, and the continued power of entrenched economic interests all reveal lasting legacies of the old order. From that view, the more things change, the more they stay the same.

But there are alternatives to seeing these postsocialist phenomena either as evidence of a revolutionary (albeit democratic and capitalist) rupture or as indicators of a glacial stasis. What we need is a framework that can take into account discontinuities and continuities, shearing from the former its facile optimism and from the latter its morbid pessimism while replacing both with a pragmatic realism.

The alternative adopted in this chapter is to view the postsocialist economies as complex adaptive systems (CAS). The premise is that postsocialist Eastern Europe is a genuine social laboratory, not simply because researchers can use it to test competing theories but because people there are actively experimenting with new organizational forms. In and with these new forms, they are testing competing worldviews and beliefs. Unlike those of scientists, the localized experiments in Eastern Europe are not by design, nor should they be. The attempt to create and manage an entire economy by design was the colossal Leninist failure, and efforts to create capitalism by design would do well to learn from those mistakes. (See also Chapter Two; and "Path Dependence and Privatization Strategies" in Stark and Bruszt, 1998.) Instead, their experimentation is more like bricolage: making do with what is available. But if they use the existing institutional materials that are close at hand, they are not for that reason condemned to mimic the old. As John Holland (1995) shows in very different contexts, combining old building blocks is one way to innovate—innovation through recombination (see also Chapter Five).

In analyzing organizational innovation as recombination, this chapter adopts an appropriately combinatory strategy, drawing on key concepts from the CAS repertoire. The opening section introduces a core problem of the postsocialist transformation through the concept of "lock-in," the process whereby early successes can pave a path for further investments of new resources that eventually lock in to suboptimal outcomes. Current adaptation, in this view, can pose obstacles to future adaptability. But must organizations and systems accept this fate? Are there organizational forms that are better configured to learn from the environment? Such organizations would need cognitive tools that recognize (re-cognize) new resources in an ongoing reconfiguration of organizational assets.

These challenges are hardly unique to the postsocialist transformations. Therefore, the subsequent section of the chapter makes explicit the assumption that the term "transforming economies" applies no less to the societies of North America and Western Europe than to those of Eastern Europe and the former Soviet Union. Firms in both types of economies now face extraordinary uncertainties—caused by the rapidity of technological change or the extreme volatility of markets in the former and shaped by political and institutional uncertainties in the latter. The response to these uncertainties is an emergent, self-organizing form referred to here as "heterarchy," whose features are elaborated along with other CAS concepts. In pointing to processes of lateral or "distributed" authority, this chapter develops a rough analogy to the concept of "distributed cognition" in the work of Andy Clark (1997), and similarly draws on Clark's and John Henry Clippinger's notions (Chapters Three and Four respectively) of overlapping "tags" in exploring how organizations can benefit from the active rivalry of competing belief systems.

Having outlined the features of heterarchical forms, the chapter then focuses on the specific challenges facing the postsocialist firm. Once we break with the all-too-prevalent design imperative of a single model of capitalism (and its attendant notion of different stages on a progression toward it), we are able to think about diverse types of capitalism. The collapse of communism and the end of the dichotomous comparison of capitalism versus socialism make us alert to the possibilities of comparing *capitalisms* (plural). As we shall see, that collapse did not leave a tabula rasa. Eastern Europeans are not so much building *on* the ruins of communism as *with* the ruins. With these distinctive building blocks, they are constructing a distinctively Eastern European capitalism.

Lessons from Labrador

We begin with the problem of adaptation versus adaptability, and for a lesson on avoiding the problem of lock-in, we turn to an unlikely source: the Naskapi Indians of the Labrador Peninsula. Each evening during their hunting season, the Naskapi determined

where they would look for game on the next day's hunt by holding the shoulder bone of a caribou over the fire (Weick, 1977, p. 45). Examining the smoke deposits on the caribou bone, a shaman read for the hunting party the points of orientation of the next day's search. In this way the Naskapi introduced a randomizing element to confound a short-term rationality that would have dictated that the one best way to find game would be to look again tomorrow where they had found game today. By following the divergent daily maps of smoke on the caribou bone, they avoided locking into early successes that, while taking them to game in the short run, would in the long run have depleted the caribou stock in that area and reduced the likelihood of successful hunting. By breaking the link between future courses and past successes, the tradition of shoulder bone reading was an antidote to path dependence in the hunt.

Mainstream notions of the postsocialist "transition" as the replacement of one set of economic institutions by another set of institutions of proven efficiency are plagued by problems of short-term rationality similar to those the Naskapi practices mitigated. As the policy variant of "hunt tomorrow where we found game today," some economic advisers recommend the adoption of a highly stylized version of the institutions of prices and property that have "worked well in the West." Economic efficiency will be maximized, they argue, only through the rapid and all-encompassing implementation of privatization and marketization. This chapter argues, by contrast, that although such institutional homogenization might foster *adaptation* in the short run, the consequent loss of institutional diversity will impede *adaptability* in the long run. Limiting the search for effective institutions and organizational forms to the familiar Western hunting ground of tried and proven arrangements locks the postsocialist economies into exploiting known territory at the cost of forgetting (or never learning) the skills of exploring for new solutions.

Recent studies in evolutionary economics and organizational analysis suggest that organizations that learn too quickly sacrifice

efficiency. Allen and McGlade (1987), for example, use the behavior of Nova Scotia fishermen to illustrate the possible trade-offs of exploiting old certainties and exploring new possibilities. Their model of these fishing fleets divides the fishermen into two classes: the rationalist "Cartesians," who drop their nets only where the fish are known to be biting, and the risk-taking "Stochasts," who discover the new schools of fish. In simulations where all the skippers are Stochasts, the fleet is relatively unproductive because knowledge of where the fish are biting is not used; but a purely Cartesian fleet locks into the most likely spot and quickly fishes it out. More efficient are the models that, like the actual behavior of the Nova Scotia fishing fleets, mix Cartesian exploiters and Stochast explorers.

James March's simulation in "Exploration and Exploitation in Organizational Learning" (1991) yields similar results: he finds that interacting collections of smart learners frequently do not perform as well as collections of smart and dumb. Organizations that learn too quickly *exploit* at the expense of *exploration*, thereby locking into suboptimal routines and strategies. The purely Cartesian fleet in Allen and McGlade's study, like the organizations of homogeneously smart learners in March's simulations, illustrates the potential dangers of positive feedback and the pitfalls of tight coupling. Like infantry officers who instructed drummers to disrupt the cadence of marching soldiers while they were crossing bridges, lest the resonance of uniformly marching feet cause potentially destructive tremors, this chapter draws the lesson that dissonance contributes to organizational learning and economic evolution.

Restated in the language of the new economics of adaptive systems (Arthur, 1994, and Chapter Two in this volume), the problem for any transforming economy is that the very mechanisms that foster allocative efficiency might eventually lock development into a path that is inefficient. From this point of view, our attention turns from a preoccupation with adaptation to a concern about adaptability, shifting from the problem of how to improve the immediate "fit" with a new economic environment to the problem of how to

reshape the organizational structure to enhance its ability to respond to unpredictable future changes in the environment.

Sociologists in the tradition of organizational ecology have a ready answer to this problem. At the level of the economic system, adaptability is promoted by the diversity of organizations: a system with a greater variety of organizational forms (a more diverse organizational "gene pool") has a higher probability of having in hand some solution that is satisfactory under changed environmental conditions (Hannan, 1986). From that viewpoint, the problem of socialism was not only that it lacked a selection mechanism (firms were not allowed to fail) but also that almost all economic resources were locked into one organizational form, the large state-owned enterprise. That form was formidable in achieving industrialization; but lacking capacity for innovation, it failed woefully in the subsequent competition with the West. Similarly, the problem in the current period of transformation is that "success" that is achieved during the transition through forced homogenization toward the privately held corporation might suppress organizational diversity, thereby impeding adaptability in the next round of global competition.

But where do new organizational forms come from? Understanding organizational change as taking place almost exclusively through the deaths and births of organizations, the organizational ecology perspective neglects the possibility of organizational learning and fails to address the emergence of new organizational forms. The point of view put forth in this chapter is that, in addition to the diversity of organizations within a population, *organization* of diversity within an enterprise promotes adaptability. Organized diversity is most likely to yield its fullest evolutionary potential when different organizational principles coexist in an active rivalry. "Rivalry" in this sense refers not to competing camps and factions but to coexisting logics and frames of action. The organization of diversity is an active and sustained engagement in which there is

more than one way to organize, label, interpret, and evaluate the same or similar activities. It increases the possibilities of long-term adaptability by better search—better not because it is more consistent or elegant or coherent but precisely because the complexity that it promotes and the lack of simple coherence that it tolerates increase the diversity of options. The challenge of the organization of diversity is to find solutions that promote constructive organizational reflexivity, or the ability to redefine and recombine resources. The emergent organizational forms with these properties are here termed "heterarchies."

Heterarchy

Heterarchy represents a new logic of organizing based on neither the market nor hierarchy. Whereas hierarchies involve relations of *dependence* and markets involve relations of *independence*, heterarchies involve relations of *interdependence*. As the term suggests, heterarchies are characterized by minimal hierarchy and by organizational heterogeneity.

Heterarchical features are a response to the increasing complexity of the firm's strategy horizons (Lane and Maxfield, 1996), or "fitness landscape." In relentlessly changing organizations where, in extreme cases, there is uncertainty even about what product the firm will be producing in the near future, the strategy horizon of the firm is unpredictable and its fitness landscape is rugged. To cope with these uncertainties, instead of concentrating its resources for strategic planning among a narrow set of senior executives or delegating that function to a specialized department, firms may undergo a radical decentralization in which virtually every unit becomes engaged in innovation. That is, in place of specialized search routines in which some departments are dedicated to exploration while others are confined to exploiting existing knowledge, the functions of exploration are generalized throughout the organization. The

search for new markets, for example, is no longer the sole province of the marketing department if units responsible for purchase and supply are also scouting the possibilities for qualitatively new inputs that can open up new product lines.

These developments increase interdependencies between divisions, departments, and work teams within the firm. But because of the greater complexity of these feedback loops, coordination cannot be engineered, controlled, or managed hierarchically. The result of interdependence is to increase the autonomy of work units. Yet at the same time, more complex interdependence heightens the need for fine-grained coordination between the increasingly autonomous units.

These pressures are magnified by dramatic changes in the sequencing of activities in production relations. As product cycles shorten from years to months, the race to new markets calls into question the strict sequencing of design and execution. Because of strong first-mover advantages, in which the first actor to introduce a new product (especially one that establishes a new industry standard) captures inordinate market share, firms that wait to begin production until design is completed will be penalized in competition. Like the production of "B" movies, in which filming begins before the script is completed, successful strategies integrate conception and execution, with significant aspects of the production process beginning even before design is finalized.

Production relations are even more radically altered in the simultaneous engineering processes analyzed by Sabel and Dorf (1998). Conventional design is sequential, with subsystems that are presumed to be central designed in detail first, setting the boundary conditions for the design of lower-ranking components. But in simultaneous engineering, separate project teams develop all the subsystems concurrently. In such concurrent design, the various project teams engage in ongoing mutual monitoring, as innovations produce multiple, sometimes competing, proposals for improving the overall design.

Thus, increasingly rugged fitness landscapes yield increasingly complex interdependencies that in turn yield increasingly complex coordination challenges. Where search is no longer departmentalized but is instead generalized and distributed throughout the organization, and where design is no longer compartmentalized but deliberated and distributed throughout the production process, the solution is distributed authority.

Under circumstances of simultaneous engineering, where the very parameters of a project are subject to deliberation and change across units, authority is no longer delegated vertically; it emerges laterally. As one symptom of these changes, managers socialized in an earlier regime frequently express their puzzlement to researchers: "There's one thing I can't figure out. Who's my boss?" Under conditions of distributed authority, managers might still "report to" their superiors; but increasingly, they are accountable to other work teams. Success at simultaneous engineering thus depends on learning by mutual monitoring.

The interdependencies that result from attempts to cope with rugged fitness landscapes are only inadequately captured in concepts of "matrix organizations" or in fads such as treating the firm as a set of "internal markets" according to which every unit should regard every other unit in the firm as its "customer." These conceptions are inadequate because they take the boundaries of the firm and the boundaries of its internal units as given parameters. In fact, the reorganization of the modern firm is more radical. As it shifts from search routines to a situation in which search is generalized, the modern firm is perpetually reinventing itself. Under circumstances of rapid technological change and volatility of products and markets, it seems there is no one best solution. If one could be rationally chosen and resources devoted to it alone, the benefits of its fleeting superiority would not compensate for the costs of subsequent missed opportunities. Because managers hedge against these uncertainties, the outcomes are hybrid forms (Sabel, 1990). Good managers do not simply commit themselves to the array that keeps

the most options open; instead, they create an organizational space open to the perpetual redefinition of what might constitute an option. Rather than a rational choice among a set of known options, we find practical action fluidly redefining what the options might be. Management becomes the art of facilitating organizations that can reorganize themselves.

The challenge of the modern firm, whether it be a postsocialist firm coping with the uncertainties of system change or a digital technologies firm coping with unpredictable strategy horizons, is the challenge of building organizations that are capable of learning. Flexibility requires an ability to redefine and recombine assets—in short, a pragmatic reflexivity.

This capacity for self-redefinition is grounded in the organizational heterogeneity that characterizes heterarchies. Heterarchies are *complex* adaptive systems because they interweave a multiplicity of organizing principles. The new organizational forms are heterarchical not only because they have flattened hierarchy but also because they are the sites of competing and coexisting value systems. The greater interdependence of increasingly autonomous work teams results in a proliferation of performance criteria. Distributed authority not only implies that units will be accountable to each other but also that each will be held to accountings in multiple registers. Heterarchies create wealth by inviting more than one way of evaluating worth.

In the terms of the CAS thinking explored in *The Biology of Business* (see especially Chapters One, Three, and Four), heterarchies are organizations with multiple worldviews and belief systems, just as products, processes, and properties carry multiple "tags" or interpretations. Success in rugged fitness landscapes requires an extended organizational reflexivity that sustains rather than stifles this complexity. Because resources are not fixed in one system of interpretation but can exist in several, heterarchies make assets of ambiguity.

Making the Best of One's Resources

While managers in advanced sectors are coping with volatile markets, rapid technological change, and the challenges of simultaneous engineering, policymakers in the postsocialist world must cope with a set of different, but equally complex, strategy horizons: the uncertainties of international competition, of reading unfamiliar market signals in place of familiar bureaucratic signals, and of the simultaneous extension of citizenship rights and property rights (that is, of democratization and property transformation). How should they reorganize their economies and restructure their firms in the face of these extraordinary uncertainties?

For many Western policy advisers who flew into the region (often with little knowledge of its peculiarities), the answers were straightforward, and two positions quickly dominated the debate. On the one side was the message of the neoliberals: the best way to restructure is to use strong markets. Markets, they argued, were not only the goals but also the means. Rapid privatization, trade and price liberalization, strict bankruptcy laws, and an end to government subsidies were key elements of their policy prescriptions. But the depth and rapidity of economic recession in the aftermath of 1989 dampened enthusiasm for the neoliberal agenda, and an alternative, neostatist position entered the debate, arguing that the neoliberal strategy confused goals and means. To create markets, one cannot simply rely on markets. Strengthening the market requires strong states.

The choice seemed clear: strong markets versus strong states. The problem, however, was that the societies of the postsocialist world historically lack both developed markets and coherent states. The nonexistent starting points of the neoliberals and the neostatists recall the joke in which an Irishman in the far countryside is asked, "What's the best way to get to Dublin?" He thinks for a minute, then responds, "I wouldn't start from here."

The irony of the answer would not be lost on Eastern Europeans, for they are all too acutely aware that the best ways to get to capitalism started somewhere else. But those options are not available to our contemporary traveling companions. Accordingly, this chapter adopts a different analytical starting point—the pragmatic, self-organizing starting point of the Eastern Europeans themselves, who in place of the question "What is the best way to get to capitalism?" must ask, "How do we get there from here?" In place of the therapies, recipes, formulas, and blueprints of designer capitalism, postsocialist firms have had to adopt a different strategy. Precluded from the best ways to get to capitalism, they are making the best of what they have.

With what institutional resources have they embarked? Postsocialist societies lack strong markets and strong states, but they have decades of experience with strong networks under socialism. These associative ties of reciprocity were unintended consequences of the attempt to "scientifically" manage an entire national economy. At the shop-floor level, shortages and supply bottlenecks led to bargaining between supervisors and informal groups; at the level of the gray market, the distortions of central planning produced the conditions to create networks of predominantly part-time entrepreneurs; and at the managerial level, the task of meeting plan targets produced dense networks of informal ties that cut across enterprises and local organizations.

Some of these network ties have dissipated in the transforming postsocialist economic environment. Others have been strengthened as firms, individuals, banks, local governments, and other economic actors have adopted coping strategies to survive (not all of them legal and, in some countries, many of them corrupt). Still others have emerged anew as these same actors have searched for new customers and suppliers, new sources of credit and revenues, and new strategic allies. The existence of parallel structures in the informal and interfirm networks that "got the job done" under socialism means that instead of an institutional vacuum, we find routines and

practices that can become assets, resources, and the basis for credible commitments and coordinated actions. In short, associative ties build new forms of association as the "ties that bind" shape binding agreements.

But network ties are only part of the way postsocialist firms are attempting to restructure under difficult circumstances and with few new resources. Aid, credit, and direct investment have been paltry when compared to the magnitude of the economic and political transformation in the region. In this situation, one of the principal resources of the postsocialist firm is resourcefulness. Less design than improvisation, restructuring is often a process of bricolage: making do with what is available, redeploying assets for new uses, recombining resources within and across organizational boundaries. From the aggregation and recombination of existing building blocks emerge genuinely new structures and processes.

These recombinant practices have a special character in postsocialist societies, where economies are undergoing a profound transformation in property regimes. Conventionally addressed under the rubric of "privatization" and understood as a straightforward transfer of property from public to private hands, the property transformation in postsocialist firms is in fact often neither a simple transition from public to private hands nor a clarification of property rights. Instead, the emerging new property forms blur the boundaries of public and private, erode the organizational boundaries of the firms, and multiply the operative evaluating principles with which the firm justifies access to resources. Property that has this ensemble of characteristics may be referred to as "recombinant" property.

Recombinant property involves a form of organizational hedging in which actors respond to uncertainty in the organizational environment by diversifying their assets and redefining and recombining resources. In its extreme form, it is an attempt to hold and label resources that can be justified or assessed by more than one standard of evaluation (multiple tags). The overlap of a multiplicity of

property regimes in the postsocialist circumstances does not simply mean that multiple owners are making different claims on the resources of the firm. Rather, it means that the multiple regimes provide multiple opportunities for the firm to make claims for resources. "Asset diversification" in such cases differs markedly from that of the mutual fund portfolio manager, whose strategy can be captured in the algorithm that expresses optimizing preferences across risk functions, short-term revenues, long-term growth, and the like. By contrast, the recombinant strategies in the postsocialist cases are practices that seek to manage asset ambiguity. Under circumstances of asset interdependence, some assets are most valuable precisely where property claims are least clarified; thus, under circumstances where multiple legitimating principles are at play, actors gain advantage if they can exploit the ambiguity of justifications for claims. In this highly uncertain environment, therefore, enterprise survival can depend on skills that make assets of ambiguity.

Recombinant Processes in Hungary

Immediately following the first free elections in spring 1990, the new democratic government of Hungary announced an ambitious program of privatization. Because this was intended to be a state-directed course of property transformation, the government created a large bureaucratic agency, the State Property Agency (SPA), responsible for every aspect of privatizing the productive assets of the Hungarian economy—some 90 percent of which had been held by the state. From its inception, the SPA adopted the official policy that privatization would be conducted on a strictly case-by-case, firm-by-firm basis. SPA policy never treated assets as interdependent across firms or considered that firms might be broken up and their assets regrouped by economic agents with local knowledge of constraints and opportunities. Instead, it adopted the role of Big Broker, attempting to match buyers to firms, and it sought to legitimate its activities externally by emphasizing the bottom line: revenues brought into the state treasury from the eventual sale of individual firms.

Enterprise directors thought otherwise. While bureaucratic administrators in the SPA debated the merits of auctions versus public offerings and transaction officers in the agency scrambled to acquire some familiarity with the dozens of firms assigned to their supervision, enterprise management took advantage of several pieces of legislation to launch its own strategies of property transformation.

Although we typically think about owners acquiring firms, the peculiar circumstances of the economic transformation in Eastern Europe has placed extraordinary political and economic pressure on postsocialist firms to acquire owners. They do so, moreover, under circumstances in which the demand for owners greatly exceeds the supply. On one hand, the demand for owners is high: the postsocialist firm is searching for new owners at precisely the same time that thousands of other firms are doing the same. On the other hand, the supply of owners with adequate capital and interest is relatively low: the domestic population has savings that equal only a fraction of the value of the assets of the state-owned enterprises, and there are only a limited number of interested foreign buyers. Politically compelled to find owners in order to adjust to the new political setting, and organizationally compelled to find owner-allies in order to address the challenges of the new economic environment, the postsocialist firms find each other. That is, they acquire shares in other firms, and they make arrangements for other enterprises to become their new shareholders. The results are dense networks of interlocking ownership ties that extend through and across branches and sectors of the economy, especially among the very largest enterprises and banks.

Network Properties

To assess the prevalence of such interenterprise ownership, I compiled a data set on the ownership structure of the two hundred largest Hungarian corporations (ranked by sales). These firms compose the "Top 200" on the listing of *Figyelő*, a leading Hungarian

business weekly. Like their Fortune 500 counterparts in the United States, the "*Figyelö* 200" firms are major players in the Hungarian economy, employing an estimated 21 percent of the labor force and accounting for 37 percent of total net sales and 42 percent of export revenues. The data also include the top twenty-five Hungarian banks (ranked by assets). Ownership data were obtained in the spring of 1994 and updated in the spring of 1996; they were gathered directly from the Hungarian courts of registry, where corporate files contain complete lists of the company's owners as of the most recent shareholders' meeting. Following the convention in the literature of East Asian business groups, analysis is restricted to the top twenty owners of each corporation. However, in the Hungarian economy, where only thirty-seven firms are traded on the Budapest stock exchange and where corporate shareholding is not widely dispersed among hundreds of small investors, the twenty-owner restriction allows us to account for at least 90 percent of the shares held in virtually every company.

Who holds the shares of these largest enterprises and banks? Through its property holding agencies, the state remains the most prominent owner. It was the sole and exclusive owner of 16.4 percent of these firms and kept its hand in as one of the top twenty owners in 44.4 percent of the largest corporations and banks in 1996. The state, although whittled down, is not withering away. Only five companies (2.0 percent) in this population were owned exclusively by private individuals in 1996. Even by the least restrictive criterion—the presence of even one individual private investor among a company's major owners—individual private ownership cannot be seen as ascendant: in 1994, 102 individuals in the data set held ownership stakes in 8.5 percent of these largest enterprises and banks. In 1996, these figures actually declined, with only 61 individuals appearing among the twenty major owners of only 7.3 percent of the units in the population.

Intercorporate ownership, on the other hand, is increasing. The percentage of units with at least one corporate owner rose from 66.3 percent to 77.6 percent in 1996. Most notably, the number of units in which all the top twenty owners are other corporations increased from 35.6 percent to 40.2 percent. Many of these owners are themselves the largest enterprises and banks, the very firms for which I gathered the ownership data.

Property with Emergent Properties

Beyond confirming the prevalence of such interenterprise ownership, the data also allow us to identify the links among these large enterprises. These ties are dense and extensive, and they yield numerous networks of interconnected holdings.

Direct ties among the largest firms, however, are only the most immediate way to identify relational properties in the field of interacting strategies. For in addition to knowing the direct ties between two firms (for example, Company A is a major shareholder of Bank B), we can also identify the patterns formed by their mutual shareholdings even when two firms are not themselves directly tied (for example, Enterprises C, D, E, and F share a relation by virtue of their tie to Bank X, which is a major shareholder in each; or Bank X and Bank Z are linked by their mutual ownership of Enterprise M).

Incorporating this more complete ensemble of ties allows us to probe a concept that network analysts refer to as structural similarity. To take a simple example, if all your friends are my friends, we are structurally similar even if we do not know each other. The notion of structural similarity gives a more robust view of the overall properties of the field because it provides a richer interpretation of proximity in a structural space: we might be indifferent to knowing precisely who is friends with whom if our question is to ask who runs in the same social circles. The strategist for a biotechnology firm who is trying to anticipate the next moves of the competition might well want to know which firms tend to license identical patents, even when the competitors do not directly license patents from each other (for example, A's competitors, B and C, do not

license each other's patents but both tend to license patents from D, E, and F).

For my data set, two companies are structurally similar if their overall sets of relations, compared to all the other members of the data set (that is, to all the possible owners as well as to all the units that can be owned), are nearly alike. I use a clustering algorithm to identify the major business groupings of the Hungarian economy formed through interenterprise ties.

The results take a broader view to show the various "teams" in the whole field. To understand such a representation, as a first approximation, think of each firm as having a portfolio of holdings (the other companies in which it holds shares) and as having a portfolio of owners (its shareholders). Then instead of taking the individual firm as the unit of analysis, take the relatively discrete network of firms as the unit. Also, think of property (ownership or holdings) as having properties (characteristics or features). That is, think about property as the network properties of a group of firms and about a portfolio not as a feature of a single firm but as the property of a network.

Once we think of each network as a distinctive portfolio, the very unit of strategic action changes. Firms do not disappear in the story, for it is their individual actions of shareholding, of making and breaking ties, that drive the process. But the whole is more than the sum of the parts. Or, more accurately, simply summing the individual portfolios yields the descriptive statistics of percentages held by this or that type of owner whereas aggregating their relational properties yields new orders of phenomena above the constituent units. Restated in the language of complex adaptive systems: property has emergent properties. A Hungarian business network is not a megafirm, it has no single decision-making center, and unlike the Japanese *keiretsu*, it has no distinctive emblem or flag through which affiliate members signal their collective identity. Too extensive to be called a single strategic alliance, it is a complex network of intersecting alliances.

More detailed analysis of the discrete networks indicates that their strategies of portfolio management are distinctive (for details, see Stark, Kemeny, and Breiger, 1998). In some, structure derives from the role of key banks that own shares in manufacturing enterprises. In others, banks are also prominent, not as owners but by being mutually owned by the affiliated enterprises. Some of the networks span branches and sectors. Others group firms in particular sectors. Network 3, for example, contains the major bus, railroad, trucking, and airline firms, linked with three banks and six foreign trade companies. The elongated configuration of Network 7 corresponds to its character as an integrated commodity chain that links firms in petroleum, petrochemicals, chemicals, and pharmaceuticals.

But despite the distinctive shapes of their network properties, all of these major business groupings share an important feature of heterarchies: common to each is a strategy of combining heterogeneous resources. Each business network attempts a strategy of portfolio management that diversifies across the resources (and constraints) that derive from ownership by state agencies as well as from the new resources of multinational enterprises and other foreign investors. None is exclusively public or predominantly private. Each regroups assets that allow it to operate across the playing field. All are poised to take advantage of continuing subsidies, exemptions from tariff restrictions, and state largesse in forgiving inherited debt, while benefiting from new sources of capital, access to markets, and technology transfers. In the postsocialist context, networked property is recombinant property.

Similarly recombinant strategies take place inside the postsocialist firm. Consider Heavy Metal, one of Hungary's largest metallurgy companies, which remains predominantly state owned. At the same time that it was participating in one of the interenterprise business networks described above, Heavy Metal was spinning off its assets into limited liability companies (*korlátotl felelöségü társaság*, or KFT). Limited liability companies are the fastest growing business form in the Hungarian economy, having increased from 450 at

the end of 1988 to 158,000 by the end of 1998. Some of these KFTs are genuinely private ventures. But many are the corporate satellites of large enterprises. These satellites have ambiguous property status.

Like Saturn's rings, Heavy Metal's satellites revolve around the giant corporate planet in concentric orbits. Near the center are the core metallurgy units, hot-rolling mills, and energy, maintenance, and strategic planning units—all held in a kind of synchronous orbit by 100 percent ownership. In the next ring, where the corporate headquarters holds roughly 50 to 99 percent of the shares, are the cold-rolling mills, wire and cable production, the oxygen facility, galvanizing and other finishing treatments, specialized castings, quality control, and marketing units. The satellites of the outer ring are involved in construction, industrial services, computing, ceramics, machining, and similar activities, and are usually of lower levels of capitalization. Relations between the company center and the outer- and middle-ring satellites are marked by the center's recurrent efforts to introduce stricter accounting procedures and tighter financial controls. These attempts are countered by the units' efforts to increase their autonomy, coordinated through personal ties and formalized in the biweekly meetings of the Club of KFT Managing Directors.

These corporate satellites are far from unambiguously "private" ventures, yet neither are they simply state-linked residue of the socialist past. Property shares in most corporate satellites are not limited to the founding enterprise. Top and mid-level managers, professionals, and other staff can be found on the lists of founding partners and current owners. Such private persons rarely acquire complete ownership of the corporate satellite, preferring to use their insider knowledge to exploit the ambiguities of institutional coownership. The corporate satellites are thus partially a result of the hedging and risk-sharing strategies of individual managers. We might ask why a given manager would not want to acquire 100 percent ownership in order to obtain 100 of the profit. But from the perspective of a given manager, the question instead is "Why acquire 100 percent of the risk if some can be shared with the corporate center?" With ambiguous interests and divided loyalties, these risk-sharing owner-managers are organizationally hedging. These managers are joined to one another by ownership stakes in the part of other limited liability companies spinning around yet other large enterprises. The new property forms thus find horizontal ties of cross-ownership intertwined with vertical ties of nested holdings.

Risk Spreading and Risk Taking

These interenterprise networks are an important means of spreading risk in an uncertain environment. Firms in the postsocialist transformational crisis are like mountain climbers assaulting a treacherous slope, and interorganizational networks are the safety ropes latching them together. Such risk spreading, moreover, can be a basis for risk taking. Extraordinarily high uncertainties of the kind we see now in the postsocialist economies can lead to low levels of investment with perverse strategic complementarities (as when firms forgo investments because they expect a sluggish economy based on the lack of investments by others). By mitigating the reluctance to invest, risk spreading within affiliated networks might be one means to break out of otherwise low-level equilibrium traps.

This relationship between risk spreading and risk taking suggests that it would be premature in the postsocialist context to impose a rigid dichotomy between strategies of survival and strategies of innovation. Above all, we should not assume that firms will necessarily innovate even when survival seems to demand it, as if necessity in itself created the conditions for innovation. Recent studies (Miner, Amburgey, and Stearns, 1990; Grabher and Stark, 1997) provide strong theoretical arguments that firms are more likely to undertake the risky business of innovation (exposing themselves to the "liabilities of newness" by engaging in unfamiliar routines) not when

they are pushed to the wall but when they are buffered from the immediate effects of selection mechanisms. They further demonstrate that interorganizational networks provide this buffering by producing the requisite organizational slack through which enterprises can find the available resources that make it possible to innovate. Thus, these studies suggest circumstances in which the simple imperative "Innovate in order to survive" is reasonably reversed: "Survive in order to innovate."

These insights have been independently confirmed in a recent study by Ickes, Ryterman, and Tenev (1995), who demonstrate, on the basis of rich survey data on Russian firms, that enterprises that are linked in interenterprise networks are more likely to engage in various forms of economic restructuring than similar firms that are not so linked. That finding, moreover, is robust: purely private enterprises are not more likely to undertake restructuring than firms in state ownership or in mixed property arrangements embedded in interenterprise networks. A related study on innovation in the Hungarian economy (Tamas, 1993) found that firms with the organizational hedging strategy of mixed (public and private) ownership were more likely than purely private or purely state-owned firms to have innovated by introducing new technologies or bringing out new products. In short, when we abandon the forced dichotomy of survival versus innovation, we can see that there are circumstances in which survival strategies can be the prelude to strategies of innovation.

Accounts

In the highly uncertain organizational environment that is the postsocialist economy, relatively few actors (apart from institutional designers such as International Monetary Fund advisers or local policymakers in finance ministries) set out with the aim of creating a market economy. Many would indeed welcome such an outcome, but their immediate goals are more pragmatic: at best to thrive, at least to survive. And so they strive to use whatever resources are

available. As they do so, they maneuver not only through an ecology of organizations but also through a complex ecology of ordering principles.

To analyze this process, I exploit a notion of "accounts." Etymologically rich, the term simultaneously connotes bookkeeping and narration. Both dimensions entail evaluative judgments, and each implies the other: accountants prepare story lines according to established formulas, and in the accountings of a good storyteller we know what counts. In everyday life, we are all bookkeepers and storytellers; we keep accounts and we give accounts. Most important, we can be called to account for our actions. It is always within accounts that we "size up the situation," for not every form of worth can be made to apply, and not every asset can be mobilized, in a given situation. We evaluate the situation by maneuvering to use scales that measure some types of worth and not others, thereby acting to validate some accounts and discredit others.

The multiple accounts voiced in Hungarian heterarchies respond to and exploit the fundamental, though diffused, uncertainty about the organizational environment. In transforming economies, firms have to worry not simply about whether there is demand for their products, or about the rate of return on their investment, or about the level of profitability, but also about the very principle of selection itself. Thus, the question is not only "Will I survive the market test?" but also "Under what conditions is proof of worth on market principles neither sufficient nor necessary for survival?" Because there are multiply operative, simultaneously existing principles of justification according to which you may be called to give an account of your actions, you cannot be sure what counts. By what proof and according to which principles of justification are you worthy to steward a given set of resources? Because of this uncertainty, actors will seek to diversify their assets: to hold resources in multiple accounts.

This ability to glide among principles and to produce multiple accountings is an organizational hedging. It differs, however, from the kind of hedging used to minimize risk exposure that we would

find in a purely market-based logic as, for example, when the shopkeeper who sells swimwear and sun lotion also devotes some floor space to umbrellas. Instead of acting within a single regime of evaluation, this is organizational hedging that crosses and combines disparate evaluative principles. Recombinant property is a particular kind of portfolio management. It is an attempt to have a resource that can be justified or assessed by more than one standard (analogous to the rabbit breeder whose roadside stand advertises "Pets and Meat" in the documentary film *Roger and Me*). In managing one's portfolio of justifications, one starts from the axiom "Diversify your accounts."

The adroit agent in the transforming economies of Eastern Europe diversifies holdings in response to fundamental uncertainties about what can constitute a resource. Under conditions not simply of market uncertainty but of organizational uncertainty, there can be multiple (and intertwined) strategies for survival, based in some cases on profitability but in others on eligibility. Your success is judged, and the resources placed at your disposal determined, sometimes by your market share and sometimes by the number of workers you employ in a region; sometimes by your price-earnings ratio and sometimes by your "strategic importance." When even the absolute size of your losses can be transformed into an asset yielding an income stream, you might be wise to diversify your portfolio; to be able to shift your accounts; to be equally skilled in applying for loans as in applying for job creation subsidies; to have a multilingual command of the grammar of creditworthiness and the syntax of debt forgiveness. To hold recombinant property is to have such a diversified portfolio.

To gain room to maneuver, actors court and even create ambiguity. They measure in multiple units; they speak in many tongues. In so doing, they produce the heterarchical discourse of worth that is postsocialism. We can hear that polyphonic chorus in the diverse ways Hungarian firms have justified their claims for participation in a debt relief program established by the government after its earlier

programs had precipitated a near collapse of the financial system (Stark, 1996). The following litany of justifications for why a firm should be included in the debt relief program is a stylized version of claims encountered in discussions with bankers, property agency officials, and enterprise directors (Stark, 1996):

Because we will forgive our debtors.

Because we are truly creditworthy.

Because we employ thousands.

Because our suppliers depend on us for a market.

Because we are in your election district.

Because our customers depend on our product inputs.

Because we can then be privatized.

Because we can never be privatized.

Because we took big risks.

Because we were prudent and did not take risks.

Because we were subject to planning in the past.

Because we have a plan for the future.

Because we export to the West.

Because we export to the East.

Because our product has been awarded an International Standards Quality Control Certificate.

Because our product is part of the Hungarian national heritage.

Because we are an employee buy-out.

Because we are a management buy-in.

Because we are partly state owned.

Because we are partly privately held.

Because our creditors drove us into bankruptcy when they loaned to us at higher than market rates to artificially raise

bank profits in order to pay dividends into a state treasury whose coffers had dwindled when corporations like ourselves effectively stopped paying taxes.

And so we must ask, into whose account and by which account will debt forgiveness flow? Or, in such a situation, is anyone accountable? By making assets of ambiguity, Hungarian managers gain flexibility. But this flexibility is not an entirely unmixed blessing. When spreading risk becomes shedding risk to the public coffers, flexibility occurs at the cost of accountability. The Eastern European road to capitalism is not the most desirable road. And whether it will be a viable road at all remains open to question. But it is not too early to conclude that this social experiment and its organizational mutations are giving rise to a new species of capitalism.

Conclusion

Our Hungarian chorus sounds strange and exotic only upon first encounter. For although that litany expresses multiple accounting principles in an especially acute form, the notion of coexisting evaluative frameworks is far from foreign in the highly uncertain environments of advanced sectors in our own society. If the successful Hungarian manager must be as skilled in the language of debt forgiveness as in the language of negotiating with a prospective multinational partner, the CEO of a start-up firm in biotechnology might well survive only with a talent for writing grant proposals to federal agencies as well as a knack for making the pitch to prospective venture capitalists. We need not travel to Eastern Europe to encounter difficulties in assessing the value of firms, when stories of the difficulties of evaluating Internet stocks fill the front pages of our newspapers. We are not strangers to the problems of distinguishing public and private, for we need look no further than the complex proprietary arrangements between private firms and public universities in the fields of computer science, biotechnology, new media, and engineering. (Consider, for example, the biotech industry collaborations mentioned in Chapter Three.) And the search for a mutually comprehensible language across the cultures of science, politics, and business in the Human Genome Project offers no less acute problems of public and private accountability.

To write of "problems" is not to denounce the creative organizational solutions that are evolving in all of the areas mentioned above. On the contrary, it calls attention to the fact that the most sophisticated, dynamic, and groundbreaking sectors are likely to be arenas where public and private are closely intertwined.

Complexity, in the field of organizations, is the interweaving of diverse evaluative principles. These principles can be those of public and private accountings, but they can also be the diverse worldviews of different professional identities, each with its own distinctive ways of measuring value and selecting what counts. The challenge of a new media firm, for example, is to create enough of a common culture to facilitate communication among the designers, business strategists, and technologists that make up interdisciplinary teams, without suppressing the distinctive identity of each. The assets of the firm are objectively increased when there are multiple measures of what constitutes an asset. Value is amplified precisely because values are not shared. The heterarchical organization of diversity is sometimes discordant. But to still that noisy clash by the ascendancy of only one accounting would be to destroy the diversity of organizing principles that is the basis of adaptability.