

# Organizing Entrepreneurship

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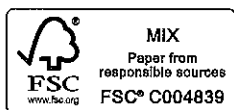
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- 12 Elaine Dewar (1995) *Cloak of Green: The Links between Key Environmental Groups, Government and Big Business*. Halifax, Canada: Lorimer.
- 13 Acquisition of TBS Inc. completed in 2001.
- 14 *Sunday Times*, 1996.
- 15 TBS Annual Report, 2001.
- 16 "Changes at The Body Shop", posted on February 12, 2002 by Anita ([www.anitaroddick.com/readmore.php?sid=32](http://www.anitaroddick.com/readmore.php?sid=32)).
- 17 "Further thoughts on stepping down", posted on February 18, 2002 by Anita ([www.anitaroddick.com/readmore.php?sid=34](http://www.anitaroddick.com/readmore.php?sid=34)).
- 18 [http://ec.europa.eu/competition/mergers/cases/decisions/m4193\\_20060531\\_20310\\_en.pdf](http://ec.europa.eu/competition/mergers/cases/decisions/m4193_20060531_20310_en.pdf).
- 19 A getter is a reactive material used for removing traces of gas from vacuum systems, such as vacuum tubes.
- 20 Vacuum flask which provides thermal insulation (or Dewar flask, from its inventor, 1892).
- 21 Frankfurt, September 1983.
- 22 By the terms "exchanged business and billing", we mean the search carried out in another country by a local group member to whom the client had been referred.

## 5 Organizing entrepreneurship in established firms

### Chapter 5 contents\*

- 5.1 Organizing for innovation in established firms: "corporate entrepreneurship", "corporate disaggregation" and other movements
- 5.2 Structural practices
- 5.3 Human resources and industrial relations practices

### 5.1 Organizing for innovation in established firms: "corporate entrepreneurship", "corporate disaggregation" and other movements

The traditional domain of entrepreneurship is the initial identification of a potential opportunity followed by the acquisition of resources, and the set-up of a dedicated entity which serves as a vehicle for the exploitation of the opportunity, as examined in earlier chapters. Following the establishment of the venture, however, interest in entrepreneurship can tend to fade while interest in effective organization and management increases. The focus tends to move from the entrepreneurial problem to administrative and technical problems, and execution and implementation rather than innovation and entrepreneurship become the order of the day.

This process tends to go well beyond the necessary infusion of managerial competences. This bureaucratic "transformation" or "mutation" is unfortunate in modern contexts. In fact, organizational environments have become increasingly heterogeneous (more dimensions to be monitored and managed), dynamic (higher frequency and rate of change in different environmental sectors), hostile (more competitors for resources across the environments) and complex (increasing interactions among environmental factors leading to extreme unpredictability). Forces such as globalization, information technology, deregulation of many markets around the world, plus high rates of technological change have led to

\* Text by Anna Grandori and James Hayton, cases by the authors indicated in boxes.

many organizations finding their traditional sources of advantages no longer sustainable. Organizations are therefore interested in continuing to identify and create new sources of value through new combinations of resources such as technology, knowledge, brands, human capital, production or marketing capabilities and so forth. In other words, established organizations may have to continuously address the entrepreneurial problem.

In light of this need to remain entrepreneurial, it is an unfortunate fact that as most organizations grow in size, develop routines and formalize operating procedures, create strong guiding cultures, and become embedded within networks of relationships with influential stakeholders, as all these developments tend to be sources of structural inertia. As they grow, established organizations thus often become less able to respond to changes, and particularly to radical transformations in their environments. Accordingly, many organizations can suffer from the "incumbent's curse" (Chandy and Tellis 2000) in which small firms and new market entrants are able to displace the established industry players (e.g. Christensen 1997). On the other hand, it is also apparent that some firms are able to overcome this incumbent's curse through the use of more flexible and dynamic organizational structures, frequent reliance on inter-organizational relationships and networks, the reduction of bureaucracy and enhancement of autonomy, i.e. though the creation of a supportive organizational context (e.g. McGrath and MacMillan 2000; Miller and Friesen 1983). In established organizations, the process of starting and organizing new ventures is always "complicated" by the embeddedness in an organized context. However, whether this helps or hinders the innovation process all depends on the nature of that context. If it is bureaucratic and predominantly efficiency oriented, it will mainly be a negative factor; if it is flexible and organized for innovation, it will be a positive factor, actually facilitating the establishment of new ventures with respect to starting an independent firm in a less friendly external environment.

Recognition of this challenge has led to an increased interest in how to maintain entrepreneurship in growing firms, or to infuse it in firms that were not born entrepreneurial but have always been something else; for example, classic firms based on financial and technical assets and coordinated by authority (as many large industrial firms are), or collective people-based firms, or public institutions, coordinated in communitarian and rule-based ways (as many large cooperatives or foundations such as universities are). Distinctive fields have developed in organization studies dedicated to this issue. The relations among them are not always recognized, and a contribution of this chapter is to integrate them, thereby reconstructing a wider set of useful organizational practices. These strands of studies include, first and foremost the "*corporate entrepreneurship*" field (Van de Ven and Engleman 2004; Block and MacMillan 1993; Burgelman and Sayles 1986; Kanter 1985; Morris 1998; Sathé 2003; Zahra *et al.* 2005); but also the "*corporate disaggregation*" perspective (Zenger and Hesterley 1997; Roberts 2004) and more specialized sub-fields as "*strategic human resources*" (Hayton 2005; Hayton and Kelley 2006) and "*new organization forms*" (Miles *et al.* 1997; Lewin and Volberda 1999; Pettigrew *et al.* 2000).

Before approaching the topic, it is worthwhile making a premise on the "corporate entrepreneurship" (CE) term. The term "corporate" has thus far been defined very loosely in corporate entrepreneurship studies, and for that matter also in corporate disaggregation studies. In particular, with the term "corporate" what is actually meant is not that the firm is, legally speaking, a corporation, but simply an established firm, typically organized along a traditional hierarchical model. Second, the term "entrepreneurship" in CE literature is not intended as a distinctive mode of organizing new businesses through dedicated entities, governed in a specific way (as specified here in earlier chapters) but as a generic capacity of starting new businesses and to innovate (something that can be done by managers as well). Third, although to a large extent it addresses organizational problems, CE literature has developed mostly in the strategy field, with limited efforts in connecting and integrating contributions in organization studies and organizational economics that, perhaps under different names, have addressed the same issues (this attitude having to a large extent been reciprocated in these fields).

Therefore, an approach to CE that is more precise and more integrated should be useful. This chapter contributes in developing this, building on the more organizationally and economically informed notion of entrepreneurship introduced in the early chapters of this book.

The approach is more precise because it does not equate CE with organizing for innovation in general, but it provides specific tools for organizing an established firm in an "entrepreneurial mode", that is, a mode based on establishing internal units that can be qualified as entrepreneurial project-based units, structured as internal entrepreneurial quasi-firms. The approach does not generically recommend that structures and systems are such to promote innovation, but specifies that organizational practices may be able to reproduce entrepreneurial governance "without the founding of new firms".

This definition is also more general since it integrates other relevant contributions that have been using different terms (e.g. "corporate disaggregation", "new organization forms") but analyzed the same problem. In addition, it is more general since if it is made clear that the problem is organizing an "established entity" (and not just a "corporation") in an entrepreneurial mode, we can see that the "entrepreneurial practices" recommended in this section are interesting not only for classic established industrial corporations, but also for any established entity wishing to become more innovative and entrepreneurial, including public companies and agencies imprisoned in bureaucratic red-tape functioning, or large-scale collective partnerships impaired by communitarian self-serving slack functioning, or entities plagued by both (as used to be the case for many universities).

Finally, the approach is also more practical as CE is defined by means of a set of "practices", that is, organizational actions and artifacts that can be clearly identified and also, if desired, applied. We shall examine what these practices are, both in the organization structure area and in the human resource system area, and what some of the crucial points in their proper design are.

## 5.2 Structural practices

As has been known since the early days of management and organization theory, "bureaucracy" is the main organizational enemy of innovation (Burns and Stalker 1961). The ingredients are also well known: high departmentalization, tall hierarchies, prevalent use of formal authority and procedures for coordination, weak performance incentives and heavy controls on behaviors.

Less uncontroversial are the remedies, that is, the organizational allies of innovation. For years, an almost exclusive emphasis has been put on what can be broadly called a "communitarian organization". The ingredients of this alternative to the bureaucratic model are identified in lateral open communication, decentralized decision making and flat hierarchies, team-based and community-based coordination, project-based organization, alignment of objectives through identification with the firm-community, and informal norms – from Burns and Stalker's "organic form" to the contemporary writings on the "new organization forms" for the management of innovation within large established firms (e.g. Whittington *et al.* 1999).

On the other side, as highlighted especially in contributions with economic background, another "alternative" to bureaucratic organization is possible in order to sustain innovation, and is different from the "communitarian" model. This is an organization driven by strong, "profit-like" incentives on results, individual or small group responsibilities, organizational units based on actual clusters of competences rather than on homogeneous pre-defined abstract criteria (e.g. specialization by function or product or geographic area). While the internal organization of the single units may well be team-like, the relations among units are thought of as simulating "market" relations (Zenger and Hesterley 1997). The communitarian and incentive-driven "alternatives" are often seen as mutually exclusive and the choice among them as puzzling – that is, both seem to work, but when? Are they equivalent or linked to different conditions (Roberts 2004; Foss 2007)?

This chapter contributes in solving the puzzle according to the following reasoning. These analyses have been produced by thinking of the "organization of innovation" within firms in general. This is an enormous problem and field. The problem and field considered here is only one part of it: the organization of innovation within firms in an entrepreneurial mode. If entrepreneurial governance is a distinct form of organizing, as argued in Chapter 3, and if it is conducive to innovation, then the internal organization of established or large firms can become more innovative by adopting entrepreneurial practices. This is how "corporate entrepreneurship" is defined in this book, and distinguished from a generic promotion of innovation in established firms. Posing the problem in terms of entrepreneurial organization "without new firms" (i.e. within non-entrepreneurial firms) contributes to observing that the two traditional structural alternatives of "communitarian" and "market-like" organization of innovation are in fact not mutually exclusive, and are not even the only alternatives. In fact, the "entrepreneurial way of organizing", as discussed, not only blends elements belonging to both models but also employs further and other elements; in

particular, it blends "teamwork" and management by communities with "strong incentives", as well as elements of formal organizational democracy.

The core theme of this section, stated more precisely, is thus: how to sustain innovation by infusing entrepreneurial organizational practices within firms and entities that, as a whole, cannot be qualified as entrepreneurial? The reasons why established firms may be interested in such reforms are numerous: firms that were born capitalistic, or collective, or public now often wish to infuse stronger incentives and stronger capabilities for innovation; or born entrepreneurial firms that do not wish to lose this character, in spite of growth and the exit or dilution of the role of the founders as owners and directors.

### *Entrepreneurial organization without new firms: experiences analyzed*

The discussion of the fundamental features of entrepreneurship as a governance and organization mode, discussed especially in Chapter 3, should help in reconstructing the core structural features of "corporate entrepreneurship" (CE). The current section proposes some celebrated cases and instances of organizations sustaining innovation through entrepreneurial practices (albeit not always celebrated under the CE label) and can therefore be used in identifying them. Those experiences and practices can be grouped in two classes, according to the main organizational function they perform: practices oriented to promote autonomy, experimentation and variety; and practices oriented to promote integration, knowledge sharing and complementarity of actions.

#### *Promoting autonomy, experimentation and variety*

*Project organization.* Oticon is one of the most famous and debated cases. In 1991, a radical reorganization, or rather de-organization, reform was implemented (Ravasi and Verona, 2001: 46, italics added):

*The formal structures regulating the task system were completely dismantled. Departments, positions, titles, and job descriptions were all abolished and a radical project based organization was introduced. ... a multi-job system replaced traditional job assignments – everyone being responsible for the development of a portfolio of jobs, corresponding to the activities performed in the different projects, according to their own inclinations, skills and personal aspirations.*

Most headquarter activities were transferred to project teams, even though some financial and accounting activities were later reorganized as separate service units, given their repetitiveness and distance from the project members' interests.

*Informal autonomous working groups.* Projects do not come out of the blue. They flourish out of a web of *knowledge exchanges and more informal teamwork*. These mechanisms are deliberately established in innovative organizations. There is more than just teamwork in CE teamwork. Teams should be highly autonomous working

groups whose primary objective is radical: breakthrough innovation explicitly intended to lead to the creation of new opportunities. This autonomy should allow organizational participants the freedom to explore and experiment with ideas without suffering the constraints that arise naturally from within the established structure, strategy, or customer expectations of the established venture. An interesting type of teamwork for CE is called "*skunk works*", after the Lockheed-Martin experience. In fact, the term was first used during World War II, when a "secret" team was working on the development of the P-80 Shooting Star. According to Ben Rich's memoir,<sup>1</sup> a member of the team, an engineer named Culver, was a fan of Al Capp's newspaper comic strip, "Li'l Abner", in which there was a running joke about a mysterious place deep in the forest called the "Skunk Works". There, a strong beverage was brewed from skunks, old shoes and other strange ingredients. One day, Culver's phone rang and he answered it by saying "Skunk Works, inside man Culver speaking." Fellow employees quickly adopted the name for their unconventional secret projects within the firm. "Skunk Works" became "Skunk Works", and the once informal nickname became a registered trademark of the company: Skunk Works®. Skunk Works is responsible for a number of famous aircraft designs, including the U-2 (spy-plane), the SR-71, the F-117 and the F-22.

Relations are informal in these experiences, both within the group and with customers, with whom the group is entitled to interact and even to contract. "Inside Skunk Works we were a small cohesive group ... our forte was building a small number of very technologically advanced airplanes for highly secret missions," said ex-CEO Birch. Access by outsiders to the project and its personnel is still strictly controlled by appropriate security measures. "Only a few people will be used in engineering and most other areas" and indeed the number of people having any connection with the project "must be restricted in an almost vicious manner". "Customers like the CIA or the US Air Force would come to Skunk Works with a request and on a handshake the project would begin, no contracts in place, no official submittal process." This of course implied a high level of mutual trust between the military project organization and the contractor with very close cooperation and liaison on a day-to-day basis. This cut down misunderstanding and correspondence to an absolute minimum. A very simple drawing and release system with great flexibility for making changes must be provided.

The war ended, even the Cold War, but the features of Skunk Works, formed in conditions where secrecy and freedom were both necessary were maintained as a method of freeing research groups as far as possible from bureaucratic interlopers or the imperious will of overbearing organizational generals.

*Individual autonomy and incentives.* Individual-level autonomy provides the flexibility and freedom to pursue novel or interesting ideas, often for their own sake. Such individual experimentation and exploration is often the first step in the sequence leading from innovation to the establishment of new ventures. It is in recognition of the need for individual creative sparks that companies such as 3M, Hewlett-Packard and Google provide extensive "*free time*" as part of the working week, in which employees are encouraged to explore and develop their own innovative ideas.

It was in the 1950s when 3M first institutionalized the "15 percent rule" – technical people spend up to 15 percent of their time on projects of their own choosing or initiative in order to drive innovation. From this, masking tape and Post-It notes were born, both of which were the conceptual and developmental results of the labor of engineers who were engaged in innovation work without the benefit of formal budgets, planning or even management support.

The percentage was later raised to 20 for individual researchers, and also instituted for divisions as a "25 percent rule" – each division should produce 25 percent of annual sales from new products and services introduced in the previous five years (which later increased to 30 percent). Prizes, such as the "Golden Step" award, were given to those creating successful new business ventures originated within 3M.

This "Innovation Time Off" (ITO) practice – as it is called at Google, where it is also used – has an important intrinsic motivation function. It keeps employees challenged and engaged in ways that aid retention and keep staff learning and growing. Google is obsessed with talent. Its greatest assets walk out of the door every night, and the company desperately hopes that they will return the next morning! ITO ensures that at any time, every person is engaged in at least one project of his/her interest, which is effective in retaining the best talent in the organization.

"*Bootleg*" research projects have similar purposes (Burgelman and Sayles 1986). In these projects, researchers are informally allowed time, and sometimes limited resources, to pursue avenues that might be of future interest. In contrast to formal programs, bootleg research is condoned, but not formally sanctioned. It allows for higher risk exploratory research, which extends beyond an organization's existing knowledge base. Bootlegging in this way provides the opportunity for the creation of technological options, in the sense that if the exploration is a success, then the more formal pursuit of the technology can follow. On the other hand, if the experiments are unsuccessful, financial and career losses are kept to a minimum.

*Championing.* Ideas do not walk through an organization alone. They need someone championing and sponsoring them. A critical role for corporate entrepreneurship is that of "*idea champions*". Champions identify with the project, and not only do they take responsibility for its success, but success is often dependent on champions (Burgelman 1983). Champions "inspire and enthruse others with their vision of the potential of an innovation ... show extraordinary confidence in themselves and their mission, and ... gain the commitment of others to support the innovation" (Howell and Higgins 1990: 320). Championing includes providing the underlying creative insight on an innovation's potential – effectively planting the seeds of an idea for which brokers seek and supply relevant knowledge and innovators work to discover solutions (Day 1994). On the other hand, there is often a distinction between the inventors or discoverers of opportunities, and those who recognize their value and take responsibility for moving it forward (Leifer *et al.* 2000). Champions represent a "catalyst for increased sponsorship or impetus" behind an innovation (Maidique 1980: 32). They create a vision around an opportunity and ensure continuance of

the project, seeing it through to commercialization. Champions are frequently found among mid-level managers who have access to higher levels of the organization as well as direct links to the technical innovators who are more focused on technological specialties.

The specific behaviors needed for successful championing may be culturally bound (e.g. Shane 1995). Therefore, prescriptions of how champions should behave should also be context-specific. In the United States, there is a preference for organizational mavericks, renegades, and buffers who bypass organizational procedures in order to garner support. Particularly when innovation projects are high risk and costly, champions will use their power to get their projects supported. This is in contrast to collectivist cultures, where champions who appeal to group norms are preferred. When uncertainty avoidance dominates national cultures, adherence to organizational rules and procedures and a rational style are preferred. In all cases, regardless of the behaviors employed, the objective is the same: the champion attempts to ensure that there is support for the project. And in all contexts, competence in championing also requires an ability to negotiate a complex sociopolitical environment.

*Sponsoring.* In subsequent stages, ideas need *sponsors*. Sponsors help entrepreneurs gain access to the resources they need for their ventures. They ensure there is legitimacy and support for the project. They provide advice and guidance to the venture on how to best proceed. Higher-level sponsors use their power and control over resources to get the support necessary for the projects they value.

Sponsors differ from champions. Sponsors typically serve as a bridge linking the technical innovator and the firm's owner/founders. While a champion identifies and selects projects deserving support, a sponsor ensures that resources become available. The executive sponsor is the individual who has "direct or indirect influence over the resource allocation process and who uses this power to channel resources to a new technological innovation" (Maidique 1980: 64). The separation of the sponsoring and championing roles becomes increasingly likely as organizations grow and diversify. Sponsors are typically higher up in the organizational hierarchy, are likely to have access to a greater range of information about strategies, markets, competitors and opportunities, and can better locate specific resources. This is particularly important for ventures that are costly and represent new strategic directions.

*Mentoring and coaching.* Even in the absence of an authority regime, and actually, particularly in its absence, groups and teamwork need some coordination, and individuals may need help and support to learn and develop or be confronted with expert judgment. Useful roles, alternative to classic authority, are *mentor* roles: individuals who nurture and develop junior colleagues and so help an organization prepare its next generation of competencies. At Oticon, "mentors" were formally appointed, although not bound to follow a precise role model. They were assigned the responsibility for the growth of younger professionals, including contributing substantial input for performance evaluation and therefore career progress of the mentored. On their side, the mentored had a chance to choose/change their mentors in a negotiated way.

A milder mechanism and role is that of *coaching*, an "evaluation-free" role focused on helping the person to assess him/herself and to find his/her own development path and strategies within an organized context, as appropriate to personal preferences and the characteristics of the specific context.

*Specialist and expert roles.* In addition to project leaders for group formation and coordination, and mentors for competence development, *specialist and expert roles* are also important. Innovating frequently demands a high degree of specialized knowledge, the specific nature of which depends on the particular business and industry. Individuals with higher levels of cognitive ability, education, training, and practical experience command more resources that are useful in problem identification, formulation, exploration and problem solving. The creativity needed to support innovation also demands broad skills and knowledge in a given technical area, as well as a high degree of intrinsic motivation. These tend to be coupled with individual skillfulness with respect to creativity-relevant processes such as goal setting and response to challenges. Some firms then institutionalize these expert roles in figures such as "technical innovators" or "technical coordinators" (e.g. 3M) or "professional managers" (e.g. Oticon). They are entrepreneurially responsible for developing professional areas and communities of knowledge (Cohendet *et al.* 2001) rather than projects. For example, at Oticon these professional areas were called "competence centers" and few of them corresponded to the old functional departments; they included audiology, integrated circuits, quality assurance, mechanical engineering and marketing. Their influence in the system was sustained by a responsibility in selecting, hiring and training new experts in their fields (Ravasi and Verona 2000).

#### *Promoting integration, knowledge sharing and complementarity*

A particular problem in entrepreneurship within established firms is that autonomy should be balanced with *integration*. Otherwise, there would be no advantage in belonging to the same organization. This means that Skunk Works, projects or other independent venturing units, should be interested in and able to maintain some connections among each other and with the parent organization. For example, when *Time* magazine was trying to develop a radically new product line tailored to the needs of the emerging cable television industry in the 1980s, a fiercely independent development group failed to take advantage of the resources available. Despite the fact that the parent corporation owning Home Box Office (HBO) had relevant expertise available, the new venture failed to take advantage of this resource due to an excessive drift toward independence and autonomy by the new venture group and the project never took off, producing only losses (Burgelman and Sayles 1986).

*Knowledge exchange systems.* Important mechanisms of integration, in an entrepreneurial and project formation perspective, cannot be only informal open communication and spontaneous knowledge exchanges. Elaborated and structured communication and knowledge-sharing mechanisms are often established – such as "*knowledge exchange systems*", *data banks*, *catalogs* and *maps of competences*. These practices and artifacts are intended to embody a large part of

knowledge and know-how and to support its transfer from people and projects to common organizational knowledge. They are widely applied in knowledge-intensive firms, from consultancy to chemical firms (Davenport and Prusak 1998). A recurring problem in these systems, however, is that of incentives to contribute knowledge. This should not be seen as mere "resistance" as it involves a legitimate question about who owns the knowledge produced in a large company. Second, the information on who knows what, stored in the large databases of a large organization, is often too vast to be efficiently managed by employees and managers who typically work under time pressure. Hence, these information stocks and channels may present problems of underuse, unless they are accompanied by *brokerage* and *incentives* (see next points).

*Brokerage.* This is as important for internal entrepreneurship as it is for entrepreneurship in general (Chapter 1). Within established firms, broker roles can be and are explicitly recognized and formalized. The most important broker role, in an entrepreneurial perspective, is that of the "*knowledge broker*". For example, at Texas Instruments, "knowledge broker" roles have been formalized, with 50 per cent of their time devoted to mapping knowledge and facilitating encounters with high-utility potential, also on the basis of catalogs of best practices. The primary role of the broker is to access new sources of information and knowledge, transfer this knowledge and combine different sources, both existing and new. New opportunities often arise from this process of linking diverse perspectives and even contradictory ideas. Therefore, there is a close relationship between the role of the broker and the technical innovator: the broker role delivers new information to and from the technical innovator and to and from the broker's network. In fact, the broker and innovator may even be the same person.

Breakthrough ideas can arise from basic research exploring new science and technology. They can emerge from previous technology development and implementation efforts. They can also result from combinations of previously unrelated technologies. Innovation and new venture development requires the knowledge broker to access and combine diverse sources of knowledge, both existing and new, often with a high degree of unfamiliarity. Even though an organization may hire and develop people with diverse skills and the ability to innovate, it is unlikely an individual will possess all the knowledge needed for the complexities of this process. Transforming an idea into a viable business requires several skills that go beyond the expertise of one person. It is therefore essential to exchange knowledge and information among multiple contributors, who collectively provide a range of experiences and broad knowledge. In project-based work, teams typically reach outside the project and engage in a mix of communications with various individuals and groups within and outside the organization. This is particularly important for projects demanding a greater breadth of knowledge and involving highly complex tasks. Brokers identify the organizational members with the knowledge required and gain timely access to that knowledge.

Brokering can extend beyond organizational boundaries and have a "gate-keeping" and "structural holes bridging" role (Chapter 1). It involves bringing outside information in or integrating information from various internal sources.

"External" brokers acquire, translate and disseminate information. They keep abreast of external technical market demands, and link this information to those within the organization. Mechanisms and roles of this type include cross-boundary teams, scouting for problems and ideas with customers, or even expert personnel working full time for periods within client organizations.

Internal brokers act as facilitators for matching the relevant competences into new projects, or to coordinate the efforts of the project team and other units they may depend on. Since these communication networks are formed and cultivated over time, organizations should look to individuals who have chosen a brokering strategy within the organization (rather than, say, a specialist strategy), that is, people exploring diverse knowledge domains and linking knowledge from diverse domains to solve novel problems (Hargadon 1998; Hargadon and Sntton 2000).

*Incentives to knowledge sharing.* It is unlikely that knowledge is exchanged and shared without appropriate incentives and guarantees against plain expropriation. The issue is relevant at the individual level within an organization, and not only between an entrepreneurial firm with respect to other firms (Grandori 2001c). The case of 3M provides examples of the application within a firm of a particularly wide range of these incentive practices. An *internal patenting system* grants *property rights and royalties to internal inventors* and infuses transparency in the evaluation of "ideas" submitted, applicants for patent protection and exploitation. Systems such as internal "grants" that can be assigned to individual projects and ideas judged worthy by a scientific committee and independent from organizational units also help in financing "orphan projects" that no regular division or unit is willing to sponsor. Programs such as "Pathfinder" assign prizes to units that are able to use and recombine the patents and inventions of other units and divisions and succeed in launching business lines yielding more than a certain amount of revenue on this basis. "Pacing Paths" are programs for accelerating the innovation cycle (to bring the time to market of innovations to under three years) by guaranteeing a preferential high-speed development and production route to a selected group of product ideas (each business unit being entitled to propose one or two). Finally, the "Own business program" grants property rights to those who have provided the relevant knowledge on the business lines emerging from their human capital investments (Turati 1998). The philosophy behind all these mechanisms was, explicitly, to stimulate internal entrepreneurship by promoting "a small company within a big company feel" – by creating small autonomous business units and product divisions based on employees' new ideas and by providing the freedom, the means and the rewards necessary to share new ideas, cross-fertilize technology, stimulate innovation via customer problems, speed up product development and market introduction cycles. This is a view expressed with the following phrase by 3M leader McLellan: "We start from the assumption that it is not the firm that innovates, but people. The only thing a firm can do is to create and maintain an atmosphere in which people are willing to take risks and innovate."

*Property rights.* The "small companies within a bigger company" can be more than a "feeling". *Property right diffusion practices* can establish true firms or "islands" of entrepreneurial property within a larger firm. These practices are at



the core of notions such as the “cellular organization” (Miles *et al.* 1997) and the “disaggregation of corporations” (Zenger and Hesterley 1997). Miles and colleagues have been clearer than others in pointing out that “networked” organization (all the horizontal communication, brokerage and project-based practices) is just not enough to promote innovation in knowledge-intensive settings. As per the authors’ words, the “cellular form” goes beyond the “networkization” of organization and is further characterized by “entrepreneurial responsibility” (decision rights and residual rewards), “self-organization” (freedom of resource recombination) and “member ownership” (of inputs/assets, or outputs or both). These “property right diffusing practices” are core to an economically informed definition of entrepreneurship, such as that adopted in this book. The organization of firms such as Acer and TCG has been described as a “fully cellular form” since it presents all three features.

- TCG (Technical and Computer Graphics), develops IT products and services such as portable data terminals, computer graphic systems and electronic data interchange systems, and is formed by 13 entrepreneurial small firms. Some specialize in one or more product categories, some in hardware or software technologies. The overall structure functions on the basis of a formalized procedure for joint venture formation on projects. The procedure requires that the joint venture be formed by at least three partners: (1) one or more TCG firms, providing human and financial capital; (2) an external partner as expert in the technology and also providing equity; and (3) a principal customer providing large advance order contracts.

Acer is also “a federation of self-managing firms held together by mutual interest rather than hierarchical control” (Miles *et al.* 1997: 14). This mutual interest can be seen as stemming from the complementarity of firms’ assets (Rajan and Zingales 2000; Chapter 3, this volume) generated in this case by a client-server relation (while in the TCG case, complementarities were lying mostly among assets of different kinds co-applied to generate a new output). Some firms in the federation perform mainly marketing and post-sale service activities in certain regions; while others perform research, production and distribution activities, and are “suppliers” of the former. Projects can originate anywhere in the federation and can involve external partners. “For example Acer America (a sales and marketing firm) wanted a stylish yet affordable PC for the North American market. It contracted with Frog, an outside industrial design firm. Manufacturing was undertaken by another Acer production firm, and the marketing campaign was jointly developed by Acer America and Acer International, another commercial regional unit based in Singapore” (Miles *et al.* 1997: 15). These alliances can take any appropriate contractual form, and can include internal and/or external partners. The Acer companies within the federation are jointly owned by their own management, a home-country investor, and the parent firm Acer Inc. (often in a minority position), and are free to stay or leave the group and to get listed on their local stock exchanges to raise capital for their own expansion.

The “simulation” of the processes and structures of entrepreneurial firm formation within a larger firm has gone so far to experiment the internal application of arrangements originally developed as inter-firm network forms; not only *internal joint ventures* – as described in the cases above – but also *internal corporate ventures* (simulating venture capital relations; cf. Chapter 2) and *corporate incubators* (simulating the multi-partner external incubators; cf. Chapter 6) – as described in the cases below.

Lucent New Ventures (LNV) was formed in 1997 to spin-out internal non-core technologies developed in its Bell Labs, and, later, to spin-in technologies complementing its own product line, LNV achieved extraordinary financial and strategic success.

Motorola Ventures was set up in 1998 with four core offices (Boston, San Francisco, Tel Aviv and Latin America) to invest in technologies that would strategically support its existing and emerging platforms and products. Siemens Technology Accelerator commercializes non-core technologies from Siemens’ patent portfolio. The incubator is located at the central headquarters in Munich. It identifies unused patents and transfers their associated intellectual property rights to the newly founded start-up to prepare its later spin-off.

Ventures Organization grants managers the mobility to encourage a flow of information within the corporation. Employees from the business units can move into the incubator for a limited time to support their idea’s realization before they return to their respective business units.

Nokia focuses on a close link between the technology venture and its business lines, as is reflected in the preferred exists of spin-ins to existing business units, or the forming of new Nokia business units. Cisco New Ventures defined resource flows to their technology ventures. For example, in one of their start-ups, Ardent Communication Ventures, the business idea for a traffic aggregation device for data and voice originally came from a Cisco employee who had already made plans to leave the corporation to start his own venture. Cisco first supported the start-up through investment and other resource flows before its later spin-in. A positive impact of the close connection with the parent was that Ardent Communication Ventures could define product specifications in line with Cisco’s requirements. This enhanced the internal use of the device as well as leveraging Cisco’s customers.

In sum all these experiences are based on the actual set-up of *new firms within (and around) the mother firm*. These organizational models can therefore be considered to realize “corporate entrepreneurship” in its fullest meaning – the establishment of entrepreneurial firms or quasi-firms “under the shadow of hierarchy”.

*Organizational democracy.* Finally, the Semco model is worth mentioning here. Semco is another template case in fostering internal entrepreneurship, but the model is particular and highlights some additional practices with respect to those considered so far. In fact, Semco combines the “destructuring”, “self-organizing” and “non-hierarchical” practices already highlighted in cases such as Oticon, 3M and Google, with micro-participation in the governance of the firm through formal *organizational democracy practices*. Semco was born as a



traditional entrepreneurial firm: a single person owning and managing activities in the technical but not high-tech sector of industrial equipment manufacturing. The now famous son of the founding entrepreneur – Ricardo Semler – brought the firm to spectacular growth using an organizational model leveraging especially on *empowering practices* involving and promoting micro-entrepreneurial behaviors in all employees (Semler 2003): people were hired by the company and invited to find/negotiate a well-sculpted job for their competences and motivations; asking “why”, critical mindset and dissent were strongly encouraged, actually required in the analysis of any new activity proposal. Work time controls were abolished, flexibility in where and when to work and job sharing were encouraged, and work groups and units were kept small so that people could monitor each other. Lamenting the weakness of trade unions with which to establish a negotiated industrial relation system, Semler implemented a representative governance system: employees in every group or location elected a trustee (117 in total); taking turns in a monthly 12-member board of trustees meeting and having two voting representatives in the board of directors. A radically open and transparent information and communication code was observed (including all administrative and financial information and documentation) not only to foster “knowledge sharing” and new project development, but also with the declared intention of preventing the accumulation of power based on privileged information.

“Our visitors want to understand how Semco has increased its annual revenue between 1994 and 2003 from 35 to 212 million dollars when I – the company’s largest shareholder – rarely attend meetings and almost never make decisions” (2003: 7–8) and most “manuals, procedures and policies were abolished”. Semler explains, and responds: “Instead of dictating Semco’s identity, I let our employees shape it with their individual efforts, interests, and initiatives” (Semler 2003: 7–8), so that people are allowed to act as entrepreneurs.

An additional interesting and indeed particular trait of the Semco experience is that growth has been the result but is not used as an objective in decision making. Actually, when projects or action proposals in the end found no further justification than for the sake of growth, they were not undertaken. Semler stresses how none of the conventional “objectives” of the firm – growth, profit, even quality – are good guides for business innovative behavior. Anticipating a “stakeholder” approach, Semco refused to adopt any substantively predefined objectives for the firm, but adopted a *procedure for firm action improvement based on consultation* with stockholders, employees, customers, suppliers and the community in order to evaluate “success” from multiple points of view (Semler 2003: 98).

#### ***Entrepreneurial organization without new firms: a best practices profile***

The experiences reported allow identifying a full range of “entrepreneurial” structural practices that are important for the achievement of high innovation performance in firms that are growing, or have become established and large. These practices are summarized in Table 5.1.

Table 5.1 Organizational practices for corporate entrepreneurship

#### *Deregulation*

- No predefined departmentalization
- Reduced predefined procedures and programs linking organizational units

#### *Projectification*

- Free definition of projects, project staffing and project organization within units
- Formal meritocratic transparent procedures for project selection and evaluation

#### *Decentralization*

- Reduced hierarchy to ideally two levels: a center and a constellation of units/projects
- Decision rights co-located with knowledge

#### *Disaggregation*

- Project-based, self-contained units operate autonomously; they are accountable for and entitled to results
- Incentives for innovation performance at both individual and unit/project level, linked to balanced performance indicators at individual, unit/project and firm level

#### *Integration*

- Open communication and linkages supported by knowledge sharing systems
- Formal and informal teamwork in all phases of project development
- Acknowledged communities of specialized practices, expertise and knowledge
- Formal integration roles: “knowledge brokers”, “mentors” and “coaches”, “project champions and sponsors”, “project leaders”

#### *Marketization*

- The center functions as an internal competent financial investor of the capital venture type
- Internal patenting and knowledge markets
- Freedom of external alliances

#### *Democratization*

- Recognition of the people’s human capital investments with property rights over outputs
- Representation of all investors (including human capital investors) on boards
- “Empowerment”, competence-based self-designed jobs, and employee ownership provisions – if diffused, micro-entrepreneurship is sought

Let us now examine a couple of examples through these lenses. These are somewhat subtle cases in which the organization is innovation oriented and does actually introduce some of the CE “good practices” but apparently the experiment “does not work”.

- The Oticon experience in internal deregulation and destructuring generated a lively but rather inefficient ensemble, deserving the nickname of a “spaghetti organization” (Foss 2003). Eventually a counter-wave of re-centralization occurred. These oscillations often occur in practice, according to the simplistic logic that if some action did not work it must have been wrong. However, the result is often to throw the baby away with the bath water

(Pongracic 2009). In fact, the destructuring and projectification reform does not appear to have been wrong, *per se*. The problem, according to the framework proposed here, is that it was not accompanied by some essential complementary mechanisms, in particular by a powerful incentives system, able to avoid the derailing of the system into mere anarchy. As Lindkvist (2004) observed, "projectification" is not only about infusing team-like communitarian elements, but also about infusing market-like competitive elements into firm organization.

- The currently popular reforms of universities (and of public administration) in the sense of tightening performance evaluation and pay for performance are intended to foster innovative productivity and to remedy the free riding of uncontrolled employees, and/or the rather self-serving "democratic" governance of restricted clans of "barons". It was conceived and implemented mostly by infusing powerful incentives and evaluations based on results (often accompanied by a centralization of decision making). Among the problems surfacing, along with some gains in productivity and innovation, were a loss of professional identification and intrinsic motivation, higher labor costs and the pursuit of rewards rather than relevant issues (which is particularly undesirable in professional fields, such as scientific research, health care, law, etc.). Again, it does not appear to have been wrong to provide incentives *per se*; however, the downsides were easy to predict using a sufficiently comprehensive framework such as that presented here. The problem resides in the unbalance: an exclusive or prevalent emphasis on incentives (usually monetary) on results (irrespective of how much they are measurable and subject to external uncertainty). Some essential complementary mechanisms were lost (or dismantled) along the way, such as: the participation of knowledgeable employees in the definition of desired results, and their discretion over how to realize them; the control of the controllers; the availability of people for citizenship behavior and to help the community of colleagues, or even the clients/users – actually the availability to do anything unless the required behavior was explicitly rewarded. Hence, these reforms brought about a "marketization" but not an "entrepreneurialization" of the former bureaucratic systems.

The general point therefore is that the reforms described in both cases are too "one-sided". They apply only some of the "good practices" and only of one type – that is, all "communitarian" or all "market-like". These examples thus support the conclusion (also supported in wider quantitative analyses; e.g. Whittington *et al.* 1999; Grandori and Furnari 2008) that the *adoption of a wide range of complementary practices belonging to different categories does make innovation more likely, while the use of practices of just one type does not*. In particular, "projectifying", "disaggregating" and "deregulating" practices should be combined with "incentivizing" practices, and with both "integrating" and "communitarian" practices.

In conclusion, the overview of structural practices offered in Table 5.1 can also be used to detect the deficits of some kinds of practices in any specific setting and to improve the organization by the infusion of missing practices. The emerging fully fledged "model" of entrepreneurial organization within established and large firms uses all kinds of practices and is therefore rather mixed and combinative. It is not coincident to any classic organization model – for example, the functional, divisional matrix or even networked and organic form – and is not informed by a single principle or logic, not even by "decentralization", "informality" or "autonomy". It is both informal *and* formal, disaggregated *and* integrated, communitarian *and* competitive. This way of organizing has been called "*bi-modal*", and considered the main organizational "secret of the trade", in one of the few studies on the internal organization of Silicon Valley firms (Baharami 1996).

### 5.3 Human resources and industrial relations practices

Many of the organizational practices examined in the preceding section actually embody systems for governing relations with human resource providers, in all the key areas of human capital development and mobility, evaluation and reward. These themes are the specialized subject of the human resources field (HR) and the industrial relations field (IR). Let us therefore add some further organizing tools that can be drawn from those fields. This section should thus be read as an incremental addition to what has already been said about HR practices for entrepreneurship in the former section. In addition, it should also be read as an incremental addition to what has been said on HR systems for new entrepreneurial firms in Chapter 3. In fact, the profile of HR practices promoting innovation in new firms remains valid for the organization of entrepreneurship in established and large firms. The main point in CE is in fact to infuse similar practices in established organizations to keep or make them entrepreneurial. The specific main problems (in fact much stressed in CE literature) are the difficulties in doing so. Let us therefore summarize the indications that emerged in Chapter 3 into a "best practice profile" (Table 5.2) also applicable to established firms, and complementary to the organizational profile summarized in Table 5.1; and thereafter turn to the particularities and difficulties of using them in established firms, especially when large.

Hence, in human resource practices, as in structural practices, the basic principle is that practices that differ in kind are complementary in sustaining innovation, in particular those infusing powerful individual incentives co-applied with practices infusing team spirit and organizational identification (Laursen and Mahnke 2001). Introducing these practices in established firms, especially large firms, entails specific problems and difficulties that stem from at least the following three important differences between entrepreneurship in established and new firms:

Table 5.2 Best human resources practices for entrepreneurial organizations

- 
- Co-investments in human capital by the firm and the individual, divided according to the specificity of competences of the firm (firms invest in specific components, people invest in transferable components).
  - Investments in "specialized" knowledge should not be task-specific (since tasks are too variable and undefined) but specific to industries and professions (which tend to be the effective and real "boundaries" of "boundaryless careers").
  - High internal labor market mobility, not only through people moving across positions through an open job market but also through "jobs moving and evolving with people" as they work on shifting job portfolios.
  - Moderate speed/rate of mobility across boundaries, striking a balance between the need to allow specific competences and learning from experience to occur, and the need to renew the competence set.
  - Moderate intermediate incidence of performance pay, striking a balance between high discretion (demanding higher contingent pay) and outcome uncertainty (decreasing the optimal level of result-based incentives).
  - Combination of autonomous work and teamwork, and of individual and team incentives.
  - Balanced performance evaluation systems, including a wide range of result and behavior parameters, over a sufficiently wide sample of records.
  - "Flexible cultures", focused on high-level missions and critical mindsets, and including change and diversity values.
- 
- In established firms, entrepreneurial organization may regard only parts and "islands" within a larger structure that also includes "managerial" parts and roles, and this may generate conflict and specific negotiation problems.
  - In established firms, internal entrepreneurs bear more "career risk" than financial risk; and if career systems are not properly conceived and designed, distorted entrepreneurial behaviors (e.g. escalation of commitment and other biased investment patterns) may follow.
  - In established organizations with a large number of employees, wider industrial relations issues can arise, in particular whether they should all be involved in widespread micro-entrepreneurship in the same way; and, if not, how to eventually govern different forms of employment in and around the same organization.
- 

The following three paragraphs are dedicated to each of these problems respectively, and to their possible solutions.

#### *Intra-organizational negotiated entrepreneurship*

All entrepreneurs have to negotiate, but intra-organizational negotiations are somewhat different and somewhat more exhausting than negotiations among independent agents, and may make life difficult for internal entrepreneurs. A core underlying source of this greater exertion is that exiting from the relation, and the substitution of partners, is blocked or much more difficult. These problems cannot

be eliminated, but they can be reduced. If one could substitute counterparties at will, one would be in a market and not in a firm. However, many entrepreneurially oriented firms do allow considerable freedom in finding *external partners* if negotiations with internal partners fail. This should not be seen as a loss of control, but as a necessary mechanism to prevent too many projects from dying before they are born.

Other solutions are based on the idea of creating *internal "free zones"* – "units" or "programs" for "free experimentation" – that are somewhat insulated from the wider structure. These "differentiation" and "ambidexterity" practices have a long history in the organization of R&D activities (Galbraith 1982; O'Reilly and Tushman 2004). As the Xerox PARC case illustrates (Box 5.1), they can, however, make integration all the more difficult.

Burgelman and Sayles (1986) described how a new idea is likely to have to pass through a series of "Caudine Forks" in its various development stages.

In the early *conceptualization* stage, the unit generating the idea must convince the other units and headquarters that it is worthwhile. For example, if the innovation is technology-pushed, the entrepreneur would typically be a technology-oriented specialist such as an R&D manager who identifies one or more technical inventions or innovations that may be combined in some way to produce a new product or process that *may* have market potential. In the case of market pull, the initial definition of a need, often from existing customers, leads to communications between customers facing employees such as marketing managers and managers in the R&D function to determine whether there are possible technologies that can contribute to satisfying this potential market opportunity. Convincing the internal counterparties or simply finding solutions on the basis of internal resources may be difficult.

At a later stage, the negotiation is typically between an enthusiastic group of entrepreneurs–promoters and business and accounting-oriented managers. The former are motivated by the challenge of problem solving and the generation of new knowledge. They often speak the specialized language of the scientific method. They are seeking "right" or "best" answers, and will resist pressure to find "good enough" answers. Meanwhile, professional managers are concerned with the challenges of obtaining and retaining customers, meeting their needs as quickly as possible, perhaps preventing competitors from stealing market share. The time orientation of the average manager is rather immediate. Problems need to be solved quickly, and "good enough" answers are more valued today than "right" answers next month. In addition, not only are managers unlikely to speak the professional language of the scientists, but they also have their own codes and jargon which mean little to the uninitiated. These significant differences between the groups create a substantial barrier to communication, sometimes creating a source of conflict and often becoming a significant potential stumbling block, as illustrated in Box 5.1.

**Box 5.1 Xerox Palo Alto Research Center (PARC)***Laura Gaillard, 2010*

Xerox Palo Alto Research Center (PARC) was founded in 1970 as a part of Xerox Research, and incorporated in 2002 as a wholly owned but independent research business. It not only conducts Xerox research but also partners with other companies to undertake independent research projects. PARC is located in the heart of the Silicon Valley, the intersection of major universities, research centers, global high-tech enterprises, start-ups and venture capital firms. PARC was responsible for such well-known and important developments as laser printing, the Ethernet, the modern personal computer graphical user interface (GUI), ubiquitous computing and advancing very-large-scale-integration (VLSI). Incorporated as a wholly owned subsidiary of Xerox in 2002, PARC currently conducts research into biomedical technologies, "clean technology", computing science, electronic materials and devices, hardware systems and intelligent systems.

John Warnock, a former researcher in Xerox PARC and later one of the two founders of Adobe Systems, remembers: "The atmosphere was electric – there was total intellectual freedom. There was no conventional wisdom; almost every idea was up for challenge and got challenged regularly." Larry Tessler, who later took part in developing the Macintosh and the Newton PDA at Apple, also enjoyed the liberties the PARC provided in the 1970s: "The management said go, create the new world. ... The problem, however, was that the company management on the East Coast of the USA did not care a straw for PARC's research results unless they were directly involved with photocopiers."

Steve Jobs' visit to PARC was a turning point in his life: the three technologies that the 24-year-old mathematician encountered were each revolutionary on their own: the first graphical user interface for computers, networked Alto computers and object-oriented programming. Even many years after this visit, Jobs can still remember exactly:

they really showed me three things. But I was so blinded by the first one I didn't even really see the other two ... I was so blinded by the first thing they showed me, which was the graphical user interface. I thought it was the best thing I'd ever seen in my life. Now remember it was very flawed, what we saw was incomplete, they'd done a bunch of things wrong. But we didn't know that at the time but still thought the germ of the idea was there and they'd done it very well and within you know ten minutes it was obvious to me that all computers would work like this some day.

Steve claimed that "Xerox could have owned the entire computer industry today. Could have been, you know, a company ten times its size. Could

have been IBM, could have been the IBM of the nineties. Could have been the Microsoft of the nineties."

"Could have." In fact, Xerox's failures in taking advantage of PARC's innovations have become famous. The GUI is the favorite example: "something like the first personal computer", although very significant in terms of its influence on future system design it was a commercial failure; and others followed. The first successful commercial GUI product was actually the Apple Macintosh, which was heavily inspired by PARC's work. After young Steve Jobs' visit to PARC in 1979, Xerox was given Apple stock in exchange for engineer visits and an understanding that Apple would create a GUI product.

It is also no secret that the basic characteristics of the Windows interface – graphical icons, pop-up menus, and the overlapping application windows that give the OS its name – did not originate at Microsoft. Ted Turner even made a TV movie about it – *Pirates of Silicon Valley* (USA 1999) – the origins of the Windows GUI predate Microsoft by many years.

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In sum, Xerox management failed to see the potential of many of PARC's inventions, or did not develop or secure appropriate complementary commercialization activities and assets (Teece 1986). Why?

First, Xerox executives often did not understand what PARC was doing; they did not take the time to do so and did not devote too much attention to it. After all, computing research was a relatively small part of PARC's operation, and PARC was a relatively small part of Xerox. Distance and poor communications contributed to many misunderstandings about the industry and Xerox technology, and about the great potential of PARC research for the computer industry. The central offices were enacting "directives" and "plans" and "strategies" about Xerox's positioning and industries that took little account of the trajectories

followed by the research activities, and were more a cage than a support for their development. Xerox's management was often underconfident and disbelieved the economic potential of new technologies. After all, accounting and expected cost-benefit analyses were never exactly right to really justify the investments. Too many people were involved in any decision, for no particularly good reason. Procrastination and delays in turning breakthrough technologies into products were therefore common. In the end, PARC pioneered many technologies and produced important inventions, which had a great influence in the industry and supported highly successful products. But other firms exploited many of these inventions, and still other inventions and ideas were lost and unexploited.

Second, there are limits to the internal differentiation an organizational system can tolerate. In particular, a sharp divide between a "professional/research oriented/entrepreneurial" sub-system and an "administrative/bureaucratically oriented/managerial" sub-system is likely to be a major source of trouble. Actually, the problem has been recognized for some time in organizations that structurally have a "double line" of professionals and administrators, such as universities and hospitals, long before it was encountered by business firms trying to be research oriented and professional (Stinchcombe 1965). This closely resembles the duality between an entrepreneurial and a managerial component. To put it bluntly, if the two "lines" had equal weight, they would negotiate forever; and if the administrative structure prevails, innovation will suffer. If innovation and entrepreneurship is to take center stage, the solution, to put it succinctly, is for professionals/entrepreneurs to "hire" administrative services, rather than managers/bureaucrats "hiring" researchers/entrepreneurs. In flexible and innovative organizations, the administrative and staff structure (the HR function included) should be light and organized as a set of internal "service units", eventually competing with external providers of the same services; whereas the "clients" are the internal professional/knowledge-based/entrepreneurial units (Ulrich and Lake 1991).

#### *Career risk and boundaryless careers*

A crucial point of differentiation between corporate entrepreneurship and independent entrepreneurship is that the individuals who are formally or informally responsible for all the actions involved in creating an entrepreneurial organization are employees rather than owners of the venture. Although some property rights can and should be assigned to internal entrepreneurs, they can rarely be as extensive as those of an independent entrepreneur. On the other side, internal entrepreneurs are less exposed to financial risk as they rarely invest their own financial resources. However, they typically invest their own human capital and get exposed to *career risk*, where the success or failure of the ventures and innovation to which they contribute may reflect positively or negatively on their reputation, and influence access to future, more rewarding positions (Morris *et al.* 2008).

The lack of financial risk coupled with career risk is a particular source of problems. The risk of escalation of commitment is increased when the financial risks are not born personally by individuals, and further enhanced where

individuals fear that project termination may reflect poorly on themselves (Staw 1980; Chapter 1 (this volume)).

The problem can be mitigated at the outset in various ways. First, people can be entitled to participate in the residual value that is created by their entrepreneurial contributions (thereby increasing financial risk along with incentives to take risk). Second, the link between result-based performance evaluations and careers can be loosened (thereby reducing career risk). In fact, these practices are sometimes observable in highly innovative organizations. They include: the already described bootleg projects and skunk works practices, which provide a sort of "evaluation-free" zone for trial and error; performance evaluation systems based on a wide range of parameters, including the quality of behaviors in addition to results; and relatively wide samples of performance measures (over time or across projects). As a result, in a CE organization, careers should not be conceived of as internal, vertical, and linked to a specified single type of activity, and single parameter results. They are "boundaryless" as they are chains of moves *across the boundaries of internal units as well as across the boundaries of firms, on a wide portfolio of projects/jobs*. After all, individuals also need to diversify risk in the face of uncertainty, as much as firms do.

#### *Forms of employment between association and marketization*

At the micro level of jobs and employment contracts, high discretion and loosely defined jobs help to avoid unnecessarily constraining the creative contributions of employees and encourage cross-unit communication. A tightly defined employment relationship, through contractual and internal job descriptions, may not only ossify behaviors but also have a negative influence on "atmosphere" and trust (e.g. Malhotra and Murnighan 2002). On the other side, autonomy alone may drift the system toward disintegration, rather than toward healthy disaggregation. This "autonomy versus control" dilemma is analogous to what has been described at the macro-structure level, for example, in the Oticon case.

Incentives help, as discussed, but, as also discussed, they can only be used to a limited extent in innovative tasks. Hence, a specific challenge as regards job specification and employment contracts in entrepreneurial settings is to be able to elicit desirable behaviors without unduly constraining individuals to predetermined patterns of action that would inhibit a creative contribution by reducing autonomy. In other words, the core question is: which job designs and employment contracts provide an effective alternative to classic dependent work and bureaucratically regulated jobs? The question is analogous to what the alternatives are to hierarchy and bureaucracy at the macro level. And again the common response, both in practice and in theory, has been somewhat polarized between a "communitarian" and "mercantistic" response.

Box 5.2 on Microsoft internal associated engineers and freelance "rented" engineering work illustrates the bifurcation, and some of the problems this entails.

**Box 5.2 Microsoft, freelancers and stock options**

Large corporations in the sector have increasingly adopted the practice of hiring temporary employees or independent contractors through temporary agencies specializing in information technology and electronics. Some of these firms offer very "flexible" contracts, by which the programmers can be "rented like cars: and they don't need to be filled up with petrol on return" (says the advertisement of one of those firms in Seattle).

This practice has led to a number of problems, legal and organizational.

For example, "freelancers", who work in the computer sector as independent entrepreneurs, were engaged as "independent contractors" through temporary employment agencies by Microsoft, when it needed to expand its workforce to meet the demands of new product schedules.

An issue broke out around a reward program Microsoft had for its permanently employed engineers. Every six months, the employees could exercise the option to be paid partly in shares at 85 percent of their current value. If a product is especially successful, the value of the share will rise and, at the same rate, so will the remuneration of the engineers and programmers who have elected to be paid in shares. Some of them have even become millionaires overnight.

This program led eight foreign collaborators, who worked for Microsoft in the United States between 1987 and 1990 as freelancers in the company's international division to file a suit. The reason was that, at the time, they had been told that owing to the limited duration of their residence permit they had no right to the stock options plan. Microsoft tried to take a tough line, but in vain. The court ruled in favor of the plaintiffs, stating that "*they are entitled to stock-option benefits under Microsoft's Employee Stock Purchase Plan (ESPP)*".

The feature of the contractual and organizational arrangement that the court judged to be illegitimate was to grant different rights in connection with the same activities and work services. In fact, an undesirable consequence of those arrangements is to create a first-class and a second-class employee. The problem is not minor, as for some time now many software houses have been letting programs be written in other countries. In numerical control programming, the offshore programming share may have already reached 85 percent. In addition, the use of such external collaborators has other organizational disadvantages: they are not available for the marathons that go on for several days and in which a team of programmers creates software under terrible time pressure in order to deliver to the client on the stipulated date. Projects of this kind require intense group work and strong incentives.

Sources: *Detief Borchers Die Zeit: Bulkware*, February 1998; summary by Giuseppe Delmestri

No. 94-35770. *United States Court of Appeals, Ninth Circuit. Argued and Submitted Oct. 18, 1995. Decided Oct. 3, 1996*; summary by Laura Gaillard

What could the solutions be?

There is little question about the need to offer protective, open-ended, associative and partnership-based contracts to the providers of work services stemming from highly qualified, relatively "rare" human resources, and/or from human capital that has been developed in firm-specific ways (Chapters 2 and 3). This is all the more valid for work services entailing some unrecoverable transfers of people's human capital in the firm, or vice versa, of firm's intangible assets in the hands of employees. Guarantees and protections against the breaking of those relationships are in the interests of all parties involved. These types of contracts respond to the autonomy versus control dilemma by basically transforming "agents" into "principals" of themselves. They do so by using the incentivizing power of property rights, rather than by using second-best solutions such as transferring risk through pay for performance, or looking for an optimal intermediate degree of task specification and delegation.

The more debatable and debated question is about workforce relations that are not firm specific and, more generally are easily substitutable (Lepak *et al.* 2002). A common response in practice (backed by some theories) has been to create a "dual" employment system: a "core" of "associated" and protected workers, surrounded by an outer ring of contracted-out or temporary work. This solution may have some entrepreneurial properties, since these "autonomous" workers are "self-entrepreneurs" of their services. In other words, external "market-like" contracts can sustain entrepreneurship through incentives on delivery (e.g. as in any putting-out system); while internal "partnership-like" contracts should sustain entrepreneurship by incentives based on shared property rights in the firm.

This solution also entails numerous problems especially concerning career and reward risk, and fair rent sharing. Continuity in the series of jobs held and related rewards may be jeopardized under those external and temporary contracts, particularly as they are supposed to concern relatively substitutable workers. In addition, these types of workers are likely to be more risk averse than wealthier workers, as they cannot absorb these discontinuities.

Fair rent division may also be undermined by highly asymmetric bargaining power. The situation is almost the opposite with respect to what happens with "critical" human capital. In this case, when human resources are poorly substitutable, the bargaining power is in favor of the workers and, in fact, firms struggle for their "retention", rather than the workers fighting for job continuity in the same firm. Indeed, these kinds of workers (entrepreneurial team members included) can count on (better and upgrading) job continuity across firms. The opposite tends to occur for more substitutable workers. This may end up in rent appropriation by the employer firm only (as in the Microsoft freelance case), as much as in any contracting-out relation with those features (see Chapter 4, this volume; Klein *et al.* 1978). In addition, as also described in the Microsoft case, the contracting out of work is likely to generate a series A-series B workforce problem, which often negatively and heavily affects the entrepreneurial motivation of external workers this is supposed to foster.



There are currently plenty of analyses of these problems since the “new forms of employment” have become a quite general and important social issue. We are interested here in the “entrepreneurial” solutions to this.<sup>2</sup>

A first solution is to unpack the “associational and communitarian” versus “transactional and marketized” alternatives, and to see that actually strongly “incentive-based”, even “external” work, can be coupled with associational mechanisms. Microsoft freelancers being entitled to stock options is a case in point. Another interesting experience regarding lower qualification workers is Lincoln Electrics, coupling an extremely marketized reward system such as piece-rate compensation with employee ownership, in order to ensure against the well-known possible opportunistic use of that system by the management (Roberts 2004).

Other solutions point to outside the firm boundaries. Organizational networks are also extremely useful on this terrain and, in this case, they function as safety networks proper. Europe is particularly rich in these experiences (Regalia 2006), which tend to have a strong regional character (as the labor market they are intended to support has). These networks are typically associations involving one or all of at least the following partners: (1) associations of firms; (2) associations of workers; and (3) public regional institutions or agencies (Crora 2007). Examples include the following:

- Associations of firms for the collective and continuous hiring of workers under temporary contracts; in this way, firms achieve flexibility while workers achieve continuity of employment.
- Associated workers collectively offering work services on a contract basis to employer firms, while guaranteeing continuity of employment, as far as pension rights and minimum wages are concerned, on a mutual insurance principle basis. A typical form of this kind of association is a worker cooperative.
- Foundations and other institutionalized, public or private networks (some of them can be qualified as parts of regional systems of innovation and are more widely analyzed in Chapter 6) with a special focus on the formation and circulation of human resources, up to the support to the establishment of spin-off new entrepreneurial firms. A particularly fully fledged experience, which has managed to extend its reach internationally, is the Neue Grunderzeit Foundation in Berlin, an EU-nominated best practice in the field. This is a labor and technological transfer organization. Partners include adult education centers, employment offices, experts, consultants and banks. It has foreign partners in London, Rotterdam, Barcelona and Bologna. Sometimes these partnerships can take the form of superordinate firms. For example, the Greater Nottingham Partnership (GNP) is a limited liability company with 15 partners including firm associations, universities, public agencies and chambers of commerce, staff agencies, and voluntary organizations. Activities include technical and economic development initiatives, transportation and infrastructures, ICT, and investments in training and development.

All these solutions imply going beyond a single firm/single worker relation and to exploit firm embeddedness in larger sectoral and territorial systems of innovation – the topic of the next and final chapter.

### Key points

How do you to reproduce entrepreneurial governance and organization “without the founding of new firms”, within grown-up firms, or even within other entities which are not firms? This chapter integrates various contributions for responding to the question (including corporate governance, corporate disaggregation, new forms of organization, strategic human resources, new forms of employment). Through a variety of examples, case studies and research data the chapter contributes in specifying a set of key and complementary practices for infusing entrepreneurship in organizational structure and in HR systems. These practices are inspired to principles as *deregulation and disaggregation, coupled with “marketization” and “projectification”, but also with integration, communitarianism and “democratization” through internal and external networks*. These mechanisms, albeit different, or precisely because of that, have been shown to be *complementary in sustaining innovation* and infusing entrepreneurship in established organizational entities, or in maintaining growing companies entrepreneurial in character.

### Analysis questions

#### *On in-chapter cases*

- Gather information on the organization of an established firm with an innovative context and positioning and compare it with the best practices described in tables 5.1 and 5.2. In which aspects has such a firm maintained its profile of an entrepreneurial firm? In which aspect has it not? Which organizational practices may be usefully preserved, abandoned or introduced?

#### *On end-chapter case*

- The following case presents the full story of the growth of an entrepreneurial firm into a global corporation. The aspiration was to maintain an entrepreneurial mode of organizing while growing. To what extent and through which organizational practices was it realized? Areas of improvement? Challenges ahead?



**End-chapter case: Permasteelisa\****Carmine Garzia, 2010*

Permasteelisa is world leader in the design, production and installation of curtain walls and architectural façades for large buildings. Born in 1988 from the merger of the Italian ISA of Treviso with Australian Permasteel of Sidney, the company has been the protagonist of a growth path that has led it from a turnover of little more than €10 million in 1988 to around €1 billion in 2002 and from 10 to 4,300 employees. The company is present in 20 countries with a network of around 40 subsidiaries.

The growth of the company was accompanied by its gradual transformation into a public company. Massimo Colomban, founder of Permasteelisa, gradually transferred the majority of his shares to managers who have become partners of the company. In October 1997, Permasteelisa Pacific, the Asian subholding of the group, was listed on the Singapore stock exchange and in July 1999, the parent company Permasteelisa SpA was listed on the Milan stock exchange. In March 2002, Colomban definitively left the company to devote himself to the development of other entrepreneurial initiatives.

The strategic choices of Permasteelisa contributed to the birth of the global high-tech curtain wall sector, high-tech façades intended for monumental buildings. Over the years, Permasteelisa has participated in the projects of major international architects such as Norman Foster, Frank Gehry, Jean Nouvel, Renzo Piano, Richard Rogers, the SOM Studio and Kenzo Tange. Permasteelisa has realized the façades of some of the most important buildings in the last 40 years: the Sydney Opera House, the European Parliament in Brussels and Strasbourg, Channel Lloyds Register in London, the UOB towers in Singapore, the titan façade of the Guggenheim Museum Bilbao and the Walt Disney Concert Hall in Los Angeles.

***The birth and development of ISA***

Massimo Colomban, born in 1949 in Santa Lucia del Piave in Treviso, began working at age 15 at IALF, a company that produced windows and façades in aluminum and steel. After nine years of work, he decided to set up on his own and in October 1973 took over the window production activities of a small local engineering company. Some months later, in August 1974, he changed the name to ISA. ISA was born with ten employees, a small laboratory and some machinery for the production of doors and windows.

Colomban was convinced that aluminum windows were not adaptable to residential constructions. The aluminum façades had good market potential in constructions destined to service and commercial activities due to the aesthetic aspect, the contained maintenance costs and the technical performance. ISA production was focused on curtain walls and later also included internal partitions. The company mainly used internally designed aluminum systems and immediately

turned toward the international market, mostly European, since in Italy the non-residential building sector was little developed. The ISA façades were comparable in terms of price and technology to those of major European competitors. However, Colomban aimed for a lean business organization from the start in order to have lower costs and greater flexibility in case of demand reduction. Toward the end of the 1980s, ISA implemented a differentiation strategy based on the customization of products according to the wishes of the designers and customers. In the space of a few years, ISA, thanks to the innovativeness of the products and the aggressiveness of its trade policies, asserted itself as one of the main European producers of curtain walls. Its activities in the European market gradually grew, bringing the turnover to over €8 million in 1982, achieved with the contribution of around 100 employees and with an export rate of approximately 60 percent.

***The organizational approach to internal relations and growth***

Massimo Colomban, during the years that he had worked as an employee of IALF, developed an organizational concept and institutional structure of the company that was in sharp contrast to the approach prevailing at the time: "As an employee of the company, where I worked for almost ten years, I witnessed the expansion of the company, which grew in terms of employees and turnover, but where the responsibilities and power were always in the hands of a few. The most valuable people did not tolerate this situation and either ended up leaving or, worse, losing identification with the company and its objectives.

"If you want someone to do the things the way you do them, who identifies with your objectives and has your same aspirations, you must place him in your same conditions; you cannot only reward with a system of incentives, but have to turn him into an entrepreneur who considers the company as his own."

Colomban decided to gradually distribute his capital shares to his closest collaborators, with the final objective of making ISA a firm wholly owned by its managers. To promote accountability on specific objectives, top managers were assigned a geographical zone of influence; some of them were placed at the head of commercial companies that operated in foreign countries. The lower levels of the organizational structure, such as the directors of the installation teams, were also involved in the association system.

Colomban established a simple and effective assessment criterion for the performance of managers based on the profits they generated for ISA and/or for the company they administered. If the results, measured over certain years, were positive, the manager received an option to buy ISA shares on favorable terms. The mechanism was able to combine the tension toward growth (increase in turnover) with the achievement of revenue objectives, without which the managers would not receive any extraordinary compensation. According to Colomban: "this mechanism stimulated the birth and the development of business skills: the ability to see further, to push sales without affecting financial exposure and planning investments while considering the potential economic return."

This incentives system would lead Colombari to the gradual loss of his majority shareholding for the benefit of managers who would become entrepreneur-partners of ISA's founder: "the best people would lead the firm toward expansion into new markets and growth. Already by 1974 I had the objective of bringing ISA to the world summits of its sector and create a company where responsibility and authority were widespread. The tension toward ambitious objectives could be maintained only by assigning maximum responsibility to the managers, turning them into entrepreneurs in a position to choose the natural leader from among themselves."

### *The organizational approach to technology*

In order to obtain a high-quality and technologically advanced product able to compete on foreign markets, ISA had to develop the technology internally. The continuous improvement of the product was a priority objective. ISA designed, in just three years, six curtain wall systems. Product innovation was aimed at obtaining extremely flexible façade systems, able to satisfy the aesthetic demands of architects. ISA's competitors, especially the Germans, had a very low rate of product innovation because they were more vertically integrated in the production of aluminum systems and each modification entailed investments in extrusion tools and specific plant equipments.

ISA instead relied on external extruded aluminum system suppliers, and could thus alter its systems design without sustaining substantial investment in equipment. ISA could only count on a single assembly line for the curtain walls and when, due to the increase in turnover and orders, the company could no longer satisfy the orders, it turned to small external firms.

The logistics were organized to minimize fixed costs and be as flexible as possible. In door and window companies, transport and installation are critical activities: they together account for over 15 percent of the cost of the product. Incorrect installation of the curtain walls can jeopardize the success of a contract. The curtain wall producers paid particular attention to this phase. They were equipped with vehicles and teams of specialized assemblers. ISA, consistent with the idea of leanness that characterized the company, entrusted the installations to external agents. These were carried out by teams of independent assemblers, recruited in situ or brought in from the Veneto region. The external assemblers trained in the installation of the façades on prototypes in ISA's plants that the company produced and mounted there in order to carry out preliminary technical checks. In the following years ISA organized the work of the more expert assemblers, promoting the creation of a service company, which became its privileged installation service supplier.

### *The organizational approach to internationalization*

The first international experiences of ISA were entirely sporadic. Contacts with foreign clients were via word of mouth or completely random. As Colombari

recalled: "It was clear that for the type of product that we wanted to offer there was not a sufficient market in our country. We had to export. It was not yet clear where to go. At the start we went wherever there was work. Once, a Venetian emigrant who had made a fortune in Venezuela came to us and proposed realizing some of the work in his country. We thought about it a great deal and accepted."

In the 1970s, numerous Italian companies from the construction sector began to operate in the Middle East market. ISA's management believed that no conditions existed for the stable development of the Middle East market whose growth was related to exogenous factors, such as the price of oil. In addition, the company failed to locate a reliable industrial partner in that region.

Toward the end of the 1970s ISA started a systematic search to establish partnerships with qualified companies in the main European markets. To exploit the opportunities for expansion, offices were opened in Belgium, England and Germany.

According to Colombari: "The experience in the European market was an exceptional training ground for many of us. It was the opportunity to confront ourselves with very different business cultures to our own such as the rational and perfectionist German culture, which is among the most dynamic Anglo-Saxon. We understood a fundamental thing: we had to be prepared to face the foreign markets. Everyone could export, but few were able to build an international company. Since we were not exporting under the umbrella of large construction contractors, we understood that bank guarantees and customer trustworthiness were fundamental. We found that the process of constructing a building was governed by a logic similar to the production process of any industrial good. Suppliers were part of the assembly chain and had to scrupulously respect the specifications and timelines."

### *The birth and development of Permasteelisa*

The birth of the global construction sector and the power of contractors, moving from one country to another to avoid cyclical crises impelled the managers of ISA to give additional impetus to the internationalization process.

The attention of ISA's management pointed toward Southeast Asia, Hong Kong and Singapore. In these two city-states the lack of space and the presence of large financial institutions and services companies stimulated demand for buildings destined for advanced services industries.

In 1982, Colombari was contacted by the management of Permasteel, an Australian company founded in 1949 that produced curtain walls, frames and metal structures with a turnover of around 7 million Australian dollars. From the early 1960s, the company grew thanks to the period of intense real-estate development of the main Australian cities financed by state funds. With the end of the public building plan, Permasteel found itself facing a severe reduction in demand. The reduction in orders brought the company to a situation of financial instability and the technological asset, accumulated in the construction of curtain

walls, was likely to be lost. ISA signed a collaboration agreement with the Australian company, whose management was hired by Italian managers. The agreement foresaw the management in partnership of new orders in Australia and in the Pacific and an acquisition option of Permasteel by ISA. In the first half of the 1980s, Permasteel and ISA implemented numerous work orders in the Pacific, especially in Singapore, which was going through a period of extraordinary real-estate development.

In December 1986, ISA purchased a majority shareholding of the Australian ally. Thus, Permasteelisa was born, although the new company formally assumed this name only in 1988.

Permasteelisa implemented a development plan that included the construction of new production units, the strengthening of research facilities and the constitution of new commercial companies. The investments were sustained with the entry of private equity funds in the shareholding group. New plants were established with annexed research facilities in San Vendemiano and in Melbourne. The ISA plant was modernized, and to broaden the range of products offered, it was associated to the Steelbenetton group of Treviso – a company specialized in the production of steel and bronze high-end windows. At the end of the 1980s, the production capacity of the company tripled compared to 1985 and reached 300,000 m<sup>2</sup> of façades annually.

To effectively compete in the large curtain wall market required the coordination of production processes with those of major contractors, and therefore Permasteelisa, in parallel with investments in production plants, promoted a series of actions designed to obtain maximum operational excellence in all the activities of the value chain. The company acquired control of an engineering firm and a software house; all the plants of the group were connected telematically as were the three research laboratories in San Vendemiano, Singapore and Sydney. In this way, Permasteelisa could design and program the production of an order more quickly than competitors who were usually equipped with a single design center, making the research centers and the executive planning offices work simultaneously, 24 hours a day thanks to the time differences, and supported by the engineering center.

To be more effective in its commercial action, Permasteelisa promoted the development of direct relationships with designers. "The designer plays a decisive role in the choice of materials and in the direction of the work. High-tech architects are engaged in projects worth several hundred million dollars and are almost always financed by private individuals. The architect is not only an artist who creates the form, but a real and actual manager to interact with. Permasteelisa had to leverage on privileged relationships with the top designers," recalls Colombari. One of the first acts of the new company was to found, in 1988, IAITA – International Award for Innovative Technology in Architecture. This Association, through debates and publications, was to contribute to the spread of a new type of architecture based on curtain wall techniques. Permasteelisa, through this channel of communication, could understand the evolution of design before competitors and participate directly in the formation of new architectural "trends".

### *The evolution of technology: modularizing buildings*

At the end of the 1980s, the company presented the Quarternario system, a system of façades, aerial floors,<sup>3</sup> indoor partitions and furnishings, for the construction of buildings for commercial use.

Buildings have three macro components: the skeleton, which has a very long duration (generally up to 100 years), the fixtures, which have a short duration (of about 25 years) and the façades, which have a duration of approximately 50 years. The Quarternario system had to protect the structure and allow the rapid and economic replacement of fixtures.

Colombari recalls: "There was no radical innovation in the Quarternario system, we just presented a series of integrated products. We didn't want to simply be producers of curtain walls, floors, tables and chairs for offices. We wanted to present ourselves to our customers as suppliers of a new construction technique by adding a high level of logistical service to a quality product."

The Quarternario façade was designed to be installed as a complete façade of the skeleton. The aerial floor, known as the Channel Floor, allowed the installation and replacement of pipes and cables without breaking the masonry. The perfect independence between the structure/façade/fixtures made the Quarternario system installation possible in a building in its construction phase. The façade modules could be mounted first, then the floor and finally the internal partitions. This drastically reduced the construction time of the building.

The Quarternario façade was composed of modules (cells) that were prefabricated in the factory with high levels of automation. A packaging system was designed for their transport and an installation system (from within the building, without the use of external scaffolding) with the related operational procedures to follow on the construction site.

### *The evolution of strategy: from metal works to architectural components*

In Europe, the works of high-tech architects and the large initiatives for urban regeneration destined for the services industries sector were increasingly numerous, such as La Defense in Paris, Postdamer Platz in Berlin and Canary Wharf in London. Permasteelisa chose a penetration strategy based on their direct presence in foreign markets, through the association of the network of aluminum façade manufacturers in central and northern Europe.

In 1990, two new companies were set up and endowed with production plants and commercial structures: Permasteelisa Benelux SA and Permasteelisa UK Ltd. In 1995, Permasteelisa purchased the Dutch company Sheldebouw, founded in 1875 and among the first to realize aluminum façades in the 1930s. The Dutch company brought to the group a large plant with an advanced research and testing laboratory. In 1996, Belgo Metal was acquired, a window company for some time active in northern Europe. Commercial branches were opened in Spain and France, and in the second half of the 1990s in Poland and Hungary.

From 1992, Permasteelisa was awarded the foremost European orders for the implementation of curtain walls: the new European Parliament in Strasbourg, the Galeries Lafayette in Berlin, La Tour du Midi, and the Tour Pleiad in Brussels, and finally the futuristic Guggenheim Museum in Bilbao designed by the American architect Frank Gehry and lined with titanium.

In the 1990s, the expansion continued also to Southeast Asia where, in 1990, Permasteelisa Pacific Pte Ltd in Singapore was constituted, in association with some local partners. New branches in China, Taiwan, Thailand and Hong Kong were also opened.

From 1990 until the end of 1996, the Permasteelisa group quadrupled its turnover, with over 1,000 employees and becoming a global enterprise present in Europe, Asia, Australia and North America and with a turnover of over 300 million. The tumultuous growth of the 1990s brought the company to the summit of the sector in terms of turnover, average amount of contracts, geographical coverage and technological level of productions. Consistently with its fundamental idea of a networked company and distributed ownership, Massimo Colomban over the years sold a large part of his shares to top managers who by the middle of the 1990s controlled a little less than 50 percent of the company, while the founder had a share of just over 20 percent. Colomban had every intention of giving further impetus to the shareholder spread and between 1996 and 1997 the partners reacquired the shares held by private equity funds in view of the possible stock exchange listing with the consequent transformation of Permasteelisa into a public company.

### *The evolution of structure*

To increase production capacity and at the same time explore new markets, the managers of Permasteelisa decided to use the instrument of temporary association with local companies to create a network of manufacturers of façades.

Permasteelisa chose as partners small and medium-sized firms that were well embedded in the local market: they knew the logics, were able to assess the trustworthiness of customers and had a network of trusted suppliers. If the contract was acquired and run with success, Permasteelisa submitted to the ally a collaboration agreement that foresaw a systematic multi-annual commitment in search of new orders. The agreement could develop into the acquisition of a majority shareholding of the allied firm. The acquired company's management was left to the original entrepreneur who became a partner of Permasteelisa. The entrepreneur was motivated to manage the company to the best of his ability and at the same time was made responsible for the group's objectives with Permasteelisa share options. As Colomban recalled: "My company would have to be an extended but lean company. For this reason I immediately foresaw a network structure. The network of companies would allow ISA to grow while minimizing the use of its own means. The new entrepreneurs would confer their own firms to ISA and thus enter in new markets or strengthen its competitive position in the markets where they already operated.

"The idea of the network was in a sense complementary to that of the partnership with managers: associated entrepreneurs, on par with the manager-partner, would be evaluated on the basis of the results obtained and would retain (or not) the company's management."

During the years of growth, even under pressure from the representatives of the private equity funds, Permasteelisa started to provide itself with a management structure and control systems suitable for the size attained. In the years immediately following the entry of external members, a management control system was implemented and an administrative and financial management was created and headed by Enzo Pavan, a manager with significant experience in a multinational corporation.

Pavan was the company's first top manager with no technical training. Colomban recalls: "I was convinced that Pavan would know how to rationalize the control of our network, thanks to the experience accumulated in large companies. When we met to sign the contract, I proposed a relatively low fixed salary and a premium based on stock options. He reluctantly accepted and told me that the contract on stock options would be put in a drawer and that he did not believe in these systems. He changed his mind a few years later."

From 1995, the enterprise network structure was reorganized, based on three levels:

- level 1: global headquarters (in San Vendemiano);
- level 2: continental headquarters;
- level 3: peripheral network.

Permasteelisa SpA in Italy became the global headquarters (the group holding company). It also acted as regional headquarters in the Italian market. Three other regional headquarters (RH) – Permasteelisa Pacific in Singapore, Sheldebouw in the Netherlands and Permasteelisa USA – were assigned the coordination of activities of the network of companies in their respective markets. The peripheral companies (third level) were divided into three types: commercial, production and services (engineering, maintenance services and installation companies).

The holding company's stock was shared between Colomban and the partners. The middle of the 1990s saw the introduction of the intermediate figure of "Associate", namely managers who held shares in companies of the network or in one of the RHs, but not in the holding company. The associate level was preliminary to the achievement of partner status. The partners elected an executive committee, which acted as the network's board of directors. The committee, formed by ten partners, elected the president and chief executive. These two figures respectively had the tasks of the strategic and operational management of the relations between the firms of the network.

There were of two types of managers: those with technical tasks and those with administration tasks. Falling into the area of managers with technical tasks were:

- *Area managers* – managing directors of commercial companies, of regional headquarters and peripheral production firms, responsible for the commercial and production activities of a specific geographical area.
- *Project managers* – responsible for the management of orders. Their tasks were linked to the supervision of the design and implementation process of orders among the various network firms. They were employed by one of the RH companies.
- *Factory managers* – managers of the company's plants, responsible for the logistical and organizational aspects linked to production in the workshop.
- *Site managers* – construction site managers, managing the purchase of consumable materials and coordinating the activities of the assembly teams.

Managers with administrative responsibilities (administration managers) were distinguished in two levels:

- *Contracts financial managers* – responsible for budgeting, finance and the publication of internal and public financial statements, operating in the world headquarters and in the regional headquarters.
- *Accounting managers* – supporting the contracts financial manager, present in the regional headquarters, in the world headquarters and in the manufacturing companies of the peripheral network.

Both managers with technical responsibilities and those with administrative responsibilities could aim to become associates. The role of partner was instead reserved to *area, project and contracts financial managers*.

The intention of Colomban's system was to stimulate entrepreneurial-type management. The partners were accountable for the management of the company of the network of which they were shareholders and directors; furthermore, as shareholders of the holding company, they were discouraged from implementing opportunistic behavior on the level of companies in the network.

The possibility of becoming shareholders on a network company level or whole group level depended on the ability to demonstrate business skills through the management of the company (for the area managers), of orders (for the project managers) or of order support activities (for the factory managers, the site managers and the contracts financial managers).

The measure of entrepreneurship was based on the profitability of the activities conducted by the candidates, evaluated generally over a four-year period. The president and the chief executive officer had the task of proposing candidates for partners and associates to the executive committee.

The system ensured high commitment on the profitability of orders. The project managers were generally associates and partners, and their performance was evaluated on the ability to profitably manage the individual orders.

Decisions were unanimously taken within the executive committee. Colomban recalls: "During the dozens of meetings held between the partners during the

1990s I do not recall having voted once. Perhaps we debated for hours, closed in a room, but we always managed to make decisions unanimously. I was inspired by the Japanese. Even if it was a long process, in the end everyone was convinced and accountable for the decisions taken."

At the end of the 1990s the partners of Permasteelisa decided to invest to consolidate their presence in the USA and Europe, the markets with the best growth prospects. To support the development plan new financial resources were necessary that were found through 37 percent of the group's stock exchange listing in July 1999.<sup>4</sup> Financial resources raised with the IPO were invested in the development of new state-of-the-art production facility in Italy and in the support of growth.

In December 2000 Permasteelisa acquired control of the German company Gartner that, with 1,550 employees and a turnover of 460 million German Marks, was its biggest competitor. The integration process between the two companies was directly supervised by Massimo Colomban, who in March 2002 definitively left the company; Enzo Pavan succeeded him as president and CEO.

Table 5.3 Permasteelisa's production and commercial structure at IPO (1999)

Location	Activities performed in each location				
	Design	R&D	Production	Installation	Project management
<b>Europe</b>					
San Vendemiano (I)	X	X	X	X	X
Treviso (I)	X		X		
Corbanese (I)	X		X	X	X
Rome (I)	X		X	X	X
Middelburg (NL)	X	X	X	X	X
Paris (F)	X			X	X
Gavere (B)	X		X	X	X
Basel (CH)	X				
Lugano (CH)				X	X
London (UK)	X			X	X
Rijeka (HR)	X				
Warsaw (PL)*			X	X	X
<b>Australia</b>					
Sydney		X	X	X	X
Melbourne			X	X	X
<b>Asia</b>					
Singapore		X	X	X	X
Bangkok (TH)			X	X	X
Shanghai (RPC)*			X	X	X
Foshan*			X		
Hong Kong (SAR)				X	X
Kuala Lumpur			X	X	X
Bangalore (INDIA)*			X	X	X
Seoul (SK)*			X	X	X

\* Third part production plant working on exclusive base for Permasteelisa.

Table 5.5 Historical evolution of turnoverTable 5.6 Selected financial data (values in euros/000)

*Table 5.7* Evolution of turnover by product class (values in euros/000)

	1996	1997	1998	1999	2000	2001	2002							
Curtain walls	156,742	90%	218,632	85%	253,179	89%	269,744	88%	334,488	86%	622,081	79%	819,698	82%
Internal partitions	15,022	9%	35,098	14%	29,568	10%	33,017	11%	46,849	12%	89,073	11%	109,262	11%
Industrial doors														
Extrusion														
Total														
operating revenues	171,763	99%	253,730	99%	282,747	99%	302,761	99%	381,337	99%	782,122	99%	984,343	99%
Other														
revenues	2,275	1%	2,610	1%	2,895	1%	2,838	1%	4,001	1%	7,646	1%	7,232	1%
Adjustments														
Total	174,038	100%	256,340	100%	285,642	100%	305,723	100%	386,692	100%	791,388	100%	995,026	100%

Table 5.8 Evolution of curtain walls turnover by geographical area (values in euros/000)

	1996	1997	1998	1999	2000	2001	2002
Europe	69,690	44% 76,233	35% 103,351	41% 143,417	53% 209,140	63% 378,344	61% 510,666
Asia	68,893	44% 116,791	53% 126,544	50% 87,220	32% 80,372	24% 148,846	24% 140,008
Australia	18,158	12% 24,436	11% 23,284	9% 35,237	13% 26,053	8% 16,656	3% 24,456
USA		1,172	1%	3,870	1% 18,923	6% 78,235	13% 144,568
Total	156,742	100% 218,632	100% 253,179	100% 269,744	100% 334,488	100% 622,081	100% 819,698

Table 5.9 Staff evolution

Employees	1996	1997	1998	1999	2000	2001	2002
Europe	n.a	n.a	594	696	796	2,465	2,495
Asia	n.a	n.a	453	568	727	1,143	1,005
Australia	n.a	n.a	192	211	148	130	104
USA	n.a	n.a	22	39	110	407	700
Total	1,068	973	1,261	1,514	1,781	4,145	4,304

\* Case constructed on the basis of publicly available documents and personal interviews by the author

### Notes

- 1 Rich, Ben R. and Leo Janos (1995) *Skunk Works*. London: Sphere.
- 2 Therefore, we shall not touch on the commonly prospected, so-called "flexsecurity" solution to the problem, supported by state intervention.
- 3 Pre-drilled floors that allow the passage of pipes and cables.
- 4 Summary information on the group ownership structure, production structure, staff and economic indicators in the whole period examined is given in Tables 5.3–5.9.