MODES OF CREATING, ACQUIRING, AND INTEGRATING RESOURCES: RESOURCE-BASED AND INSTITUTIONNAL DETERMINANTS

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Abstract

The purpose of this work is to develop an understanding of the processes by which firms create or acquire new resources. Drawing on a set of field interviews in the telecommunications industry, we identify the drivers of choice between four modes of creating or acquiring resources: internal development, purchase contract, alliances and business acquisitions. The findings suggest that the intrinsic characteristics of the resources and of the market for resources are not sufficient to account for the choice between these four modes of change. We propose a grounded model that takes into account resource features, social context, and process skills into account. More specifically, we find that resource competitive gap, social acceptance of resources, and internal resource linkages drive the choice between internal and external modes of resource acquisition. Market failure, external resource linkages and internal resource threshold drive the choice between purchase contract and interorganizational modes of resource acquisition. We also find that scope of market failure and change needed, social acceptance of the needed resources, inter-firm ties and external legitimacy, drive the choice between alliances and acquisitions.
MODES OF CREATING, ACQUIRING, AND INTEGRATING RESOURCES: RESOURCE-BASED AND INSTITUTIONAL DETERMINANTS

This research project studies different modes by which businesses attempt to change themselves. The motivation for the study is to learn more about how firms change, in the face of strong inertial forces that often interfere with attempts to change. Many convincing theoretical and empirical studies in organization theory, economics, and business strategy show that firms face strong social and economic inertial barriers to change (e.g., Nelson and Winter, 1982; Wernerfelt, 1984; Hannan and Freeman, 1989). Nonetheless, although many businesses do not respond successfully to changes in their competitive environments, some firms do change substantially by adjusting their set of resources over time (Teece, Pisano and Shuen, 1997; Amit and Schoemaker, 1993).

The recognition that firms can change has revived debates about the processes by which firms can reshape their capabilities to meet external pressures. Recently, researchers have begun to focus on the processes by which some firms balance their needs for reliability of current activities with their needs to reshape their business capabilities (Eisenhardt, 1989; Levinthal and March, 1993; Haveman, 1993; Amburgey and Dacin, 1994; Burgelman, 1994; Mitchell, 1994; Barnett and Carroll, 1995; Greve, 1998). However, this research has not carefully compared the situations under which firms use different modes of change.

By change, we mean substantive alteration to what a firm is able to do or how the firm undertakes its activities. Our discussion of change draws most directly on Schumpeter (1934), Nelson and Winter (1982), and Hannan and Freeman (1984). Schumpeter (1934) and Nelson and Winter (1982) argue that key business dimensions include processes, products, marketing strategy, and organizational structure. Similarly, Hannan and Freeman (1984) argue that key business dimensions include stated goals, forms of authority, core technology, and marketing strategy. In our approach, we examine business change on four dimensions: (1) development of new products, including physical goods and non-physical services; (2) development of new production processes, including new manufacturing processes and managerial ways of producing goods and services; (3) entry into new markets, including new customer segments and new geographic areas that require qualitatively different assets; and (4) creation of a new organizational structure or modification of significant parts of the existing organizational structure, such as redefining a formal chart, changing the composition of divisions or strategic business units, changing the span of control, changing hierarchical relationships, and changing the resource allocation process. Thus, changes are resource transformations that entail development of new products, new productive processes, new markets, or new organizational structures.

We assume that businesses frequently recognize the need to reconfigure their resources, whether by obtaining new resources or by employing existing excess resources in new uses. Businesses often must obtain new resources in order to optimize existing operations and respond to changes in the competitive environment (Caves, 1982; Teece, 1982). Firms also often have opportunities to grow by employing existing excess resources in new business applications (Penrose, 1959; Dierickx and Cool, 1989). We assume that firms are aware of their need for change and initiate a search process for new resources that would be viable in the prevailing environment. We refer to
firms that have initiated a search process for new resources as changing firms. Such searches may arise at many levels of firm performance. Many firms engage in a search for new markets, products, productive processes or structure when their current performance is below their aspiration level (Nelson and Winter, 1982). Although some sort of search response to adversity is common, firms can also undertake a search process when they perform well and can devote slack resources to experiment with changes (Cyert and March; 1963; Levinthal and March, 1981; Killaly, 1998). In reality, many factors influence whether a firm attempts to change, including dimensions such as environmental pressures, internal pressures, corporate governance structure, and firm change experience. We recognize that the initiation of the search under conditions of adversity has implications for the quantity and quality of the resources that may be devoted to it. Addressing the initiation of search and relating initiation to the likelihood of persistence or change of firm resources, however, is beyond the scope of this paper.

We focus our discussion on four modes by which firms undertake changes, including internal development, purchase contract, inter-organizational alliances, and acquisitions. While most researchers have focused on one mode of change recognizing the role of each mode such as internal development (Szulanski, 1996, Galunic & Eisenhardt, 1996; Hansen, 1999), purchase contract (Wilson, 1989), inter-firm alliances (Doz and Hamel, 1998; Gulati and Singh, 1998), and acquisitions (Capron, Mitchell & Dussauge, 1998; Singh & Zollo, 1997) in their respective capacity to develop, acquire and integrate resources, this literature rarely addresses the overall process of creating or acquiring new resources and the drivers of choice among these four modes. As Oliver (1997) mentioned, little research has focused on “how resources are developed, managed and diffused” (1997: 711). The goal of the research is to identify systematic influences that lead managers to choose among the various mechanisms for creating, acquiring and integrating resources.

We define the four modes of change as follows:

1. Internal development refers to the changes that a firm undertakes internally by recombining its own existing resources or developing new resources on its own. Examples of internal development include internal training, internal product development, hiring new staff, building new plants.

2. Purchase contracts refer to contracts where a firm buys distinct resources from a third party. Examples of purchase contract include purchasing off-the-shelf technologies and services, technology licensing, one-shot transaction, purchasing knowledge and consulting services.

3. Alliances and joint ventures refer to the formation of ongoing relationships with another organizational entity, such as a firm or a university, in which the two organizations retain strategic autonomy but agree to work together for a period of time. Examples of alliances include equity and non-equity joint ventures, R&D and marketing partnerships, and multi-party consortia.

4. Acquisitions refer to the majority control of another firm or entity. Acquisitions encompass both acquiring entire corporations and acquiring individual businesses from ongoing multi-business corporations.

The four modes group together on several dimensions. We refer to the first mode as an internal mode of change and the latter three modes as external modes of change. The three external modes comprise two sub-classes of resource exchange, discrete resource exchange (purchase
contract) and inter-organizational resource exchange (alliances and acquisitions). At the outset, we note that internal and external modes of change often occur in combination, because a firm may require several sets of resources with different characteristics in order to undertake a change. Similarly, the market environment may have multiple influences on change modes. In the propositions, we will focus on the main effects that will influence choices of particular modes. This approach is appropriate because the propositions will refer to the characteristics of the resources that firms require in order to change and the characteristics of the market for resources that shape the changes. When changes involve multiple resources or market environments, then firms will often use multiple modes of change.

Data collection and analysis for this paper followed grounded theory building techniques (Glaser and Strauss, 1967; Miles and Huberman, 1984; Strauss and Corbin, 1990). The unit of analysis was the mode of change, i.e. the use of internal development versus external modes (purchase contract versus alliances versus acquisitions). What these case studies give us that other research cannot is an intensive investigation of processes that reveals the common patterns firms use to develop, acquire and integrate resources. We do not argue that the results necessarily generalize to a larger and more diverse population. The value of the research lies, instead, in its capacity to build on our initial conceptual expectations in order to provide detailed insights, to produce a grounded model, and to generate proposition for further testing.

We note that we had initial theoretical expectations when entering the field. The objective was to open up these initial theoretical propositions, find relevant properties and find new relevant categories we have not thought of. The existing literature directly related to resource development and exchange, which takes its root in the resource-based view of the firm and transaction cost economics, initially led us to focus on two main concepts: resource competitive gap and market failure. Existing literature suggests that the capacity of a firm to turn to the different above mentioned resource acquisition mechanisms is contingent upon the competitive gap between the needed resources and the changing firm’s resources, and the degree to which the needed resources are subject to market failure. We review this literature in the following section.

We then turn to our field study to enrich our initial model and develop new conceptual categories, among which the institutional and learning-based factors stand out. We blend this evidence with pertinent literature to develop inferences about the processes by which firms develop their resources. We then propose a grounded model that takes into account resource features, social context, and process skills into account. More specifically, we find that resource competitive gap, social acceptance of resources, and internal resource linkages drive the choice between internal and external modes of resource acquisition. Market failure, external resource linkages and internal resource threshold drive the choice between purchase contract and interorganizational modes of resource acquisition. We also find that scope of market failure and change needed, social acceptance of the needed resources, inter-firm ties and external legitimacy, drive the choice between alliances and acquisitions.

FEATURES OF RESOURCES AND MARKET FOR RESOURCES

The initial anchor point of our discussion draws on the resource-based view of the firm, along with transaction cost economics, and focuses on the properties of resources and resource markets
to account for the choice among the four modes of change. Resource characteristics have two key dimensions, including resource gap and market failure. Different resource characteristics call for different modes of change. Figure 1 depicts our initial model of factors that influence modes of change. We first focus on the distinction between internal and external modes of change. Overall, the resource-based view of the firm stresses the distinction between exploiting existing resources and exploring new resources (March, 1991; Koza and Lewin, 1998). When firms seek out resources that can benefit from their superior organizational or technical resources, they often prefer internal development rather than external modes of change. Conversely, when firms seek out resources in areas in which they do not possess advantages, they will tend to turn to external modes. We then discriminate between factors that lead to purchase contracts, alliances, and acquisitions. Overall, the transaction cost economics argue that the degree to which the needed resources are subject to market failure plays an important role.

*** Figure 1 about here ***

**Notion of Competitive Gap**

The first distinction in Figure 1 arises between the choice between internal development and external modes of change. Recall that internal development refers to changes that a firm undertakes internally by recombining its existing resources, while external modes include purchase contracts, alliances, and acquisitions. Firms may use either internal development or external modes to obtain resources needed for a change.

Resource-based view theory suggests that the choice between internal development and external modes of resource acquisition depends on the nature of the gap between the changing firm’s existing resources and the needed resources. In face of a need for change, firms evaluate the magnitude of change in comparison with their existing resources. Firms will tend to undertake internal development when they estimate that their current resources are highly relevant to the needed changes. By relevance, we mean that existing resources within the changing firm provide the skills needed to undertake the changes.

Cohen and Levinthal (1990) argue that firms tend to undertake internal changes that build on their existing absorptive capacity, which is a business’s’ ability to evaluate and utilize particular knowledge. Several related arguments concerning operating routines (Cyert and March, 1963; Hannan and Freeman, 1989) and path dependent learning (Levitt and March, 1988) lead to a similar conclusion. Focusing on innovation, Dosi (1982) points out that businesses tend to develop new resources in areas closely related to their existing technological resources. Teece (1986) argues that inheritance of past routines implies that previous activities tightly constrain opportunities for learning, so that a firm is most likely to develop new resources in areas where it already has prior knowledge. The closeness between a firm’s existing resources and the needed resources, that is, the degree to which the needed resources will consist of routines that exist within a changing firm’s existing set of resources, will influence whether a firm uses internal development or external modes to obtain new resources. Therefore, a narrow gap between the needed resources and the existing resources will both increase the likelihood of novel resource reconfiguration and will decrease the costs of implementation (Galunic and Rodan, 1998).
In a similar vein, Cuervo-Cazurra (1999) argues that firms develop resources internally once they have already achieved a competitive level close to that required for effective competition. We expect internal development to take place not only in the presence of resource closeness but also if the resources that the changing firm will use to create the needed resource are particularly strong. A changing firm has greater incentives to develop resources internally when the firm has a strong competitive position in the targeted resource area.

The reverse side of the relevance argument is that firms will tend to turn to external modes when their existing resources are insufficiently relevant to the resources needed for a change. Many organizational theorists argue that businesses face substantial constraints to internal development. Nelson and Winter (1982) stress that a firm's irreversible investments and limited range of operating routines constrain its ability to develop and use resources within the firm. Cuervo-Cazurra (1999) argues that firms acquire resources externally when they face a large competitive gap. When the gap between the needed resources and the existing resources are high, we expect that the changing firm will be more inclined to resort to external modes in order to avoid opportunity costs associated with the time lag necessary to develop unfamiliar resources. In some cases, the firms will be able to obtain discrete external resources by purchasing knowledge or assets off the shelves. In other cases, though, a changing firm will need to turn to the inter-organizational external modes of alliances and acquisitions.

The acquisitions and alliances literatures show that managers will often search for targets or allies with strong resources that complement the acquiring firm’s weaknesses, planning to redeploy the stronger resources from the target (Capron, Dussauge, and Mitchell, 1998) or use the ally’s strength (Inkpen and Beamish, 1997; Dussauge, Garrette, and Mitchell, 1999). In the foreign direct investment literature, data on foreign direct investment shows that firms with strong technological capabilities have less need to buy or ally with existing firms and are more likely to enter foreign markets through greenfield ventures (Hennart and Park, 1993). That is, greater resource strength relative to local firms favors the choice of internally developed greenfield investment rather than joint venture or acquisition.

In summary, the resource-based view suggests that the closest the competitive gap between the needed resources and the changing firm’s existing resources, the more likely the firm will use internal development rather than external modes to undertake a change.

**Notion of Market Failure**

The second distinction in Figure 1 deals with the choice between purchase contract and inter-organizational modes of change (alliances and acquisitions). Everything else being equal, firms will often prefer purchase contract to inter-organizational modes simply because discrete resource exchange tend to be less costly, as they involve only the needed resources and avoid governance costs and redeployment costs for excess resources associated with alliances and acquisitions. Nonetheless, firms often undertake even highly expensive inter-organizational activities in order to undertake changes, rather than attempt to change via obtaining focal discrete resources. In the following, we state that market failures exist when firms face difficulties in attempting to compose, consummate, and enforce arms length agreements to exchange resources. Market failures arise from several types of problems, including appropriation concerns and
coordination difficulties, that we will develop in greater detail below. For the moment, we simply note that exchanges characterized by a high degree of market failure require safeguarding and coordinating mechanisms that firms often find more possible to create via inter-organizational exchange rather than through discrete exchange.

As we noted earlier, concerns about appropriation arise as one major element of market failures. By appropriation hazards, we mean the extent to which it is difficult to specify, monitor, and enforce a purchase contract (Teece, 1986). Appropriability refers to the ability of the owner of a resource to receive a return equal to the value created by that resource (Teece, 1986). Appropriation hazards arise in two dimensions, the intrinsic characteristics of the needed resources and the institutional environment within which the firm will obtain and use the resources (Oxley, 1999).

The intrinsic characteristics of the needed resources can create appropriation hazards in the face of potential opportunism. Such problems often arise for tacit, co-specialized, and embedded resources. Tacit resources are not directly appropriable because they cannot be directly transferred. They can be appropriated only through its application to productive activity and through practice (Kogut and Zander, 1992; Grant, 1996). Similarly, co-specialized resources requires the appropriation of the focal resources, as well as the complementary resources, that can be appropriated through complex patterns of exchange and coordination, with potential opportunism from the owner of those assets. Finally, embedded resources makes the needed resources very likely to be firm-specific and context-specific, and require the transmission of very subtle knowledge of the “particular circumstances of firm and place” (Hayek, 1945). In many instances, exchanging resources that rely on tacit, co-specialized and embedded routines will require the input of tacit, proprietary, knowledge from a number of different individuals and groups, each of whom must exchange some of her knowledge with other team members. The person or group that obtains proprietary knowledge has incentives to expropriate that knowledge for her own use or to leak it to competitors (Liebeskind, 1996:96).

If a resource exchange exposes a firm to the leakage of proprietary knowledge, then a firm will take self-protective measures to reduce the leakage of such knowledge. Leakage of proprietary information may occur if the knowledge cannot be protected via legal instruments, possibly because the knowledge is much broader than legal instruments will cover or if legal instruments cannot be effectively enforced. Resources that, in a regime where proprietary knowledge is secure, would be contracted out will be undertaken by the firm instead (Teece, 1986). Unlike arms length exchanges, the particular institutional capabilities of firms protect resource value from appropriation more effectively than the market by aligning incentives among the contracting parties (Teece, 1986; Chi, 1994). Liebeskind (1996:94) notes that “Firms, as institutions, play a critical role of protecting valuable knowledge. Specifically, because property rights in knowledge are weak, and are costly to write and enforce, firms are able to use an array of organizational arrangements that are not available in markets to protect the value of knowledge”.

The second dimension of appropriation hazards concerns characteristics of the institutional environment. We will use the term institutional appropriation hazards to mean “the set of fundamental political, social, and legal ground rules that establishes the basis for production,
exchange, and distribution” (Davis and North, 1971: 6-7). Appropriation hazards that arise from the ability to enforce resource exchange contracts depend highly on the legal-regulatory context in which the firm operates. Legal regulatory context varies in terms of legal protections, enforcement costs, enforcement mechanisms, control of employee actions, binding non-compete agreements, and confidentiality clauses. We expect that the relative use of discrete versus interorganizational resource exchange will vary according to such differences. Liebeskind (1996:104) notes that “in a legal-regulatory environment where legal protections are narrow, enforcement costs are high, or enforcement mechanisms are weak, we should expect to observe more knowledge transactions carried out within firms; concomitantly, where legal protections are more broad reaching, enforcement costs are relatively low, and enforcement mechanisms are strong, we should expect to observe more knowledge transactions carried out through contracting between firms or individuals”. Similarly, Oxley (1999) argues that variation in national appropriability regimes changes the relative costs of alternative governance mechanisms, thereby influencing the mode of resource exchange that firms employ in different countries.

In addition to appropriation hazards, some market failures arise from coordination difficulties, i.e., the need for ongoing cooperation by the provider and user of the needed resources. By cooperation by the provider and user, we mean active collaboration in the process of exchanging and reconfiguring resources. We note here that appropriation and coordination forms of market failure tend to arise jointly, as the same factors that give rise to the need for ongoing cooperation typically also create appropriation hazards. Should a non-opportunistic setting exist, however, the need for cooperation would influence the mode of resource exchange. What we will call the competence perspective on firm boundaries, which is rooted in behavioral and evolutionary firm theories (Penrose, 1959; Cyert and March, 1963; Nelson and Winter, 1982; Wernerfelt, 1984), has argued that the desire to exchange intangible resources motivates many alliances and acquisitions (Kogut and Zander, 1996). The competence perspective argues that firms use alliances and acquisitions in response to market failures that arise from tacitness, co-specialization, and organizational embeddedness of resources (Kogut and Zander, 1992; Polanyi, 1966; Galunic and Rodan, 1998). Exchange of tacit resource tend to be slow, costly and through learning-by-doing (Kogut and Zander, 1992). Exchanging co-specialized resources requires cooperation among the different people and groups involved in the development of both the focal and complementary resources. Similarly, exchanging embedded resources requires a high level of cooperation among people in order to reproduce the supporting routines that span several functions and resources area within the firm and with its environment.

Exchanges of resources that require ongoing cooperation often require co-location of people within two or more organizations who will cooperate in the exchange and use of the resources over long periods (Oxley, 1999). While, in theory, firms might reach agreements to co-locate people to assist with discrete resource exchanges, even the best-intentioned firms will find it difficult to honor such agreements, as people take new jobs, firms’ priorities change, and people’s understanding of needs change. The basic point is that the knowledge of how to manage the cooperative resource exchange becomes embedded in routines that are beyond the control of individual managers of either the resource provider or user.

Exchange of tacit, co-specialized and embedded resources requires organizational forms that enhance cooperation, proximity and repeated exchanges to transfer effectively resources among
parties. Such organizational forms allow the internalization of resource exchange, with stronger opportunities to reduce behavioral uncertainty through internal or inter-organizational governance and to enhance learning and coordination through internal or inter-organizational socialization processes.

Inter-organizational modes for managing resource exchange include alliances and acquisitions. It is now well established in the alliances literature that alliances represent a fast means of gaining access to tacit resources that cannot be transferred by one-shot licensing (Porter and Fuller, 1986; Doz, 1988, 1996). For example, Powell (1990: 317) notes that “it is in the unwritten, intangible character of much firm-specific knowledge that has led US firms, particularly the automakers, to form joint ventures in an effort to better understand their production processes. Similarly, Japanese companies have been attracted to joint project with US high tech because technological innovation cannot be simply purchase, it requires cumulative knowledge of the linkages among design, production and sales”. In parallel, the acquisitions literature recognizes that acquisitions represent a means to acquire resources that face discrete exchange difficulties (Hitt, Hoskisson, Ireland, and Moesel, 1996; Capron, Dussauge and Mitchell, 1998). Nelson and Winter (1982: 65) note that acquisitions can bring whole packages of capability under unified control.

In the competence view, resources that embed cooperation of people within a firm are difficult to exchange through market transactions no matter how much risk a firm is willing to take and how much cost the firm is willing to bear. Organizations provide superior mechanisms for transferring embedded resources across firms because they act as social communities, which creates productive and administrative knowledge embodied in people, procedures, and organizational routines (Kogut and Zander, 1992). This view emphasizes alliances or acquisitions as a means for easing resource redeployment by providing greater exposure to information and more comprehensive packages of supporting skills, thereby helping alliance or acquirers learn how to use resources in new ways (Nelson and Winter, 1982; Haspeslagh and Jemison, 1991). Chatterjee and Wernerfelt (1991) argue that the ability to acquire intangible resources such as R&D and marketing capabilities is a particularly strong incentive for acquisitions. Alliances and acquisitions make it possible for firms to undertake ongoing interactions needed to understand new resources through mechanisms such as cross posting of staff, corporate task forces, and joint management of shared functions (Kogut and Zander, 1992; Singh and Zollo, 1997). Through acquisitions, firms both acquire unfamiliar new resources and learn how to use their existing intangible resources in new organizational settings and competitive conditions (Penrose, 1959: 126; Mitchell, 1994; Singh and Zollo, 1997).

In summary, the resource-based view along with the transaction cost economics suggest that when a changing firm chooses an external mode to obtain resources, the greater the market failure that the resource exchange faces, the more likely the firm will use inter-organizational resource exchange rather than purchase contract to undertake a change.

The third distinction in Figure 1 concerns the choice between alliances and acquisitions as inter-organizational modes of change. Simply in terms of cost, firms will often prefer alliances to acquisitions, because alliances tend to involve lower expenditure and immediate disruption. Indeed, we agree with Williamson (1985) that internal organization adds bureaucratic costs, so that full internalization, as represented by acquisition, can be thought of as the organization form
of last resort. Firms typically are better off if they first carefully consider alliances before undertaking the costs and difficulties of acquisitions. In many cases, though, firms must turn to acquisitions in order to achieve desired changes. Transaction cost economics suggests that the tendency to use acquisitions as modes of change will increase with the scope of market failure that resource exchange faces.

The scope of resource exchange also enters here, as it did in the case of discrete versus inter-organizational resource exchange. Changes that require firms to obtain a particularly wide variety of resources will commonly involve acquisitions rather than alliances. We use the term scope of market failure to refer to the number of resources that a market failure affects. An exchange has a low scope of market failure when only a few resources face appropriation or coordination issues. An exchange has a high scope of market failure when many resources face appropriation concerns or will require substantial coordination. Exchange cases that involve many resources that face market failure, whether due to risk of losing value or coordination difficulties in creating value will tend to be better suited to acquisitions than to alliances.

Although opportunism and bounded rationality tend to remain even within the integrated firm (Grossman and Hart, 1986), the acquiring firm can address motivational issues by adjusting incentive systems and by establishing monitoring practices and troubleshooting systems (Zollo, 1996). The alliance literature has extensively stressed the problems associated with partner opportunism, including hidden agenda, resource appropriation (Hennart, 1982). In the international business literature, empirical studies suggest that the higher the propriety content of a firm’s resources, the more the firm will prefer expansion via full ownership rather than partial ownership (Anderson and Gatignon, 1986; Hennart, 1982).

In summary, when a firm chooses an inter-organizational resource exchange mode to undertake a change, the greater the scope of resource exchange subject to market failure, the more likely the changing firm will use business acquisitions rather than alliances.

As we saw earlier, the resource-based view and the transaction cost economics are often taken as the baseline theories for the study of resource exchange and creation because they focus on the characteristics of the resources and the market for resources involved in the transaction. These theories do not pay attention to the firm’s change processes, while many complementary perspective suggest that firms have routines for changing and searching new resources (Neslon and Winter, 1982).

The idea of path dependency is common to many literatures, ranging from institutional economics (Arthur, Ermoliev, and Kaniovski, 1987), to organization ecology (Hannan and Freeman, 1989), to organizational learning (March, 1991). The basic idea is that a firm will tend to accumulate a particular type of experience that will create routines that in turn shape its subsequent decisions. For us, the key path dependent routines are those that arise through experience with a particular mode of change. By mode experience, we mean the extent to which the changing firm has engaged in a mode of change in the past, where extent includes the frequency of experience, how much the firm has invested, and the success of prior experience. Each of these elements of experience will lead the firm to develop and retain relevant routines. Firms that frequently undertake a particular mode will develop routines that suit that mode. Moreover, firms that view their past experiences with a particular mode as successful will tend to
retain the routines that the activity create, while firms that view the experience as unsuccessful will tend to pare away the routines that result from the experience. Thus, firms will tend to repeat modes of change that they have undertaken in the past.

Mode experience can affect the purposes for which a firm uses a mode, as well as influencing the repetitive use of a mode of change. Amburgey, Kelly and Barnett (1993) argue that the more experience an organization has with a particular type of change, the more likely that the change will be seen as a solution to a broader set of problems. For example, firms with a frequent use of internal development may be more inclined to using this mode of change to develop resources that are significantly distant from their existing resources. Moreover, the increased competence in making a particular mode of change lowers the marginal cost of undertaking a change. In sum, we see path dependency as a factor that would mitigate the relationship between the features of the needed resources and the market for resources and the mode of chance. In other words, we will explore in our field study whether the changing firm’s experience with a mode of change will increase the likelihood of using that mode of change rather than other modes of change.

As a preliminary summary, one can initially discriminate between internal development and external modes of resource acquisition. Firms will often prefer turn to internal develop when they possess the appropriate resources to develop the needed skills instead of turning to external modes, which raise coordination costs and appropriation concerns. One then can categorize two distinct types of external mechanisms for resource exchange. First, businesses sometimes exchange discrete resources through permanent sale agreements or rental contracts such as licenses or franchises (Rugman, 1981; Tushman and Romanelli, 1985). Second, firms may acquire resources through inter-organizational modes, by allying with or buying firms (Wernerfelt, 1984). Firms will often prefer the first type of market mechanism for exchanging resources, because exchanging discrete resources usually entails lower costs and less organizational disruption than allying with or acquiring firms (Nees, 1981; Bowman and Singh, 1990). Despite any preferences for exchanging discrete resources, however, failures in the market for resources sometimes cause firms to conduct alliances or acquisitions in order to obtain new resources and use the new resources to change existing resources.

METHODS

We conducted 25 field interviews at 12 European Telecom operators including British Telecom, France Telecom, KPN, Siemens, Enertel, diAx Telecom, Optimus Telecommunicacoes, Swiss Telecom, Concert (BT/MCI), Belgacom, Eutelsat, Telia, with an average of about two interviews per firm. These firms represent the major actors of the European telecom industry. We interviewed the executives in charge of the corporate development. Our analysis focuses on the telecom industry to control for the differences that exist across industry sectors.

The European telecom industry provides rich data for theorizing and conducting a detailed analysis of the processes by which firms change as they are being challenged to acquire new resources and keep on innovating to face the fast moving industry changes. The telecom industry has been facing intensive deregulation, price competition, telecom and information technology convergence, foreign competition in the recent years. We also chose this industry as we
recognized that firms were changing their resources by using the various modes of change: internal development, purchase contract, alliances and M&As.

Both network operation and service provision have been rapidly changing in the telecom industry. With respect to network operation, deregulation has brought about many changes. European Union and national regulators are increasingly forcing incumbents to “unbundle” and allow competitors to use the “local loop”, which brings on new attackers. Companies such as Video Networks, QSC or KPNQwest plan to build their own DSL (digital subscriber line) services directly and over incumbents’ networks. Meanwhile, national telcos as Belgacom, Deutsche Telecom, BT and France Telecom, spurred by such competition, are rolling out new offerings and investing heavily in DSL services (Beardsley, Raghunath, and Wilshire, 2000). Promising new technologies being developed include UMTS (Universal Mobile Telecommunications System), a third generation technology providing for mobile broadband communications at rates as high as two megabits a second –more than 100 times faster than today’s mobile communications. In the cable segment, telecom regulation has forced telecom incumbents in Germany, Ireland, the Netherlands, and Switzerland to separate and sell the cable properties they controlled. Many cable operators have upgraded their network to provide two-way broadband services via cable modem and propose interactive services. In the fiber backbone segment, the number of new companies offering pan-European and transatlantic pipes such as Interoute, Hermes Europe Railtel, Level 3, KPNQwest, Level 3 is staggering: proposed capacity is set to explode by 500 percent a year. Within each technology, companies are fighting to capture economies of scale and scope by assuming pan-European leadership.

Such competition in the access infrastructure segment has implications on the service provision segment. As the battle for the access infrastructure heats up, pure infrastructure providers run the risk of seeing value accrue not to themselves but to content providers and aggregators, potentially relegating infrastructure providers to the role of commodity bandwidth provider (Beardsley, Raghunath, and Wilshire, 2000). To prosper, infrastructure providers must secure customer relationships by offering distinctive value-added services and content. The market for most enhanced services is highly competitive (Armstrong, 1998) and telecom incumbents are challenged by data-based firms with stronger IT competencies.

We conducted the study in three phases, following grounded theory building techniques (Glaser and Strauss, 1967; Miles and Huberman, 1984; Strauss and Corbin, 1990). The unit of analysis was the mode of change, i.e. the use of internal development versus external modes (purchase contract versus alliances versus acquisitions). Phase one of the study involved open-ended, moderately directive interviews. We used a two-part interview guide. In the first part of the interviews, we followed guidelines for inductive research and were as descriptive as possible. In the second part, we examined issues pertaining to resource gap and market failure. Informants were not asked to fill out a questionnaire; instead, the questionnaire was used as a guide to direct and structure otherwise open-ended interviews. Interviews were tape-recorded and transcribed. In phase two, we formed an organized interpretation of the data and then traveled back and forth between the data and our working framework. As evidence amasses, expectations from the literature were retained or revised. In this stage, we went back to the institutionalist and embeddedness literature as a major theme pertaining the institutional context emerged. Phase
three focused on gaining construct validity by interviews with telecommunication firms, with industry experts, and academics.

A MODEL OF RESOURCE CREATION

Changes And Resources Needed In The Telecom Industry

The changes and resources needed by the telecom operators reflect the substantive changes that are taking place in the telecommunications environment, in which regulatory, technical, competitive, and market transformations are affecting most or all aspects of telecommunications company activities. The desired changes emphasize the four aspects of Schumpeter’s change typology, products, production processes, markets, and organization. Changes in the telecom industry entails more than changing the firm’s resource endowment; it also means transforming the firm’s organization and processes to be able to integrate the needed resources. Accordingly, resource creation goes beyond the notion of resource exchange and includes the notion of overall firm change process.

The firm has gone through a major internal restructuring including processes, interaction with clients, profit/loss responsibility. The major goal of this restructuring is to be more customer-oriented, more transparent and to develop accountability.

We want to be a knowledge-sharing organization so that we can provide integrated products in a timely fashion.

In face of increased competition, we need to be much faster at changing our core business. We are too much technology/product driven, while we need to be more customer focused.

Organizational challenges are recruiting, fast decision making processes, higher customer flexibility, we need to be more customer driven. Processes need to be defined based on customer needs and on the required delivery time.

Accordingly, needed resources tended to emphasize R&D, technical (IT), marketing (customer orientation, market knowledge) and managerial skills. For many telecom incumbents, the telecom and IT convergence brings about a drastic reshuffling of their competencies.

Our current skills are based on traditional specialized engineering skills, while we are looking for engineers with a general view of network architecture and with broader responsibility. We also need sales and marketing people more specialized in internet and carrier products.

There is a huge gap between the skills we need to deliver an integrated offering in the ICT business and our current competencies. To deliver such an integrated portfolio, we need 80% IT competencies versus 20% traditional telecom competencies.

Managerial skills also include change process skills, such as skills to foster internal entrepreneurship, or skills to manage alliances and acquisitions.

We need to develop an entrepreneurial spirit and risk taking attitude. We need to develop a capability of managing joint ventures and acquisitions.
We need “horizontal competencies”; skills that are not related to specialized know-how; we need to develop a more reactive organization through a decentralized approach. In our firm, we have a culture based on consensus; we are therefore slow at making decisions.

The description of the changes and resources needed suggest that creating new resources encompasses issues pertaining to resource exchange (or transaction) and to the firm’s overall configuration (in terms of processes, systems and culture), suggesting that firms have to shape an appropriate social context to be able to develop, acquire and integrate the needed resources.

**Internal Development Versus External Modes of Resource Acquisition**

Our data suggest that a firm’s ability to develop internally new resources can be understood by considering both the intrinsic features of the resources and the social context of the changing firm.

**Resource threshold and resource gap**

Respondents view the resource gap between their resources and the needed resources as a primary determinant of their choice between internal versus external modes of resource acquisition. One criteria for deciding on internal development versus external modes of acquisition is how far the needed resources are from the changing firm’s existing resources. When the gap between the needed resources and the changing firm’s resources is very wide, firms tend to acquire a critical mass of the needed resources through alliances or acquisitions.

The main issue is how to manage the resource gaps? Should we do it by ourselves or acquire other firms? One of the main criteria for deciding on acquisitions is how far is it from our current skills.

One overriding reason for merging with the target was to build competency in IP networking. The shortage in our competencies was in IP technologies, routing technologies, and the ins and outs of running IP networks. Our target was in a similar situation, but in reverse; they could supply the whole bundle of technologies and customers we needed.

Resource gap include closeness (familiarity with the needed resources) and strength in the targeted area. The concept fits with the notion of competitive gap; when the changing firm achieves a high competitiveness level in a resource area, it tends to develop resources internally in that area, achieving better coordination and protecting the value of their resources. Conversely, when the changing firm is far away from the competitive level in the targeted resource area, it is likely to drive acquisitions or links to other firms to develop needed resources (Cuervo-Cazurra, 1999). The quote below even suggests that when firms are very far away from this competitive threshold, they will turn to the ultimate external mode, i.e., acquisitions. As we shall see later, firms still need a certain level of knowledge to manage effectively its links with other firms.

We went for a long time for internal R&D, but we did not have these competencies. Then we try to bring these competencies through alliance. Now we do acquisitions to fasten R&D. There is a
pattern. We realized that we need to reach a certain threshold of competencies before we could run effective internal development, or be an attractive and/or effective partner within an alliance.

Not attaining a minimum internal threshold of competencies hampers market credibility vis-a-vis the customer and may encourage Firm to search externally the needed resources to build their credibility.

We have key advantages to address the SME segment in terms of technological capabilities, supplier leverage, brand name, trust, customer base, and customer and contact (on average, 20 contacts a year). However, the main obstacle is the customer perception of what we do; for them, we are a telephone company.

Acquisition allows us to get the head start; so not only to get the technologies, but also to make the market aware of our presence and to be taken seriously in the data environment.

Not only firms need to be familiar with the needed resources, they also need to reach a certain competitive threshold to develop internally or to be able to hire the needed people to develop internally those resources. A competitive threshold provides appropriate skills for developing the needed resources as well as a market legitimacy vis-à-vis the customer and the labor market. Firms with a low recognition in certain resource area may have to turn to external modes to improve the customer perception of their resource profile.

We need to develop new resources to develop an integrated portfolio; we cannot do everything on our own. We intend to use different means: hiring, acquisitions, training of internal people. In IP business, we need additional technical skills and commercial skills beyond just selling the infrastructure. In the corporate network segment, we need to hire new people from data centers and software houses.

We face the problem of not being able to attract good marketers from outside, because we must recruit from inside the organization (which wants to go from 32,000 to 15,000 employees). Inside the organization one finds mainly technology-focused people, rather than good marketers. The real competition for telecom operators/IT companies is taking place in the labor market. We made a huge campaign in the IT field given the shortage of IT people. We are trying to build a IT profile (e.g., advertising in IT companies). The alliance with a large U.S., software house is one of the move in that area; our partner is active in the applications area.

We need to change our profile towards the customer and we need to increase our specific marketing expertise. It is difficult to attract people who have commercial skills and understand the telecom business. Although we propose good salaries, the problem that we are facing is how to attract people who have the necessary marketing skills. University people are hard to get and having engineers do the marketing job is not always successful.

Resource strength in both the focal resource area and in non-focal resource areas matter and can help. A firm with no particular resources in the focal area will find it easier to acquire resources from the outside if it has strengths in other areas. Having a reputation in some resource areas
helps overcome the liability of newness vis-a-vis customers and the labor market that a firm, even established, can face in a distant resource area.

In sum, we have evidence that support the resource-based view prediction according to which the closer the competitive gap between the needed resources and the changing firm’s resources, the more likely the changing firms will use internal development instead of external mode of resource acquisition. Changing firms with the appropriate resources help overcome competence issues as well as credibility issues vis-à-vis the market.

These observations suggest the first proposition:

**Proposition 1**: The closer the competitive gap between the changing firm’s existing resources and the needed resources, the more likely the firm will use internal development rather than external modes to undertake a change.

**Social acceptance and conflicting resources**

We found that the degree to which the needed resources were conflicting with the changing firm’s existing resources was a primary determinant of the choice between external and internal mode of resource creation. By resource conflict, we mean the degree to which the routines that underlie the changing firm’s existing resources and the needed resources are incompatible with each other.

When possible, a firm will try to target resources with features that will allow its existing routines to function smoothly, in order to maintain the truce that existing routines represent (Nelson and Winter, 1982: 107). Attempts to change routines often provoke a renewal of the conflict, which is destructive to the participants and to the organization as a whole. The fear of breaking the truce is in general a powerful force tending to hold organizations on the path of relatively inflexible routines. This implies that, in order to preserve their routines, people in place within the firms are more likely to develop internally resources that fit the current systems, that is, resource that tend not too be too disruptive. In sum, internal development is more likely to maintain an intraorganizational truce as it builds incrementally on existing routines, and is more appropriate to develop resources that reinforce the existing systems than disrupt them. Conversely, when the changing firm needs resources that conflict with its existing routines, it will turn to external modes of resource acquisition to get access to resources that internal people would not or could not develop within the firm.

Incompatibilities between the target and the acquirer resources can arise for many reasons, broadly encompassing disruption of internal routines (obsolescence of business practices and people background, product/technology cannibalization) and inter-organizational routines (change in business relationships, change of product specifications and of suppliers). Internal development of resources that build on new internal routines meets institutional barriers as it challenges coordination patterns within the firms, people’s background, cultural habits, corporate norms. Similarly, internal development of resources that build on new inter-organizational routines arise as it challenges a set of embedded inter-organizational relationships that create resistance to change.
There are two types of technologies: the circuit technology for voice traffic and the packet technology for data traffic. For a long time, most research funds were devoted to the dominant activity, the circuit technology, but internet development challenges this logic. The major issue is the intellectual blinders that most engineers face as we move to intelligent networks; it is hard for most of our engineers to think beyond their circuit technology background to be able to adjust to this emerging business. Solutions to deal with increasing data traffic would be to add, in parallel, a separate network that is better adapted to data traffic or to upgrade the existing network to integrate both voice and data traffic.

To create new services, you have two main paths: 1) you set a complete separate subsidiary; you don’t even call it OurFirm or 2) you go for an acquisition. For example, OurFirm, 8 years ago, created a unit to sell interconnect traffic. They recognised that interconnected traffic would be an important source of revenues; the revenues it come from other operators needing delivery of their call at the local loop level (in other words, delivering calls created on other networks; or calls generated by your network which go to other carriers); they set up a division, a new business, to go out and obtain that business; and the rest of the organisation was saying: «Wait a minute; are you a competitor? it mean that you are taking traffic away from the OurFirm network?». There was tremendous internal conflict. They created a new unit and staff people who were fundamentally marketing people to market themselves to mobile firm, paging firms, other competitors; and encourage this people to come to the OurFirm environment instead of alternative network (cable, wireless); not just to deliver the final local loop call, but to get the call at the earliest point (the earlier you grab the call, the higher the interconnection fees); they went out to do that. The person in charge of it was an OurFirm person, but he recruited external people to staff his unit and developed a salesforce to sell this service, which conflicted with our current networks.

The notion of ‘intellectual blinders’ mentioned by one respondent is closed to the notion of ‘cognitive sunk cost’, defined as ‘the social and psychological costs associated with altering firm habits and routines’ (Oliver, 1997: p 702). These cognitive sunk costs are especially prevalent when the needed resources disrupt the familiar routines, or change the patterns of resource allocation or power distribution.

The notion of conflicting resources fits with Oliver’s (1997) argument of social acceptance. She argues that a firm’s historical cultural and political context, along with the psychological costs associated with organizational change, can constrain resource redeployment. Ginsberg (1994:158) notes that “strong institutional pressures abide in the evaluation of current resource allocations and in hindering acceptance of resource deployments”. At the individual level, employees may have to learn new skills, and power may shift to new individuals and groups within the organization subsequent to resource redeployment. Both vulnerable employees and powerful vested interests are likely to oppose such change. The presence of cognitive sunk costs will lead managers to reinforce the existing resource position and make resource redeployment less likely. At the organizational level, potential violation of corporate traditions, norms or culture may dampen resource redeployment. Resources that firms have accumulated over a long period acquire a taken for granted character within a firm that makes them resistant to resource changes (Oliver, 1997).
In many telecom incumbents, data traffic department used to be a marginal subsidiary compared to the powerful voice traffic department ruled by circuit technology engineers. The boom in data traffic has raised internal political problems due to the vested interest of the people in place. In some firms, investments and resource allocations towards data technologies have been postponed or limited due to this internal competition.

We do not have resource problems in the basic technological field, but the boom in data traffic raises internal political and resource allocation issues, because we used to manage the data traffic in a separate subsidiary at the periphery of the core business.

Over time, the regional units had built up a strong power base within the firm. Forced by the market, we have limited the power of this unit. The new structure reinforces the role of business units. Production units are forced to supply the demand of business units. The different SBUs buy network capacity from production units, for example. We have stresses associated with the new structure: reduction of regional unit power; high resistance, and reallocating people that historical relationships have built up.

The notion of social acceptance is a refinement to the notion of resource gap as it involves non-rational, emotional components of the firm’s capacity to develop internally new resources. Internal development of resources that build on new routines meets institutional barriers. Those resources may not necessarily be very far away from the existing skills of people, but they violate corporate traditions, break their working routines, and disrupt the organization by bringing about internal competition. Conversely, when routines require significant change, and particularly if the needed change conflict with the existing routines, the use of external modes of resource acquisition tends to be more appropriate. The core reason is that the firm will have less need of immediately attempting to adjust existing routines in the face of substantial resistance. Instead, the firm can attempt to obtain resources that consist of new routines from outside the firm and only then undertake the inevitable process of adjusting existing resources. This argument closely parallels Abernathy and Clark (1985) and Tushman and Anderson’s (1986) notion of competence destruction, which arises when changes will tend to reduce the value of existing resources. The starting point argument concerning competence destruction is that firms will tend to avoid changes that involve substantial competence destruction. An extension of the argument, though, is that the presence of competence destruction will influence the mode of change of firms that attempt to change despite the potential for competence destruction. As we noted above, most often firms will seek externally in such cases, rather than undertake the immediate risk of attempting to change existing routines.

Our data suggest that, whatever internal or external modes firm use, firms still face the challenges of integrating the conflicting resources in their organizational context. In that respect, an acquisition provides a more radical way to change the internal political context of the changing firm itself and provides momentum for breaking the ingrained inertia. Firms do sometimes chose to create a new decentralized and semi-autonomous subunit to provide an appropriate home for the newly bought or developed conflicting resources. By semi-autonomous subunit, we mean a business unit that the firm owns but operates largely independently of other business units.
When the needed resources conflict with the structure, processes, systems of the changing firm, the existing organization does not represent an appropriate home for integrating the needed resources. In that case, firms will create a separate unit endowed with its own incentive systems, culture, and processes. At the extreme, when the firm lacks legitimacy to develop the needed resources, it even uses another name to be more attractive on the labor market and vis-à-vis the customer. The creation of a separate unit in telecom operators is very common to handle the development of data, voice over IP, and internet activities.

We created a brand new company in the US with a global mandate for the data business. The name of this US subsidiary does not have even the mother name. We put a completely new framework. The targeted people are in California; and we need to offer them an attractive corporate environment with stock options; in the new firm, we will provide this environment that we could not provide in our home country. In our home country, the stock option plans is not for the employees, but only for the 500 top managers.

We also found that issues of internal legitimacy, integration with the main structure, access to corporate resources arise when firms “Saturnize” the development of the new activities that challenge their traditional businesses. One respondent working in this type of newly-born venture in an established firms stressed that their company was a ‘bastard’ company:

We are quite independent from the rest of the company. We formed a separate company with 40 employees to develop the IP service. We are a bastard company; we are competing with our parent company and there is a risk of cannibalizing our present offerings. At the same time, if we want to make it happen, we need to cut bureaucracy, to be a fast mover. The current structure of the parent would not be appropriate. As an autonomous unit, we have been given a short time to reach profitability.

We created the E-business unit one month ago. At the moment, this unit does not fit very well with our organization and the dominating division. We have to operate differently from the core business because the e-business operates in a very different environment from our core business. Key questions are whether we should separate from the main unit and whether we should expand globally. There is also a tradeoff between our cash cow business and new opportunities, with conflicting objectives.

The process of establishing a separate unit has intriguing implications for continued evolution of the firm. Once the firm gains experience with the new resources, it has several options. If the new subunit fails, the firm may shut down the unit, with minimal damage to other units. If the new subunit succeeds, the firm can continue to maintain autonomy of the new unit, but this separation risks fragmentation and conglomeration problems. If the new resources turn out to be particularly important for the firm, the firm may chose to reorient the corporation around the new unit and de-emphasize old units, such as Intel did with its new CPU businesses and old DRAM activities (Burgelman, 1991). Alternatively, the firm may chose to integrate the activities of the new unit with other units and diffuse the new skills through the company, such as General Motors is now attempting to accomplish with the resources that its Saturn subsidiary developed. Finally, if the new subunit turns out to have substantial conflict with the firm’s existing
resources, and if the existing resources remain the firm’s primary focus, the firm may sell the unit.

In sum, we have evidence that the processes by which firms create new resources are influenced by the extent to which the needed resources conflict with the changing firm’s resources. We found that the more the needed resources conflict with the changing firm’s resources, the more likely the changing firm will turn to radical external modes of resource creation, especially acquisitions. The core reason is that the firm will have less need of immediately attempting to adjust existing routines in the face of substantial resistance. Instead, the firm can attempt to obtain resources that consist of new routines from outside the firm and only then undertake the inevitable process of adjusting existing resources.

These observations suggest the following proposition:

**Proposition 2**: The more a changing firm’s existing resources will conflict with needed resources, the less likely the firm will use internal development of resources rather than external modes to undertake a change.

*Internal stickiness and internal resource linkages*

Our data suggest that the internal availability of the changing firm’s resources were especially important in the choice of internal versus external modes of resource creation. Many telecom incumbents are plagued with a ‘history of not sharing knowledge’ among subunits. As the industry move towards value-added services, they need to recombine their knowledge across units is required.

> To develop an integrated offer to our customer, we need to integrate services so that we recombine knowledge across the 23 services that we previously offered.

> We need to develop a knowledge sharing culture, with project management skills, interdisciplinary teams, and integrated data bases. We are very hierarchical; we need to develop more flexibility.

The notion of internal availability fits with the notion of internal stickiness (Szulanski; 1996). Sources of internal stickiness are divided in two general classes: (1) a set of agency-based factors which determine the motivation of internal people to share resources (Lennox, 2000), and (2) a set of knowledge-based factors (i.e., causal ambiguity, tacitness) which influence the degree to which two units can share knowledge effectively (Szulanski, 1996).

We found that both incentive system and learning capacities mitigate internal stickiness, with the latter being more often cited than the former. Incentive systems are recognized as having an influence on the extent to which the people are willing to carry out ‘transversal collaboration’.

> We have a long history of not sharing knowledge. To overcome this culture, we have developed systems of incentives to improve transversal collaboration. For example, each consultant in the knowledge management unit has the obligation to share and report knowledge (for example,
through workshop) in at least three different services among our 23 services. The people receiving the knowledge assign scores to the learning they receive and describe how they can use this new knowledge.

People in the technical areas are more likely to share their experience; they like scientific research and tend to have a strong community of interest, although the not-invented-here syndrome can be present. People in the commercial areas tend to be more competitive; each SBU is striving for its profit and is not ready to share information with a potential competitor. This attitude is linked to the culture of each activity. For example, we have “the salesman of the month”; but we do not have the scientist of the month!

The respondents stress much more the information-based factors that inhibit knowledge sharing and learning, in particular the lack of initiatives and institutional mechanisms to communicate effectively and diffuse resources across units such as an active internal labor market, job rotation, resource allocation processes, tolerance for experiments, transversal committees, internal consulting services.

In the past years, we have developed many initiatives to improve added value in products and services. The way we carried out these activities had much to do with combining corporate knowledge and ideas in a cross-functional way. Nowadays we should call these activities knowledge management activities. We have developed a knowledge management initiative task force, which is an internal joint venture between our research center and our applications unit. This taskforce employs 325 consultants from our highly trained staff. The objective is to manage knowledge across units.

To develop an innovation and sharing knowledge culture, we have created interactive workshops, knowledge maps, skills inventories, Best Practices databases, intranet chats, and discussion groups.

These ‘knowledge management’ activities are seen as important to develop the learning capacities of the organizational units to share knowledge. They also help to understand what knowledge is available internally and could be used for developing new resources. These findings fit with the literature on intra-firm social networks (Hansen, 1999; Tsai & Goshal, 1999) and on recombination skills (Galunic and Rodan). An emerging stream of literature, the recombination literature (e.g., Eisenhardt, 1989; Henderson and Clark, 1990; Galunic and Rodan, 1998) argues that firm can undertake Schumpeterian innovation internally by recombining resources in novel ways. The resource recombination literature challenges simple organizational inertia arguments and explores the antecedents of the likelihood of such recombination. In others words, the literature examines how much a firm can change by using its existing set of resources as a portfolio of routines.

This discussion gives rise to the notion of internal resource linkages, by which we mean the degree to which a firm’s resources share common routines. In practice, internal resource linkages can take many forms, such as incentives systems and resource-sharing mechanisms (i.e., informal personal ties, formal reporting relationships, internal labor market, job rotation). When a firm enjoys substantial resources linkages across resources in many areas of the firm, it will
have more opportunities to draw knowledge from internal sources and recombine it into novel configurations. Hansen (1999) shows that strong ties across unit facilitates transfer of complex knowledge across organizational units. By contrast, when such linkages are rare, the firm will have greater need to turn to external modes if they wish to attempt to change.

In sum, we have evidence that availability of internal resources is an important driver of the choice between internal development and external modes of resource acquisition. When firms choose between internal versus external modes of resource acquisition, external availability of resources from the markets or other firms seems to be a primary factor of consideration, while internal availability of the changing firm’s resources tend to be taken for granted. In most interviews, the respondents stress how difficult it is to get access to the internal resources, to transfer and recombine them across units.

These findings lead to our third proposition:

**Proposition 3**: The more internal resource linkages there are among a changing firm’s existing resources, the more likely the firm will use internal development of resources rather than external modes to undertake a change.

**External Modes of Resource Acquisition: Purchase Contract versus Intra-Organizational Mode of Resource Acquisition**

*Tradability and market failure*

Our data suggests that market failure is an important determinant of choice between purchase contract and inter-organization mode of resource exchange (alliances and acquisitions). Our respondents stress three main sources of market failure: 1) appropriation hazards, 2) coordination difficulties due to embeddedness of the needed resources, 3) and market legitimacy of the changing firm.

The first source of market failure is associated with appropriation concerns. Respondents recognize that issues related to patents and property rights represent a determinant factor of the choice of using an arm’s length contract versus an inter-organization firm of resource exchange. Appropriation concerns are commonly associated with the intangible nature of the resources exchanged; Respondents fear that they will not control the intangible aspects of the resource exchange, which make them vulnerable and very much dependent on the seller of the needed resources. Some sellers of resources recognized that providing codification of knowledge decreases their capacity to extract value from their resources. Incentives to maintain the degree of intangibility are high for the seller of those resources.

> When we buy a technology off the shelves, we try to work hard on the patent issues. We are also afraid of not controlling the intangible aspects of the technology exchange.

> As an IT provider, with an IPOs which is not knowledgeable, we tend to provide the software off the shelves without the manual, otherwise nothing is left to us to do. In fact, some operators have
very bright skills in IT, in such cases, we are not so useful, as very quickly they can get our competencies; there is nothing we can hide.

Although we have some support for the role of appropriation concerns in the choice of external modes of resource acquisition, we have stronger evidence for the second source of market failure which is associated with coordination difficulties. Coordination issues mainly stem from the embeddedness of the needed resources in their organizational context. Transferring those resources usually requires an ongoing cooperation between the seller and the buyer so that the purchasing firms is capable of reproducing an appropriate context in terms of culture, processes, incentive systems to get the value from the newly bought resources. Many resources, when transferred outside of their original setting, lose part of their value as firms are not capable of providing a suitable home for the transferred resources. Reproducing this context or adjusting resources to the buyer’s context requires a tight coupling between the seller and the buyer, which is not easily enforceable through arm’s length transaction. Hence, alliances and acquisitions are seen as more effective mechanisms of getting this tight coupling between the parties involved in the resource exchange. Respondents recognize that when they bought new resources through acquisition, their goal was also to buy the context and culture surrounding those resources.

Acquire to extend your services offering, and the people you acquired are hopefully much more customer oriented than you are and out them into in charge of this new organization. If you are a PTO, I am emphasizing very much that, when you are buying a firm to get new services, you are buying very much a culture;

You buy those people for their culture. So, actually you don’t want to integrate them into your culture, generally speaking. You want to migrate your own people to that culture.

One interesting aspect of our findings on the notion of embeddedness is that both the internal and external aspects of embeddedness arose in the interviews. By internal embeddedness, we mean the embedding of resources in the firm’s internal context (processes, culture, incentives). By external embeddedness, we mean the embedding of resources in the firm’s external context. Respondents mention that alliances, and even more acquisitions, are mechanisms to gain access to the external network and search capabilities of the selling firm, that provide a stronger basis for future development of resources in the targeted resource area than a purchase contract.

We were slow to read and understand what was happening in the data environment. We had to make acquisitions in the US to recoup with lost time; not only to get good technologies, but also the whole set of data skills, so that you can look for the right technologies, the right type of people. We need to be with people who know the market, has always been in the data environment, have network, know for what type of people to look for.

In sum, coordination difficulties represent a dominant factor of choice between purchase contract and inter-organizational modes of resource exchange, when the changing firm is willing to have a good command of the internal and external context surrounding the needed resources.

Last, our data suggest that a third class of market failures, in addition to those that arise from potential opportunism and coordination difficulties, arises from institutional legitimacy. By
institutional legitimacy, we mean the degree to which a firm is viewed as a desirable member of a commercial and social community. A firm that lacks institutional legitimacy, either as a corporation as a whole or as a participant in a particular business area, will find it difficult to attract skills people, as well as to attract relationships with external parties such as suppliers and distributors.

Institutional legitimacy market failures usually arise in cases when firms lack key \textit{ex ante} relevant resources to participate in a market and/or internal routines needed to integrate external resources. In other words, market failure stemming from legitimacy problems may also arise as a form of liability of newness, affecting new corporations, established corporations that are undertaking business diversification, or foreign firms that are entering new geographic markets. The prior section suggested that the lack of key resources would lead the firm to undertake external resource modes, such as buying the needed resources, rather than internal development.

Alliances, and especially acquisitions, offer opportunities to overcome the legitimacy-based market failure. An alliance or acquisition will help the firm gain critical mass needed to generate the legitimacy that it requires in order to hire skilled individuals. The lack of internal resources and recombination skills reduced the likelihood of change via internal development and increased the likelihood of external modes of change. In turn, the lack of legitimacy reduces the likelihood of using a particular form of discrete resource exchange, and increases the likelihood of the other external modes, alliances and acquisitions.

At the moment we lack external credibility (which is conveyed through market credibility, image, our position on the ranking that appears on the internet about the most attractive firm to work for in the data telco environment, etc), to attract the best people and to have sellers of technologies (such as high-tech gurus) to come to us. We hope by our involvement in this venture fund, that people will come to us to sell their technologies.

Acquisition allows us to get the head start; so not only to get the technologies, but also to make the market aware of our presence and to be taken seriously in the data environment.

In summary, our findings suggest that the notion of transaction cost has properties pertaining to appropriation, coordination and legitimacy concerns. Hence, we offer the following propositions:

\textbf{Proposition 4a:} When a changing firm chooses an external mode to obtain resources, the greater a resource exchange faces appropriation hazards, the more likely a changing firm will use inter-organizational resource exchange (alliances & acquisitions) rather than discrete resource exchange (purchase contract) to undertake a change.

\textbf{Proposition 4b:} When a changing firm chooses an external mode to obtain resources, the greater the need for ongoing cooperation by the provider and user of targeted resources, the more likely a changing firm will use inter-organizational resource exchange (alliances & acquisitions) rather than discrete resource exchange (purchase contract) to undertake a change.
Proposition 4c: When a changing firm chooses an external mode to obtain resources, the lower the market legitimacy of a changing firm, the more likely the firm will undertake inter-organizational modes rather than discrete resource exchange to undertake a change.

Internal knowledge threshold and capacity to import external resources

Although firms have differential abilities to overcome each type of the market failure mentioned above (such as specific safeguarding capabilities and coordination skills), our respondents stress that the main differentiating factor that contributes to diminishing the extent of market failure of the needed resources was the level of internal knowledge in the targeted resource area. Respondents stressed that a minimum internal threshold help the exchange of resources through market mechanisms. Attaining this internal threshold provides the changing firm with ‘qualitative insights’ to command the intangible aspects of the transaction in terms of capacity to specify and enforce contracts. This internal threshold also limits coordination difficulties as the changing firms have not only stronger integration capacity but also a capacity to disembed the needed resources from their context. A respondent stresses that the stronger the capabilities of the buying firm in the targeted resource exchange area, the less likely the selling firm can ‘hide’ parts of the knowledge to be transferred. We have evidence suggesting that the more knowledgeable about the needed resources the changing firm is, the greater the scope for disembedding and trading through market the needed resources.

It is also clear that the more data skills you have, the less intangible this know–how becomes. The more qualitative insights and feelings you have, the more you reduce the risk of not commanding the intangible aspects of the technology you buy. Once again, to effectively acquire a technology on the market, you need to reach this threshold, this minimum internal level of competencies.

The degree of internal knowledge in the needed resource area not only reduces appropriation concerns and coordination costs, it also helps gain external legitimacy to attract the sellers of the needed technologies. High-performing sellers of technologies or knowledge are unlikely to sell their products to buyers lacking credibility for financial, reputation, and learning reasons.

At the moment we lack external credibility (which is conveyed through market credibility, image, our position on the ranking that appears on the internet about the most attractive firm to work for in the data telco environment, etc), to attract the best people and to have sellers of technologies (such as high-tech gurus) to come to us. We hope by our involvement in this venture fund, that people will come to us to sell their technologies.

In sum, the observations suggest that market failure varies with the level of internal knowledge of the changing firm in the needed resource area. The further away the needed resources are from the changing firm’s resources, the higher the perceived degree of intangibility and risks associated with appropriation, coordination and quality of the needed resources.

There is also frequent recognition that firms must undertake internal changes such as developing new reward systems and coaching processes, if they want to acquire external resources.
The adaptation of the changing firm to receive and retain new resources is harder when the changing firm’s internal resources are not close to the needed resources. This adaptation is even more severe when the needed resources conflict with the changing firm’s resources.

A key issue is the impact of the imported skills on our internal skills, our people. It is difficult to balance imported skills with our internal people and context.

In that case, inter-organizational modes of resource exchange, notably acquisitions, are seen as mechanisms to overcome cultural barriers for importing external resources and to access to a different organizational context.

You buy those people for their culture. So, actually you don’t want to integrate them into your culture, generally speaking. You want to migrate your own people to that culture. It means: 1) major reorganisation for the telcos, 2) they will release part of their own people to migrate to this new service, and 3) put acquired people in key customer facing position in your own organisation.

I am not sure the right way to go about it. If you reorganise your existing company from top to bottom, you have organisation troubles for three years at least. I think what is important to do is that you take small bites. You ask yourself: « Which are my most important customer segments? Where am I going to have the highest degree of competition? Where I am going to be the most vulnerable? ». The answer is always the major international customers. So, create an organisation for these major international clients, and separate it from the rest of the organisation. Acquire to extend your services offering, and the people you acquired are hopefully much more customer oriented than you are and put them in charge of this new organisation.

We created a brand new company in the US with a global mandate for the data business. The name of this US subsidiary does not have even the mother name. We put in a completely new framework. The targeted people are in California; and we need to offer them an attractive corporate environment with stock options; in the new firm, we will provide this environment that we could not provide in our home country. In our home country, the stock option plan is not for the employees, but only for the 500 top managers.

These observations suggest the following propositions:

**Proposition 5a**: When a changing firm chooses an external mode to obtain resources, the lower the changing firm’s internal resource knowledge of the needed resources, the more likely the firm will use inter-organizational resource exchange (alliances and acquisitions) rather than discrete resource exchange (purchase contract) to undertake a change.

**Proposition 5b**: When a changing firm chooses an external mode to obtain resources, the greater the changing firm’s internal resources conflict with the needed resources, the more likely the firm will use inter-organizational resource exchange (alliances and acquisitions) rather than discrete resource exchange (purchase contract) to undertake a change.
However, even in the context of alliances and acquisitions, it is difficult to learn from others. Some firms can be better at designing mechanisms to increase their ability to learn from partners or targets, as we shall see latter.

**External network ties and trust**

Our data support evidence that firms that benefit from strong external resource linkages are more inclined to using the market to acquire the needed resources than using inter-organizational modes. By external resource linkages, we mean the direct and indirect linkages of a given firm with other organizations and people, such that the linkages function as inter-organizational routines. External resource linkages derive from a firm’s position in an external community of inter-organizational and inter-personal networks.

Strong ties with the external partners facilitates the search process and the identification of an appropriate seller, the enforcement of contracts and allows for more complex knowledge to be transferred.

No sole part within our firm can mobilize the knowledge that is necessary to provide integrated services. We need both internal and external partners. We want to develop a strategy on networking that consists of selecting partners with new and/or different knowledge; involving partners who are good in product development, learning, and marketing; selecting key innovators inside and outside our firm; and connecting with other initiatives inside and outside our firm.

The main goal is to support our firm in an external network and to support organizational change within our firm. The expected benefits include learning faster (joint product development, joint commercial approach); creating a strong community that knows its members, has a common goal, and shares knowledge for a mutual benefit; achieving quick introduction in client environments.

Firms with many linkages to other organizations and people will tend to have access to substantial elements of external resources. External resource linkages provide better access to resources and may reduce the risk of opportunism as familiarity breeds trust in external parties (Ahuja, 1998). Uzzi (1996) found that external resource linkages help create trust, enhance exchanging fine-grained information and joint problem solving, and facilitate the exchanges of resources that are difficult to value and transfer via market ties. Network theory suggests that external resource linkages allow a firm to use relationships that provide reciprocity to take a longer run view of economic development shifts actors’ motivations away from the pursuit of immediate economic gains toward the enrichment of future activities (Powell, 1992).

External resource linkages help a firm obtain tacit information from partners. Conversely, firms with few external resource linkages will tend to be more inwardly-focused.
**Proposition 6:** When a changing firm chooses an external mode to obtain resources, the stronger the ties that a changing firm has with external resource markets or networks, the more likely the firm will use the more likely the firm will use discrete resource exchange (purchase contract) rather than inter-organizational modes (alliances and acquisitions) to undertake a change.

**External Modes of Resource Acquisition: Alliance Versus Acquisitions**

Our data suggest that the factors that arise in the choice between discrete versus inter-organizational modes of resource exchange are present, but of greater magnitude as we move toward the ultimate external mode of resource exchange, i.e. acquisitions.

**Scope of market failure and needed change**

Each of the three forms of market failure, we presented earlier, will create incentives for acquisitions. Firms facing appropriation hazards will tend to prefer acquisitions in order to gain greater control of the resources. Firms that have weak safeguarding capabilities or whose core resources are involved in the resource exchange will tend to prefer acquisitions rather than alliances, which involve opening up to the scrutiny of alliance partner. Many respondents exhibit a defensive stance vis-à-vis alliances and tend to see them as a way to diminish their skills.

There is a fear that our partner will capture our commercial advantage, which is the value of the relationship we have with our customers. Over time, our partner is likely to enter our market. There is a perception that we will compete with our partner at the end of the contract. Many senior managers still think that we should do everything and do not see alliances as a way to enhance capabilities. They tend to see alliances more as a route to diminishing skills. Of course, this risk must be assessed. There is a risk of diminishing the value of our relationship with the customer as we provide our partner with the opportunity to be in contact with our customers. People often think that “These guys are going behind our back; they let a competitor enter our business”.

Along this line of appropriation hazard argument, our respondents often stressed the importance of the resources in the firm’s long term goals. When needed resources are central to a firm’s long term goals, then the incentive to undertake an acquisition rather than an alliance will increase. By central to a firm’s long term goals, we mean resources that the firm expects will influence many aspects its business in the future. Conversely, needed resources that do not figure at the center of a firm’s long term plans will often suit an alliance.

In order to bring the voice competencies into the data world, if you do not control the entity where you bring that know-how into, you weaken yourself. Because we will give up our core competencies, give them to our partner, and make our partner stronger. Alliances are too loose to do that. Once you have given up all you core competencies, what is your use; there is no much left?

Acquisitions provide the changing firm with greater long term control of resource use, which helps protect against appropriation problems. In addition, acquisitions provide the changing firm with greater control of resource reconfiguration, which helps ensure successful reconfiguration.
Firms requiring cooperation will tend to expect greater ongoing cooperation from employees of the merged business than from employees of a business ally.

We chose an acquisition rather than an alliance because we need to control the technology. We need to have the intellectual property rights (H3.1a); we also need to command and understand the technology (H3.1b). So we need to have data business know-how in house, so that we could develop our own products. In the alliance with Firm X, they have created their core competencies in the data environment; we have ours in the voice ones. So even in a 50/50 JV, and in spite of our strong financial resources, we were treated like the weakest technology partner with the junior role.

Firms facing institutional legitimacy problems may find it difficult to attract business allies, but may instead be able to purchase other firms if they offer a large enough payment.

We went for a long time for internal R&D, but we did not have these competencies. Then we tried to bring these competencies in through alliance. Now we do acquisitions to speed up R&D. There is a pattern. We realized that we need to reach a certain threshold of competencies before we could run effective internal development, or be an attractive and/or effective partner within an alliance.

Our data provide support for the following propositions:

**Proposition 7a:** When a firm chooses an inter-organizational resource exchange mode to undertake a change, the greater a resource exchange faces appropriation hazards, the more likely a changing firm will use business acquisitions rather than alliances to undertake a change.

**Proposition 7b:** When a firm chooses an inter-organizational resource exchange mode to undertake a change, the greater the need for ongoing cooperation by the provider and user of targeted resources, the more likely a changing firm will use business acquisitions rather than alliances to undertake a change.

**Proposition 7c:** When a firm chooses an inter-organizational resource exchange mode to undertake a change, the lower the market legitimacy of a changing firm, the more likely a changing firm will use business acquisitions rather than alliances to undertake a change.

The scope of resource exchange also enters here. Changes that require firms to obtain a particularly wide variety of resources will commonly involve acquisitions rather than alliances, owing to the joint presence of several aspects of market failure. A wide scope of resource exchange will also entail significant internal changes to integrate the newly acquired resources into the changing firm’s organization.

It is interesting to note here that the organizational change literature tends to emphasize the conclusion that firms are often reluctant to undertake substantial changes, arguing that firms are less likely to undertake changes that require resources substantially different from their existing resources. Cyert and March (1963) and Hannan and Freeman (1977) note that businesses’ routines tend to create bounded rationality in organizational decision-making, for instance, while
Levitt and March (1988) and Levinthal (1994) argue that the self-reinforcing nature of the search process can lead businesses to reduce or cease their search activity despite the presence of new opportunities. While we agree with the proposition that firms become less likely to change in such circumstances, we also observe that many firms do attempt to make changes that require new resources. Rather than undertake such changes via internal development, though, firms commonly turn to external sources, and notably acquisitions, in combination with major internal reconfigurations. We propose the following proposition:

**Proposition 8.** The greater the scope of resource exchange, the more likely a changing firm will use acquisitions rather than alliances to undertake a change.

**Internal resource threshold and bargaining position**

We have evidence that the weaker the changing firm’s internal knowledge in the target resource area, the more likely it will turn to acquisitions rather than alliances. A strong knowledge asymmetry between external partners make the changing firm a weak partner in an alliance, and does not create sound conditions for sharing knowledge. These observations are also pertinent for established and highly recognized firms, entering a new field of resources in which they face liability of newness. This resource asymmetry create barriers for learning as the partners find it difficult ‘to find a common language’. As a side effect, it also triggers bargaining of the agenda of future resource development.

We chose an acquisition rather than an alliance because we need to control the technology. We need to have the intellectual property rights; we also need to command and understand the technology. So we need to have data business know-how in house, so that we could develop our own products. In the alliance with Firm X, they have created their core competencies in the data environment; we have ours in the voice ones. So even in a 50/50 JV, and in spite of our strong financial resources, we were treated like the weakest technology partner with the junior role.

This evidence is even stronger when the needed resources conflict with the changing firm’s resources. In that case, the lack of social acceptance of the needed resources will exacerbate the above-mentioned problems of learning from the partner.

Hence, we offer the following propositions:

**Proposition 9a:** When a firm chooses an inter-organizational resource exchange mode to undertake a change, the wider the competitive gap between the changing firm’s existing resources and the needed resources, the less likely the firm will use alliances rather than acquisitions to undertake a change.

**Proposition 9b:** When a firm chooses an inter-organizational resource exchange mode to undertake a change, the more a changing firm’s existing resources will conflict with needed resources, the less likely the firm will use alliances rather than acquisitions to undertake a change.
At this point, we can note that the post-acquisition literature stresses that firms that lack relevant resources will often lack the ability to manage a successful post-acquisition resource reconfiguration process. Instead, firms that lack relevant resource will be more likely to undertake an alliance with another organization, in order to gain the participation of the other organization in reconfiguring the resources. The alliance provides a staged process of learning about the needed resources, along with the potential fit with existing resources, in which the changing firm does not need to take full responsibility for the change. However, our data show that participation in an alliance is perceived very risky and difficult, because the changing firm opens itself to the scrutiny of a partner, with whom it has an unstable relationship. The acquisition of the needed resources also depend on the effective participation of both partners, whose incentives and sharing capacity are perceived are less enforceable in an alliance rather than in an acquisition.

Along this line, the alliance literature also stresses that alliances are easier and cheaper to retract from than acquiring another business, should the resources that the inter-organizational mode provides access to prove to be unsuited to the changing environment. In sum, it seems that, even if firms recognized that acquisitions represent a difficult path to acquiring external resources, they seem to scare less failure of their acquisitions than failure of their alliance as alliances are commonly seen as the path towards diminishing their skills, in spite of the easier capacity to retract from an alliance rather than an acquisition.

The alliance with this partner was more of a shopping of core competencies than collaborating. We did not manage to find a common language. The issues which were raised were: What is more important? The voice knowledge? The data knowledge? Which market to address. It was a bargaining process instead of sharing knowledge. We did not agree on which market we should go for. We were more used to talking with big guys. Our partner was more used to talking with small guys. The basic idea is great, but if you come down to the details of the alliance implementation, you just lose yourself.

**External network ties and inter-firm learning capacity**

As we earlier mentioned with the purchase contract mode, we also find that strong external network ties provides opportunities for partners within alliance to mitigate appropriation and coordination difficulties. Firms that have been used to sharing knowledge with external partners have a higher propensity to share resources in the context of an alliance. In the telecom industry, many incumbents have traditionally been internally focused, which also control why they consider alliances in such a suspicious way and tend to prefer acquisitions to get access to new resources.

We lack the internal ability to develop alliances. It is not so much the skills per se but the attitude. A lot of seniors still think that we should do everything and do not see alliances as a way to enhance capabilities.

A second element of this argument relates to their capacity to learn with the context of an alliance. Many respondents stress their lack of competence to share knowledge within an alliance through mechanisms such as staff rotation and committees.
Our alliance with two firms from Europe and the U.S. is not very successful; at best, we exchange information; but at the moment, there is no knowledge sharing that happens.

It is important to cooperate among partners of the alliance and to develop joint projects. We first started to do an inventory of people and competencies involved in this alliance. We create a database to share this information. We try to classify the different types of competencies. For example, in the IT area, we developed the classification of project leader, system engineer, development, maintenance, and designer.

**Proposition 10:** When a firm chooses an inter-organizational resource exchange mode to undertake a change, the more internal resource linkages there are among a changing firm’s existing resources, the more likely the firm will use alliances rather than acquisitions to undertake a change.

Figure 2 presents our grounded model, which builds from our initial conceptual base to include the results of our interviews.

*** Figure 2 about here ***

**CONCLUSION**

This paper offers a comparative framework for assessing how firms chose among modes of change. The paper builds on a relatively simple set of premises to offer a substantial set of comparative predictions. We began with a basic set of concepts that emphasized resource gaps and market failures as key factors that influence the choice among internal development, discrete resource exchange, alliances, and acquisitions. We then continued by developing a set of propositions that both reflect the initial concepts and build on our interviews with twenty-five corporate development executives at twelve European telecommunications firms. The propositions emphasize the role of three factors in influencing mode choice: a firm’s capacity for internal resource reconfiguration, capacity for trading and importing resources, and capacity for inter-firm learning. Together, the propositions provide a substantial basis for understanding how firms attempt to overcome constraints on change.

One issue that arises lies in assessing the novelty of the framework, that is, what might be surprising about the predictions. In large part, we view the individual propositions are relatively common-sensical. Indeed, we view the common sense as a strength of the framework, as our simple assumptions lead to a set of predictions that appear to have face validity.

Perhaps the most novel element of the individual propositions, and of the interviews that led to them, lies in the recognition that firms actively attempt to undertake substantial change. This seemingly obvious observation flies in the face of what we believe has become a too-common tendency to view managers as inherently blind to the need to change and firms as inherently inert, subject to extreme path dependency, and unable to make discrete changes to what they do and how they do it. Instead, as even casual observation of firms in practice will confirm, almost all businesses make ongoing efforts to undertake major changes. While the efforts to change
often fail, managers typically recognize environmental forces that create needs for change and undertake substantial efforts to respond. Business theory has spent many years developing important and real insights concerning barriers to change. We believe that theory now needs to take a much more stringent effort to understanding how firms sometimes overcome those barriers.

In turn, the set of propositions and their underlying interviews together offer what we believe are useful qualitative insights concerning comparative modes of change. Each of the modes – internal development, discrete resource exchange, alliances, and acquisitions – offers relative benefits and disadvantages as a means of attempting to make substantial changes to business activities. While many years of business research has examined each of the individual modes or has compared one mode to another, little research has considered the change modes as a composite set that firms will selectively chose among as they undertake different change activities. We hope that the propositions will provide the basis for more detailed empirical research.
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Publishing.


Appendix : Interview Questionnaire

The following questions were used during the interviews. They were used as a guide to gather data and generate discussion. The first set of questions was open-ended and covers issues pertaining to the types of targeted competencies, to the modes of changes used, to the drivers and outcome of the four modes of change. The second set of questions elicited detailed investigation on the notions of resource gap and market failure.

PART I

BACKGROUND

Industry changes and firm strategy
1. What technological, competitive, market, and financial challenges is your firm currently facing?
2. In regard of these challenges, how has your strategy evolved over the past years?
3. More specifically, what role will your firm play in the telecom business?
4. How do you define the telecom business?
5. Which service markets do you plan to enter in the next 3 years?
6. In which services does your firm want to be a major player?
7. In each of these services, who are the main players?
8. In each of these services, how important is the time to market entry? Why?
   In each of these services, what other firms and/or industries have the potential to enter that market?
9. Could you specify how these challenges are changing the way you operate your business?

Needed capabilities
1. In general what skills does your firm need in order to deliver a competitive service in the near future?
2. More specifically, could you describe the knowledge and skills your firm has and which resources you intend to develop:
   - To be more customer-oriented?
   - To face the technological convergence?
   - To manage the changes in the nature of the relationship with your competitors?

MODES OF CHANGE

Practices
1. How do you intend to develop the needed competencies?
2. Considering the above mentioned skills, how has your firm been able to attract and develop these skills through the following possible mechanisms:
   - Internal development: internal training, internal product development, hiring new people
   - Acquiring specific knowledge on the market (e.g., license, software packages, consultants)
   - Setting up an alliance/joint venture business
   - Acquiring a company or business unit
3. To what extent were the needed skills or capabilities present in labor markets, asset markets, or other firms?
4. Does your firm have some regular pattern of using one of this mode, or these modes alternately? Is their any sequential process; for example, does your firm tend to use acquisitions after internal development has failed?
5. Do you use repeated practices for managing one or more of these four modes of change?
6. Does the corporate office have a particular orientation towards one of these modes? From what level of the organization do such initiatives for change emerge?

Drivers
1. Why did your firm used external modes of resource acquisition instead of internal development?
2. Could you think of some factors that would lead you to prefer an acquisition over an alliance?
3. Could you think of some factors that would lead you to prefer an acquisition over a purchase contract?
These first three questions will be adjusted according to the mode that the firm uses most for creating new resources.

4. What types of capabilities are acquired through acquisitions, alliances, purchase contracts and internal development?

Outcome
1. How effective have these different mechanisms been in building the needed skills? What types of situations suit particular mechanisms? Under what conditions would you expect a particular mechanism to be most successful?
2. What have been the challenges and pressures for your firm associated with these mechanisms? Under what conditions would you expect a particular mechanism to cause most stress?
3. What types of costs are associated with each of these mechanisms? (i.e. production, transaction, development, opportunity)
4. What aspects in this process of building new skills, do you consider to be very unique about your firm?
5. Which mechanism bears the highest potential for competence building?
6. Which mechanism bears the highest potential for failing to develop new competencies and/or destroying existing competencies?
7. In the market segments that you have chosen not to enter, what are the primary reasons why you did not enter that market? What mechanism to acquire skills were considered and why were they not used?
8. If any, what company have you used as a benchmark in the whole process of building new skills?
9. What additional steps in this change process does your firm tend to take in the near or further future?

PART II

RESOURCE GAP
1. What types of needed capabilities are associated with internal development?
   - in terms of closeness with your existing capabilities
   - in terms of relative strength of your existing capabilities
   - in terms of conflict with your existing capabilities
2. Do you have relevant in house capabilities (in research, marketing, or management) to develop the needed capabilities?
   Example: Technological convergence
   - Do you have relevant in house research capabilities to develop data networking technologies and increase the diversity of the product offerings?
   - Do you have the supporting organizational skills to accompany the development of data networking technology?
   - Do you have the marketing skills to market a ‘one stop’ shopping concept and develop branding?
   Example: Customer care
   - Do you have relevant marketing capabilities to develop competitive offerings?
   - Do you have the supporting organizational skills to develop a customer-oriented organization (for example, information system)?
   - Do you have the marketing skills to market a ‘one stop’ shopping concept and develop branding?
3. What organizational changes, if any, have been necessary to enable your firm to build these needed capabilities?
   - Organizational Structure
   - Information Exchange
   - Human Resources
   - Strategic Planning Process
   - Other?
MARKET FAILURE

1. When you choose a particular mechanism for acquiring skills, to what extent do you take into account the effect that mechanism will have on protecting the value of skills that you know have or might develop in the future?

2. When you choose a particular mechanism for acquiring skills, to what extent do you need to balance trade-offs between protecting the value of existing skills and developing new skills? In your experience, do some mechanisms provide greater or lesser ability to both protect and develop skills than others?

3. Would you consider to buy technologies/needed capabilities off the shelves?

4. If you buy a technology/needed capabilities off the shelves, would you be concerned by some property rights issues, or issues related to the intangible nature of the technology/capability transfer?

5. Could you think of some safeguarding mechanisms that would allow you to protect your knowledge in a purchase contract?

6. Would you consider to acquire the needed capabilities through an alliance?

7. If you acquire the needed capabilities through an alliance, would you be concerned by some property rights issues, or issues related to the intangible nature of the capability transfer?

8. Could you think of some safeguarding mechanisms that would allow you to protect your knowledge in an alliance?
Figure 1. Factors Affecting Modes of Business Change
Figure 2. Grounded model of factors affecting modes of change

<table>
<thead>
<tr>
<th>Resource-based &amp; institutionnal antecedents</th>
<th>Change process skills</th>
<th>Mode of change outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Close resource competitive gap</td>
<td>+</td>
<td>Low (\rightarrow) Internal Development</td>
</tr>
<tr>
<td>2. Conflicting resources</td>
<td>-</td>
<td>High</td>
</tr>
<tr>
<td>3. Internal resource linkages</td>
<td>+</td>
<td>Low (\rightarrow) External modes of change</td>
</tr>
<tr>
<td>4. Market failures</td>
<td>-</td>
<td>High (\rightarrow) Purchase contract</td>
</tr>
<tr>
<td>5. Internal knowledge threshold &amp; legitimacy</td>
<td>+</td>
<td>Low (\rightarrow) Inter-organizational modes of change</td>
</tr>
<tr>
<td>6. External network ties</td>
<td>+</td>
<td>High (\rightarrow) Alliances</td>
</tr>
<tr>
<td>7. Scope of market failure</td>
<td>-</td>
<td>Low (\rightarrow) Acquisitions</td>
</tr>
<tr>
<td>8. Scope of change needed</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>9. Competitive gap &amp; resource conflict</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>10. Inter-firm network ties</td>
<td>+</td>
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