Can Knowledge be Merged?

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1 Introduction

One plus one makes three: this equation is the special alchemy of a merger or acquisition.1 The key rationale behind acquisitions is to increase shareholder value through the combination of two organizations. Value from acquisitions is mainly realized through the exploitation of economies of scale and scope, the realization of synergies, and access to new technologies and capabilities (von Krogh et al. 1994; Ranft/Lord 2000). The common factor underlying these sources of value creation is the transfer of knowledge.2 Economies of scale and synergies are realized by combining the two joining entities’ knowledge, strategic capabilities and technology (Gupta/Roos 2001). The access to new knowledge and capabilities and the related multiplication are therefore another important lever for successful acquisitions (Bresman et al. 1999). Consequently, the acquisition literature has repeatedly outlined the importance of knowledge transfer for the creation of value from acquisitions (Barney 1988; Haspeslagh/Jemison 1991; Capron 1999).

Nonetheless, the transfer and utilization of knowledge through acquisitions can be very difficult (Barney 1988; Bresman et al. 1999). Knowledge transfer in acquisitions is contingent on the successful integration of the acquired unit (Haspeslagh/Jemison 1991). The integration not only needs to be successful at the operational or procedural level, but also at the human level: the employees need to share the same organizational context and identity in order to develop a cooperative relationship (Berry 1983; Grant 1996a; Birkinshaw et al. 2000).

However, it is precisely in the integration process where most merger and acquisition failures can be found (Jemison/Sitkin 1986). Differences in organizational culture and processes, managerial systems, and communication styles are substantial obstacles on the way to integration. According to a number of empirical studies done by management consultancies, more than two thirds of all acquisitions fail (Jansen 2002). These frequent failures have caused considerable criticism. Researchers, especially, have

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1 A merger can be defined as a transaction during which either two or more independent companies merge. In an acquisition, a company acquires direct or indirect control of the whole of another, or at least parts of one other company. Whereby two or more companies create a new entity in a merger, in an acquisition the acquired company loses its economic and legal autonomy (Gerpott 1993). For the purpose of this study, we mostly use the term “acquisition” when referring to both mergers and acquisitions.

2 For this study, we use a definition of knowledge that includes both the relatively tacit “know-how”, defined as individuals’ skills or expertise, and the more codified “know-what” or an organization’s information (see also Kogut/Zander 1992; Bresman et al. 1999). The literature makes no definite distinction between “knowledge transfer”, “knowledge creation”, or “learning” (see, e.g., Nonaka/Takeuchi 1995). In this study, we mostly use the first two terms interchangeably.
criticized the high costs and the time that top management devotes to integrating acquisitions, all of which is at the expense of the core business (Hitt et al. 1990). Acquisitions have been related to top management's personal interests and hubris, rather than to rational strategic considerations (Shleifer/Vishny 1990; Hayward/Hambrick 1997). Are acquisitions therefore a bad habit that successful companies should get rid of as soon as possible?

In this article, we address an often neglected positive side of acquisitions: if managed correctly, acquisitions may play an essential role in the organizational knowledge creation and multiplication process. Knowledge creation's strategic importance, based on a concise review of the organizational learning literature, is explained in section two of this study. Acquisitions are then compared to alternative internal and external forms of knowledge creation. We conclude that acquisitions play a special role in knowledge creation that cannot be fully substituted by internal learning activities. In section three, the challenges related to the integration of the two joining organizations' knowledge bases are addressed. Four main obstacles to successful knowledge integration are presented and described. Section four is dedicated to the managerial role in the knowledge integration process. Several recommendations are presented on how to overcome the various obstacles related to knowledge creation and integration. Finally, we summarize our work and derive a few fundamental conclusions.

2 Knowledge Creation: The Prominent Role Played by Acquisitions

Peter Drucker predicted the emergence of the knowledge society in his 1968 publication *The Age of Discontinuity*, introducing knowledge as the dominant factor of production in the future. In this section, we describe knowledge creation's strategic relevance for the firm. Alternative paths to knowledge creation are discussed and compared. Acquisitions' particular role in these alternatives is stressed and related to concepts from strategic management, learning theories, and transaction cost theories.

2.1 The Strategic Role of Knowledge Creation

Proponents of the knowledge-based view of the firm stress the importance of knowledge as the firm's primary source of value: “The essence of the firm is its ability to create, transfer, assemble, integrate, and exploit knowledge assets” (Teece 1998, 75; see also Kogut/Zander 1992; Quinn 1992; Grant 1996b, Probst/Raub/Romhardt 1999). Knowl-
Knowledge assets are integrated to establish competences that are, in turn, the foundation of the firm’s product and service offerings to the market (Leonard-Barton 1992; von Krogh/Roos 1996). Knowledge’s strategic value is explained by its highly tacit and socially complex character (Winter 1987; Kogut/Zander 1992). Tacit knowledge consists of employees’ skills and expertise that cannot be “specified and communicated independent from the possessor of the knowledge” (Winter 1987, 168). Socially embedded knowledge resides in the formal and informal relationships among employees and groups rather than in any particular individual (Nelson/Winter 1982; Barney 1991). Tacit and socially embedded knowledge cannot be easily imitated or acquired by competitors, which makes it a critical and sustainable source of competitive advantage for firms (Winter 1987).

If knowledge is of fundamental strategic relevance to the firm, the main challenge for management is to gain access to the knowledge that is crucial for the realization of the firm’s strategic objectives. The organization needs to articulate its strategic objectives and, at the same time, to identify the knowledge required to execute the intended strategy. A comparison between the required knowledge and the organization’s present knowledge base, reveals the gaps in its strategic knowledge (Zack 1999). Organizations are frequently confronted by knowledge gaps - particularly in dynamic and highly competitive market environments. Technological innovation, or changes in customer requirements, force the firm to permanently renew and extend its knowledge base. The central question is: how can the missing knowledge be obtained? In general, there are two options: the internal development of knowledge and its external acquisition.

2.2 Internal vs. External Knowledge Creation

Knowledge creation is always a “make-or-buy” decision between the exploitation of existing internal knowledge and the exploration of new external knowledge. Exploitation, or the permanent reuse of a firm’s knowledge base, contributes to the refinement of existing knowledge and routines as well as allowing the recouping of initial investments in knowledge (Cyert/March 1963). However, organizations limited to the repeated use of their own knowledge bases run the risk of gradually becoming rigid, inflexible, and slow (Leonard-Barton 1992; Miller 1993). The more established routines are refined, the less variety there is in the knowledge base, which in turn hinders the creation and acceptance of new knowledge (Huber 1991). This increasing conformity of knowledge reduces flexibility and hampers learning and adaptation (Miller 1993). If organizations fail to adapt to changing market conditions, they are prone to decline (Hannan/Freeman 1984). Over time, organizations need to strike a balance between internal knowledge creation and external acquisition of new knowledge (March 1991; Levinthal/March 1993). Exploration, or the external acquisition of knowledge, contrib-
utes to the renewal and expansion of the firm’s knowledge base. Newly acquired knowledge and expertise challenge existing routines and generate momentum for learning and innovation.

Moreover, external knowledge acquisition is often more efficient in terms of the required time and resources when compared to internal knowledge creation. The issue of time becomes critical in dynamic and highly competitive market environments. In dynamic industries, opportunities arise and disappear at a speed that does not allow long reaction times. Internal knowledge-creation processes are complex and time-consuming. Tacit knowledge can only be established through lengthy experience and learning-by-doing (Winter 1987). Due to the required time and resources, developing knowledge “organically” is also very costly, and success cannot be guaranteed.

The external acquisition of knowledge is thus often a viable alternative with which to expand the knowledge base more quickly and at lower costs and risk. Exploring the knowledge in the external market is furthermore essential for renewing and revitalizing the firm’s knowledge base – a function that cannot be fully compensated by internal knowledge creation.

2.3 External Knowledge Creation and Market Failure

External acquisition of new knowledge is an essential source to provide the firm with the resources required for strategy implementation. Barney (1986, 1232) argues that “whenever the implementation of a strategy requires the acquisition of resources, a strategic factor market develops”. While there is a market for knowledge resources, it has a number of imperfections that hinder the acquisition of external knowledge through this market.

The first obstacle to external knowledge acquisition lies in the characteristics of knowledge itself. More explicit types of knowledge can be articulated and codified in reports, manuals, and other documents. A firm can, for instance, easily acquire market reports or software manuals. Conversely, the strategically more relevant tacit knowledge is ingrained within the firm and simply transferring it to another corporate context would lead to a reduction in its value (Winter 1987; Badaracco 1991; Chi 1994). As tacit knowledge can only be used within its social context, it seems to be irrational to wish to acquire separate parts of such knowledge. Markets for knowledge resources are thus incomplete because of the immobility of tacit knowledge (Dierickx/Cool 1989; Grant 1996).

A second obstacle with regard to knowledge exchange comes in the form of an information dilemma. Due to the already underlined tacit and path-dependent nature of
knowledge, its future value is extremely difficult to assess (Chi 1994). While physical assets are measured in financial statements, knowledge – in particular tacit knowledge - is excluded. Buyers can never be certain what knowledge will be acquired due to its inherent tacitness and the risk of attrition (Coff 1999). However, expectations about the future value of a resource – factored into the price paid – are central to the market process (Barney 1986). Asymmetric information increases the risk that the buyer could be overpaying or buying worthless assets (Coff 1999). If market agents have differing expectations, this could lead to competitive imperfections and may cause the collapse of market exchanges.

A third obstacle can be explained by means of the transaction cost theory. Proponents of this theoretical perspective argue that an internalization of resources within the company is more efficient than their purchase on the market if transaction costs are incurred (Coase 1937). The transaction costs of knowledge-related resources are considerable due to the imperfect information that is available on the invisible and tacit properties of knowledge (Chi 1994). Kogut and Zander conclude: “What firms do better than markets is the sharing and transfer of the knowledge of individuals and groups within the organization” (1992, 383). It is therefore apparent that due to the existing transaction costs, the internalization of knowledge is more efficient than a market purchase.

Given these circumstances, the strategically relevant tacit knowledge cannot be acquired as a commodity via the market. Since its value depreciates without its organizational context, knowledge has to be acquired together with this context. The above-described market imperfections are thus partly resolved. The individuals and groups that hold the tacit knowledge can be tied to the organization through contracts and their integration into the organization. The information problem is consequently reduced, since the value of knowledge in its corporate context is externally observable. Transaction costs are eliminated through the hierarchical control of the acquired entities. Besides mergers and acquisitions, strategic alliances and joint ventures represent modes of governance that provide at least a quasi-common organizational context for knowledge acquisition (Borys/Jemison 1989).

2.4 External Knowledge Creation through Alliances

Are strategic alliances, as a means to acquire external knowledge, a valid alternative to acquisitions? To some extent this seems to be the case: Collaboration in strategic alliances or in joint ventures represents the trading of mutually beneficial knowledge between companies (Hamel et al 1989, Büchel/Prange/Probst/Rüling 1998). Joint ventures allow for the “(…) transfer of organizationally embedded knowledge which cannot be easily blueprinted or packaged through licensing or market transactions” (Kogut 1988, 319).
Alliances provide access to other firms’ knowledge resources while simultaneously avoiding the problems of integrating a whole company (Hennart/Reddy 1997). Compared to acquisitions, alliances are also more flexible and easier to terminate. Firms can establish a multitude of alliances in the same field, which increases the diversity of its sources of knowledge and learning (Vermeulen/Barkema 2001). This reduces the inherent risks and the required investments, while increasing the variety and richness of the accessible knowledge.

However, alliances mean collaboration between competitors, which severely limits the extent of a potential knowledge exchange. Individuals will only contribute to the knowledge exchange if they share a sense of identity or belonging with their colleagues (Bresman et al 1999). Since full cooperation, significant trust and open communication are a basic condition for a proper knowledge exchange, the acquisition of knowledge from competitors is limited to very narrowly defined areas. In general, mergers and acquisitions appear to be a superior means due to the creation of a common entity that provides the organizational context for cooperation.

2.5 External Knowledge Creation through Acquisitions

The tacitness and social embeddedness make knowledge difficult to acquire in factor markets, or even through strategic alliances (Kogut/Zander 1992; Liebeskind 1996; Coff 1999). Due to its structural anchorage in the organizational context, its experience-based development and hard-to-describe and formalized status, the acquisition of knowledge has to be linked to the acquisition of the whole organization in which the knowledge resides. Mergers and acquisitions are nevertheless the mode of governance with the highest potential for knowledge creation and integration (Leonard-Barton 1995).

The extent and quality of the knowledge transfer between two joining organizations depend on the evolution of a cooperative relationship. Acquisitions play a particular role in this context: “An acquisition represents the bringing together of two social communities that over a period of years (...) become a single social community” (Bresman et al 1999, 442). The flow of knowledge between the two entities will be limited in the beginning, but will steadily increase in both quantity and quality as a common social community emerges. In the beginning, it is mainly the acquirer that shares knowledge with the acquired firm. In the later stages, the knowledge transfer is reciprocal and more sophisticated (Coff 1999). It is precisely that evolution in the mode of governance (from “market” to “hierarchy”) that sets mergers and acquisitions apart from other modes of external knowledge acquisition (Bresman et al 1999).
Moreover, Cohen and Levinthal (1990) argue that mergers and acquisitions not only enlarge the knowledge base, but have an enhanced ability to create new knowledge. The two firms’ knowledge base is broadened through intensive in- and outflows of knowledge (Gupta/Govindarajan 2000). Acquisitions may also revitalize acquiring organizations by fostering the development of new knowledge. Much like other radical changes, acquisitions represent a disruption of organizational routine and may also “break through rigidity and inertia and infuse the firms with fresh knowledge” (Vermeulen/Barkema 2001, 457). Acquisitions thus prevent rigidity and improve the firm’s ability to quickly react to changes in its environment. However, acquisitions may also divert managerial and financial resources away from internal growth and innovation (Hitt et al 1991). Ultimately, successful firms thus strike a balance between internal knowledge exploitation and innovation, and the external exploration of new knowledge through acquisitions (Vermeulen/Barkema 2001).

3 Knowledge Integration: A Severe Challenge to Acquisitions

If mergers and acquisitions are often the only feasible way to obtain new knowledge, our research focus must now shift to the question of how knowledge can be merged. Ironically, the performance of both acquiring and acquired firms mostly declines after their combination (Ravenscraft/Scherer 1989). A major cause of the unsatisfactory performance is the challenges that are associated with the integration of the two companies (Haspeslagh/Jemison 1991). What are the main challenges related to a successful integration of acquired knowledge?

3.1 Synergies through Integration

Value generation in mergers and acquisitions is largely a question of how effectively the merging companies’ intangible resources are combined. If the return from the combined resources is greater than the sum of its individual parts, one can speak of a synergy (Ansoff 1965). Efficiency gains from synergies are consequently the central underlying motivation for mergers and acquisitions (Trautwein 1990).

Four groups of synergies in mergers and acquisitions can be distinguished: (1) operating, (2) managerial, (3) financial, and (4) collusive synergies (Rumelt 1974; Chatterjee 1986). Financial and collusive synergies are achieved through lower capital costs and increased purchasing power. Both are more or less automatically realized through the
increase in size (Trautwein 1990). Operating and managerial synergies are derived from both cost reductions through economies of scale and increased revenues through improved product differentiation and market power. Contrary to financial and collusive synergies, they are dependent on the successful integration of the two companies’ operational and managerial capabilities: “If synergies other than lower costs of capital are a merger’s rationale, integration is mandatory” (Trautwein 1990, 292).

The fundamental challenge of integration is combining two knowledge bases into a new entity. Knowledge integration requires three consecutive activities (Spender 1992). First, the knowledge has to be transferred between the two combining entities. Second, the transferred knowledge has to be applied in the new context. Third, the merged company has to create new knowledge through its merged knowledge base. Knowledge integration is thus complicated by the fact that complex learning - above and beyond a simple transfer of assets - is required from both firms (Haspeslagh/Jemison 1991; Bresman et al 1999). The creation of new knowledge through the synergistic combination of the two knowledge bases is the key source of value creation.

Knowledge integration is hampered by numerous obstacles. In the following, the four central obstacles to knowledge integration in mergers and acquisitions are described; notably, the (1) knowledge, (2) strategic, (3) personal, and (4) organizational obstacles to knowledge creation.

### 3.2 The Knowledge Obstacle

Synergies in acquisitions are realized from the integrative exchange of knowledge within the new entity (Chi 1994). The nature of knowledge within the firm has to be reexamined in order to understand a first category of barriers that hinders knowledge transfer and creation. As already indicated in section two, the embeddedness of knowledge in its corporate context makes it imperfectly imitable and restrains its mobility. Tacitness, complexity, and specificity are further obstacles in the trading of knowledge (Reed/DeFillippi 1990). Tacit knowledge’s “barriers to imitation” are the source of its strategic value, but at the same time they are its “impediments to trading” (Chi 1994). Each organization’s knowledge base has its own systematic structure and the differences inhibit knowledge transfer (Lam 1998). The creation of a common corporate context through the combination of two formerly sovereign structural systems is essential for the integration of tacit knowledge. The more diverse the knowledge bases of the merging firms are, the more difficult integration becomes.
3.3 The Strategic Obstacle

The strategy literature argues that a strategic fit between the acquiring and the target company is crucial to the value creation in mergers and acquisitions (Jemison/Sitkin 1986). Strategic fit can be defined as the degree to which the target firm augments or complements the parent’s strategic goals. A strategic fit between the acquiring and target firm is also important for knowledge integration. Synergy realization from the combination of two knowledge bases is a function of their similarity (Larsson/Finkelstein 1999), meaning that their properties show a certain degree of relatedness (Kogut/Zander 1992). Merging firms need to possess some degree of common knowledge in order to activate the integration: “The importance of common knowledge is that it permits individuals to share and integrate aspects of knowledge which are not common between them” (Grant 1996a, 115). Much along the same lines, Nonaka and Takeuchi (1995) state that a certain “redundancy” is necessary for a successful exchange of knowledge. Incompatibility in the knowledge structures can generate many difficulties and conflicts in joint work (Lam 1998).

The problems associated with knowledge transfer increase with geographical and cultural distance (Bresman et al 1999). Social institutions influence firms’ strategies and work practices and, indirectly, the organization of knowledge. Differences in the organization of knowledge between firms from different societal settings impede effective knowledge sharing across national boundaries (Lam 1998). In general, these arguments are practically in line with findings from strategic management that the acquisition of firms in unrelated or foreign markets had a higher risk of failure (i.e. Anand/Singh 1997).

3.4 The Personal Obstacle

Post-acquisition integration efforts often start with rationalization measures aimed at the realization of cost reductions and quick wins in order to refinance parts of the initial investment. Duplicate facilities are closed and the redundant headcount is reduced in order to make rapid progress on the cost side. The consequence is often a demotivated and scared workforce (Birkinshaw 1999, Cascio 2002).

A demotivated workforce could be particularly dangerous if the acquired firm’s knowledge assets are critical for the acquisition’s success. Because a great deal of the acquired knowledge resides within particular individuals, or in the social networks of teams (Badaracco 1991; Kogut/Zander 1992), employee resistance has a negative effect on knowledge integration (Larsson/Finkelstein 1999). Especially in the uncertain and insecure post-merger environment, employees are often very reluctant to share their knowledge with their new colleagues (Empson 2001). The acquired employees’ atti-
tude towards the acquisition and the implementation process also has a major impact on their willingness to transfer knowledge (Kim/Mauborgne 1998).

An even more critical risk is the loss of knowledge through the attrition of key employees during the integration phase (Birkinshaw 1999; Probst/Knaese 1999). Studies have shown abnormally high turnover rates among acquired firms’ executives (Cannella/Hambrick 1993; Krugh/Hegarty 1997). Managerial turnover, and the consequent loss of their knowledge and skills, have been found to be extremely harmful to post-acquisition performance (Cannella/Hambrick 1993; Singh/Zollo 1998, Probst/Knaese 1999). However, knowledge is not limited to managers, individuals all over the firm possess a large part of the most valuable knowledge (Nelson/Winter 1982; Badaracco 1991; Ranft/Lord 2000). The technological knowledge, for instance, resides in researchers, engineers, and programmers and often in whole teams and networks. Employees also represent a firm’s capacity to transfer and receive knowledge. While not all employees are critical in terms of their knowledge, there are key knowledge workers in all parts of the organization. If a significant number of these knowledge workers leave the firm, organizational capabilities and skills will perish (Nelson/Winter 1982; Ranft/Lord 2000).

3.5 The Organizational Obstacle

One important decision in the post-acquisition process concerns the acquired firm’s level of integration. The acquired company can either be integrated into the parent company, or remain a relatively autonomous stand-alone unit. A full integration into the acquiring company increases the complexity and the uncertainty of the post-acquisition process (Jemison/Sitkin 1986). This process is particularly time-consuming and represents a disruption of established routines, often affecting employee morale negatively, particularly in the acquired unit (Singh/Zollo 1998). The integration process is also costly and requires considerable management attention (Ocasio 1997).

However, high levels of organizational integration are necessary to exploit strategic interdependencies and enable knowledge transfer (Jemison/Sitkin 1986; Larson/Finkelstein 1999). While knowledge is grounded in the experience and expertise of individuals, the organization provides the physical and social structure for the exchange of this knowledge (Teece 1998). Acquisitions furthermore lead to the need for the integration of two formerly sovereign cultures into one new entity. The development of a common culture is a necessary enabler for successful knowledge exchange, since individuals have to share a common identity to share their knowledge (Kogut/Zander 1992).

Acquiring firms are thus confronted with the integration dilemma: integration is essential to gain access to the acquired knowledge base, but bears various risks that may
cause the failure of the overall acquisition. How can these challenges be addressed? In the following section, we provide some managerial recommendations on how to mitigate some of the described obstacles to knowledge integration.

4 Knowledge Integration: Managerial Actions

The previous section provided an overview of the challenges that hinder knowledge integration and the realization of value from knowledge-based synergies. As Jemison and Sitkin state, some “impediments may be inherent in the process itself and therefore not amenable to direct managerial control” (1986, 162). However, proactive management efforts play an important role in the success of the knowledge integration process (Inkpen/Dinur 1998). In the following subsections, four key managerial actions that are essential for successful knowledge integration are described: (1) the assessment of the strategic and organizational fit, (2) active communication, (3) human integration and retention, and (4) structural integration and autonomy.

4.1 Assessment of Strategic and Organizational Fit

Acquiring companies have to assess the target companies’ strategic and organizational fit early in the process (Jemison/Sitkin 1986; Haspeslagh/Jemison 1991). If knowledge synergies are the motive for the acquisition, there is an increased need for strategic and organizational interdependence.

From a strategic perspective, acquisitions in unrelated market segments may be particularly difficult since the dominant strategic logic and the related knowledge bases differ considerably (Singh/Montgomery 1997). Empson (2001) found that employees resist knowledge transfer if they perceive significant differences in the combining firms’ knowledge bases. The strategy literature found that consolidation-oriented acquisitions are generally more successful than diversification-oriented acquisitions (Anand/Singh 1997). This is explained by the higher benefits derived from the resource sharing between acquiring and acquired firms (Porter 1987). Knowledge-intensive acquisitions should therefore be limited to related areas where at least a basic fit of the two firms’ knowledge bases can be expected.
From an organizational perspective, there are numerous studies that have shown that differences in organizational culture and management style damage post-acquisition performance (Datta 1991; Vermeulen/Barkema 2001). The more corporate cultures are related, the higher the potential for a successful integration (Larsson 1990; Cartwright/Cooper 1992). Problems associated with knowledge transfer increase with cultural distance (Bresman et al. 1999; Birkinshaw et al. 2000). Studies have shown that the degree of cultural fit between the two merging companies is likely to have a direct effect on the value creation potential of the merger (Gupta/Roos 2001). An assessment of the cultural fit is thus an indispensable task of the due diligence prior to the acquisition.

Acquirers need to evaluate both the strategic and the organizational fit before making an acquisition. If the transfer of knowledge is critical to the acquisition’s success, there has to be a certain fit between the two companies. It is important to state that differences between acquirer and acquired organizations are not generally negative. The combination of complementary skills and knowledge bases can be a valuable catalyst for synergy creation and learning (Krishnan et al. 1997). However, differences are only beneficial if they are not too large to be overcome in the process of synergy creation and knowledge transfer (Vermeulen/Barkema 2001). A certain degree of prior-related knowledge is required for new knowledge to be absorbed and applied – a phenomenon that Cohen and Levinthal (1990) called “absorptive capacity”.

### 4.2 Active Communication

Extensive communication is of major importance for the post-acquisition integration process (Haspeslagh/Jemison 1991). Communication helps to avoid the disruptive consequences of administrative and cultural integration (Puranam/Srikanth 2004). A lack of transparency and information can cause anxiety among employees that hinders the integration process. Knowledge transfer is particularly dependent on frequent communication between employees from both companies (Bresman et al. 1999). The transfer of tacit knowledge is communication-intensive and requires weeks or months of intense interaction between the involved parties (Szulanski 1997). Moreover, communication is also essential for the creation of a “social community” that facilitates the knowledge transfer (Kogut/Zander 1992). Empirical studies confirm that as far as mergers and acquisitions are concerned, there is a positive relationship between communication and knowledge transfer (Bresman et al 1999).

While communication is generally important for knowledge transfer, there are certain modes of interaction that are particularly valuable in the case of mergers and acquisitions. First of all, rich communication techniques, such as technical meetings, extended visits, and joint training programs (Bresman et al 1999), that focus on intensive face-to-face interaction, should be used. Besides the task-related components, these techniques
also have social components that contribute to the normative integration of the combining firms (Ouchi 1980). Rich communication is required to establish trust and promotes the evolution of a common culture and identity. An excellent example is the so-called communities of practice that build a platform for the communication between subject matter experts throughout the organization.

Besides the direct face-to-face communication, the establishment of an effective knowledge management infrastructure is an additional requirement for knowledge transfer (Probst et al. 2003). Especially in large and complex organizations, technology-based communication tools are required to facilitate and structure the knowledge exchange process. Besides the technological infrastructure, a culture of trust and cooperation is indispensable for the effective implementation of knowledge management (Davenport/Prusak 1998). Only in such an organizational culture, can the individual employee be sure to be rewarded for knowledge sharing.

### 4.3 Human Integration and Retention

If knowledge assets are critical for the success of an acquisition, the integration process has to be managed with care. The recommendation is basically to tackle the difficult, human aspects of an acquisition first. The integration process should initially focus on human integration, before addressing operational rationalization measures (Birkinshaw 1999). The latter would cause anxiety and resignation among employees of the acquired company and increase the risk of core knowledge workers leaving the firm. Human integration means generating satisfaction - and ultimately a shared identity – among the employees of the merged firm (Birkinshaw 1999). This objective can only be achieved through a number of consequent activities initiated by the acquirer’s management.

In the initial phase after the acquisition, the central task is to alleviate the negative effects of the change. Acquiring firms have to reassure employees in the acquired unit that their jobs are not threatened and that they will play a valuable role in the future organization. The establishment of trust is central during the early phase. Core knowledge workers, such as engineers or scientists, should be treated with particular patience and respect. The retention of these individuals and of their knowledge and skills is an important determinant of post-acquisition performance (Ranft/Lord 2000). Besides financial incentives, the retention of key employees may be strengthened by granting the acquired organization autonomy. Ranft and Lord (2000) also show that maintaining, or even increasing, the acquired executives’ responsibilities validates the acquired firm’s status and has a positive effect on both managerial and employee retention. Graebner (2004) found that the acquired leaders can play a crucial role in both enabling greater integration and mitigating the risk of business disruption due to their superior knowledge of the acquired organization.
In the later phases, the challenge is more to generate a common organizational culture. Once trust has been established and the new culture stabilized, management can very slowly introduce task integration and cost reduction measures. In the next section, we describe the alternatives to and solutions for the structural integration that should be addressed once the human integration has been successfully completed.

## 4.4 Structural Integration and Autonomy

Following the human integration described above, the structural integration of the acquired firm has to be considered. The two basic options regarding the post-acquisition organization are structural integration and structural separation. Basically, the acquired firm is either completely absorbed by the acquirer, or it retains its distinct identity and separate structure within the merged firm (Haspeslagh/Jemison 1991; Ranft/Lord 2002).

Structural integration allows for better exploitation of the acquired firm’s knowledge by linking it to the acquirer’s own complementary knowledge base (Teece 1986; Doz 1988). Mechanisms of structural integration, such as the homogenization of organizational processes, common hierarchical control and the rotation of key personnel, can be used to leverage the acquired knowledge base. By forming joint organizational units, hierarchy and feedback, the coordination mechanisms can be effectively used to enable knowledge transfer and coordination (Puranam/Srikanth 2004).

However, such mechanisms often have negative side-effects. Structural integration involves changes to the organizational processes and procedures that cause disruptions of existing organizational routines (Ranft/Lord 2002). Due to the lowered task autonomy, integration may lead to a foundering employee motivation (Haspeslagh/Jemison 1991). Therefore, structural integration may damage the acquired firm’s ability and willingness to produce new and innovative knowledge (Puranam/Srikanth 2004). Intensive integration efforts furthermore require the acquiring firm’s management and financial resources considerably and will subsequently divert them from internal growth and innovation (Hitt et al. 1991; Graebner 2004). Consequently, structural integration may harm the ability to innovate in both the acquiring and the acquired organization. In other words, structural integration increases the transfer of existing knowledge to the acquiring firm, but harms the innovative capability to create future knowledge.

The organizational form of the merged entity is thus dependent on the underlying knowledge-related acquisition motives. If the target firm’s superior capabilities in respect of ongoing innovation and knowledge creation are critical for the acquisition’s success, the autonomy of the acquired unit has to be preserved (Puranam/Srikanth 2004). In this case, a network structure with relatively autonomous units might be best.
The knowledge integration is achieved through rather informal coordination mechanisms, such as virtual teams or communities of practices that share knowledge between the different units. Such lateral network linkages between organizational sub-units provide experts and projects with direct and rapid access to other units that possess related knowledge (Gupta/Govindarajan 2000; Hansen 2002). Network structures thus enable knowledge transfer without destroying the acquired units’ distinctive capabilities and knowledge.

5 Conclusion

Access to new knowledge sources is fundamental to an organization’s ability to implement innovative strategies that ensure the firm’s future success. Mergers and acquisitions are often the only practicable way to rapidly gain access to fresh knowledge. Moreover, they are critical to the revitalization and renewal of an organization’s knowledge base. However, the integration of knowledge from acquired firms is complicated by a number of considerable obstacles that regularly cause the failure of acquisitions.

In this paper, we have shown that the inherent obstacles to knowledge integration can be overcome through deliberate managerial actions along the acquisition process. Initially, a careful evaluation and selection of target companies in respect of their strategic and organizational fit is mandatory. Once the transaction has been completed, the human integration of the two entities takes center stage. Employee retention measures, as well as active communication are essential to contribute to the evolution of a common culture of cooperation and trust. Following a successful human integration, the right choice of organizational arrangements is critical to the acquired firm’s structural integration. Network structures represent an interesting alternative that allows knowledge sharing while preserving the acquired unit’s distinctive capabilities.

Knowledge can be merged; however, the ability to do so is contingent on management’s consideration of the fundamental “rules of the game” that we have touched upon in this article. Value creation in knowledge-based acquisitions is far from being an automatic effect. The justification of knowledge acquisition as a key rationale in mergers and acquisitions is not limited to the acquired knowledge itself, but has to be derived from the ongoing knowledge integration process through active management efforts.
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