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Knowledge development in mergers and acquisitions

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Contents

1 INTRODUCTION.....	3
2 THE M&A LITERATURE	3
2.1 Explicit and tacit knowledge	3
2.2 A resource-based view of the firm	4
2.3 Effects of post-merger integration	5
2.4 The process of integration	7
3 CONCLUSION	8
4 REFERENCES	9

1 Introduction

This working paper reviews selected parts of the literature on knowledge development in mergers, aiming to contribute to an ongoing empirical study of the merger between Statoil and Hydro. The Integration Trailing Research Program (*Integrasjonsforskningsprogrammet*) sets out to study the integration of Statoil and Hydro. A merger brings about a number of questions related to knowledge and competencies. Integrating two organizations that have different cultures, norms, values, attitudes, as well as having different systems, incentive schemes, production technologies, etc. may create uncertainty and stress to both employees and management (e.g. Marks and Mirvis, 1992). With regard to knowledge and competencies there are particular two main challenges in a merger: (1) the inability to develop knowledge in the post-merger process (including knowledge -sharing, -transfer, -creation, and access to existing knowledge), and (2) the loss of valuable employees. The literature on M&As has mainly been concerned with the first question. This review is restricted to studies within organization theory and strategic management. All the studies included look at the firm from the perspective that knowledge is one main valuable resource—a resource that may be lost during the post-merger integration. Literature on organizational change and restructuring in general is not included in this review.

2 The M&A literature

Like the M&A literature in general, the literature on knowledge resources in M&As often fails to distinguish between mergers and acquisitions (see Stensaker et al., 2009). The majority of the empirical studies in this review are studies on acquisitions. Acquisitions imply an imbalance in the power relations between the acquirer and the acquired firm. Still, some of the findings may apply to mergers, in particular when the merging firms are of unequal size or have different power relations. For discussion and analyses of knowledge transfer in the merger between Statoil and Hydro, see Underhaug (2009) and Odland (2009).

In order to include a broader range of research, the term “knowledge development” is used. Knowledge development embraces both knowledge -transfer, -sharing, and access to existing knowledge, as well as creation of new knowledge. The literature has mainly focused on knowledge transfer, however, getting access to existing knowledge and create new knowledge is essential in a merger.

2.1 Explicit and tacit knowledge

The literature typically distinguishes knowledge along two dimensions. First, knowledge can be either explicit (codified) or tacit (uncodified) (Kogut and Zander, 1992). Explicit or codified knowledge may be standardized, written, and can be made accessible to all

employees. Tacit or uncodified knowledge is often the result of locally developed experience, which is context-dependent. Second, another distinction can be found between knowledge at the individual level, and knowledge at the organizational (or aggregated) level. “..knowledge is held by individuals, but is also expressed in regularities by which members cooperate in a social community (i.e. group, organization, or network)” (Kogut and Zander, 1992). Thus, knowledge is embedded in the organizing principles by which people cooperate within organizations. In studies of M&As, the emphasis is typically on tacit knowledge which may be difficult to transfer.

Knowledge sharing refers to the process by which knowledge is identified, transferred, and put to use by the receiving end (Szulanski, 1996). Tacit knowledge is inherently difficult to transfer because it cannot be fully articulated through written and verbal communication but must be learned through experience (Empson, 2001). The barriers for knowledge transfer may be accentuated when two organizations merge, due to for instance employees having traditions, different systems, insecurity regarding the future etc.

2.2 A resource-based view of the firm

The resource-based view of the firm is the dominating perspective within the M&A literature as well as in strategic management in general (e.g. Barney, 1991). The resource-based view pose one main question: Why do some firms perform better than others – or more specifically – why are some firms able to establish positions of sustainable competitive advantage? This perspective regards the firm as consisting of a certain set of resources that may constitute a basis for competitive advantage. Inspired by the resource-based view, Grant (1996) develops a knowledge based view of the firm, which has been influential in the literature on post-integration of M&As. In this perspective “.. the firm is conceptualized as an institution for integrating knowledge” (Grant, 1996).

Most of the literature on knowledge development in M&As emphasizes tacit or socially complex knowledge. This knowledge is difficult to imitate and thus presents a potential for competitive advantage for the firm. However, when knowledge is hidden, it is vulnerable because key employees may leave, taking the knowledge with them. In other words, in a merger the ability to share knowledge may constitute a source of competitive advantage; however, it may also be damaged or destroyed in the process of integration. For instance, a merger may challenge knowledge development by breaking up the structures that support this type of knowledge (see Meyer, 2008). This accentuates the interest in how to implement integration during the post-merger. The post-merger integration process is looked upon as the opportunity for value creation (Haspeslagh and Jemison, 1991; Jemison and Sitkin, 1986), and much of the research focus has therefore concentrated on the integration process. In the post-merger process getting access to both existing knowledge and future capabilities are important.

Another important theoretical basis in the M&A literature, drawing on economical and sociological traditions, is the theory of relative standing (Frank, 1985; Hambrick and

Cannella, 1993). This perspective points to the power-relation between the two merged firms or the acquired-acquirer. They emphasize that characteristics of the context of the firms, the size, the relative performance etc. may influence the extent to which a merger or an acquisition is successful.

2.3 Effects of post-merger integration

The ability to transfer and develop knowledge depends on the level of integration of the merging firms. During the post-integration process, one of the central dilemmas in managing M&A is the choice between integration and separation. Should the merged firms (or the acquirer and the acquired firm) integrate their operations, partly or entirely, or should they stay autonomous? The two archetypes of post-merger integration are structural integration and structural separation (Puranam and Srikanth 2007). Structural integration implies that one firm is completely integrated into the other firm and loses its identity as an organizational unit. Structural separation means that both firms preserve distinct organizational identities. Often one will find situations between these extremes, for instance parts of the organizations being integrated while others stay autonomous. Integration or separation trigger certain consequences. Structural integration enhances the acquirer's effort to control the knowledge embedded in human capital, it enables knowledge transfer and coordination. It will typically result in common procedures, common goals, etc, enhancing knowledge sharing (Puranam and Srikanth, 2007). However, integration may reduce the capacity for innovation due to loss of autonomy for the acquired firm. This may be due to changes (and thus disruption) in work practices related to standardization, or by lowered motivation and productivity, weakening the link between reward and effort. During integration, there is a risk of organizational trauma and the attractive resources in the acquired firm may be damaged or destroyed (in Zollo and Singh, 2004). By contrast, structural separation means there is little chance that any knowledge sharing or other forms of synergy will occur (Paruchuri, Nerkar and Hambrick, 2006).

A handful studies have examined the effects of integration empirically. The outcome measures aim to capture some aspect of productivity, such as innovation and financial productivity. The main findings can be summarized as follows:

Integration has been found to be positively related to the ability of using the acquirer's existing knowledge; however, integration hindered innovation by the acquired firm (Puranam and Srikanth, 2007). In other words, the acquirer was able to get access to existing knowledge in the acquired firm but the capabilities of the acquired firms were not fulfilled. This study was based on technology firms, and innovation was measured as number of patents filed by the acquirer after the acquisitions. Similar results is found when examining the effects of integration on innovation (launching new products after acquisition) (Puranam, Singh, and Zollo, 2006). They found that loss of autonomy due to the integration decreased the likelihood of launching new products, however these effects disappeared over time. This study was conducted among a large number of acquisitions in the information technology industry. In line with these, the loss of autonomy among

the acquired firms explained the lower post-merger performance (Very, Lubatkin, Calori & Veiga, 1997).

Paruchuri, Nerkar & Hambrick (2006) tested how integration affected productivity by comparing recently acquired firms with firms not experiencing being acquired. They selected the assumed most negatively affected group: the knowledge workers (pharmaceutical patent inventors), and found lower productivity among the acquired firms. This was explained by the loss of social status and centrality among employees in the acquired firms.

Zollo and Singh (2004) examined how knowledge codification and changes in top management team affected performance. They found that knowledge codification (number of documents related to the acquisition) influenced acquisition performance, the more codified knowledge the better performance measured as return on assets (ROA), and this influence was more beneficial when the firms also were highly integrated.

In sum, some aspects are found to negatively affect the outcome of M&As. In particular, the loss of autonomy had harsh consequences. The lower autonomy, such as loss of social status and centrality among employees in the acquired firm were found to hinder innovation and led to lower post-merger performance, lower rate of innovation, and lower productivity (Paruchuri et al., 2006; Very, Lubatkin, Calori & Veiga, 1997; Puranam, Zollo, and Singh, 2006; Puranam and Srikanth, 2007). However, there are also indications that these effects disappear over time (Puranam et al., 2006), and the way the firms codify knowledge may reduce negative effects.

All of the above studies use data from multiple firms. They mainly rely on resource-based and knowledge based view on the firm, regarding knowledge as one resource potentially providing sustainable competitive advantage. All of them are based on studies of acquisitions (rather than mergers). They all emphasize socially complex knowledge in high-skilled and technological intensive industries. The main dilemma between integration and separation is an underlying basis for most of these, the balance between autonomy and integration being vital.

One may question the internal validity in some of these articles examining effects of a merger. Although M&A has been a rising phenomenon, it is still relatively rare, and the number of firms allowed to be included is relatively few. This may question the causal effects. Are the effects on for instance number of patents after a merger/acquisition caused by the M/A or by some other change in the industry? Furthermore, the outcome measures are fairly crude and one-dimensional, only focusing on one aspect of the merger (ex number of patents). This also applies to the measure of integration/separation often being measured by a single indicator. The above studies mainly looked at the integration process in a static way, focusing on *what* they did. The next section discusses studies that examined *how* firms went about during the post-integration process.

2.4 The process of integration

When two merging firms decide to integrate their operations and activities, the next question that arises is how the process of integration should be implemented. A second set of articles address the question of how the implementation process influences knowledge development. These take a broader approach, including a wide variety of aspects of the integration process.

One influential model identified four main dimensions important to knowledge transfer in acquisitions: autonomy, communication, speed, and retention (Ranft and Lord, 2002). The empirical basis of the study is seven sets of acquisitions. The main intention of the all acquisitions was to acquire new technologies and capabilities. The essence of the arguments may be summarized as follows:

1. A full integration of firms may damage the knowledge of the acquired firm accentuating their need for some autonomy. However, if kept completely autonomous, integration of capabilities will never be acquired.
2. When firms merge there is a need for “shared understanding”, which may be acquired through for example teams consisting of managers from both companies. “Rich” communication is proposed to enhance preservation and transfer of knowledge.
3. A slow integration process is useful when knowledge is tacit. The speed of the process should be linked to the degree of autonomy, and a slow process is associated with autonomy of the acquired firm. In line with this, arguments in favor of adapting a slow integration process is due to stressfulness in M/A withdrawing over time, and the likeliness of two-way transfer will increase (Bresman et al., 1999)
4. Keeping key employees is important because the acquired firms’ technologies are dependent on their skills. Keeping key employees facilitate the preservation of the acquired firm’s technologies/capabilities. In this study managers emphasized the need to keep key employee groups rather than top management.

Tools for facilitation of knowledge transfer are for instance teams, informal social networks, collaboration norms, and meetings may facilitate (Casal and Fontela, 2007), interpersonal relationships, promotion of acquired employees, and incentive schemes (Ranft and Lord, 2002). Based on a review of “best practices” in M&As some of the recommendations for the merging organizations is to ensure creation of a top management team, manage employee relationships, develop effective integration mechanisms, and make sure of effective use of resources and capabilities (Krug, 2008).

More narrow approaches of the integration process have discussed under what conditions knowledge transfer are challenged or facilitated. Barriers to successful integration can arise from both the process of the integration and the characteristics of the firms (context). For instance, workers resist knowledge transfer under certain conditions: when merging firms differ on external image and on knowledge base (Empson, 2001). However, also unexpected positive outcomes arise from M&As (Graebner, 2004). The unexpected positive outcomes were linked to the actions of the acquired leaders, for

instance that one discovered opportunities for new paths to creating value, which was triggered by employees being given cross-organizational responsibilities.

Summarized, these studies show that both characteristics of the context (relative size, relative performance, the external image of the acquirer/acquired firm) and characteristics of the process of implementation (speed, degree of autonomy) influence the degree to which knowledge transfer in a merger is successful.

3 Conclusion

This review has discussed selected parts of the literature on knowledge development in M&As. The term knowledge development includes both knowledge -transfer, sharing, and -creation, as well as getting access to existing knowledge. The main question in the studies reviewed is how to balance integration and separation in the merger and in the post-merger process. Should the merging firms integrate operations or keep them autonomous? Findings suggest that the effects of integrating firms improves the access to existing knowledge but challenges the future capabilities due to loss of autonomy in the acquired firms. In terms of how to integrate the firms after a merger or acquisition, the literature points to aspects such as speed, communication, characteristics of the context (size, performance, etc) as well as the type of knowledge. The studies almost exclusively rely on acquisitions, which imply an imbalance of the acquirer and the acquired firm. Generalizing to mergers need be done with some caution. Still, as merging firms often are of unequal size or have different power-relations, the findings on acquisitions apply to some extent.

This review shows some of the shortcomings in the present literature. First, there is a lack of studies on mergers, and in particular when the aim is full integration of the firms. Second, we know quite a lot about the effects of post-merger integration on knowledge development. However, we know little on the mechanisms behind these effects. The on-going project on the merger between Statoil and Hydro aims to meet some of these shortcomings, for instance studying the mechanisms for knowledge sharing in the context of disciplinary networks (Nesheim, Olsen, and Tobiassen, 2009). Third, the research is scarce on loss of employees and what kind of knowledge that disappears in a merger. More rigorous studies examining turnover after a restructuring such as a merger, are needed.

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