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**Acquisition Implementation Strategies: Structural Integration and  
Acquired CEO Retention as Sequential Events**

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Abstract

In contemporary conditions of high competition many companies choose to gain new technologies and enhance

competitiveness through acquisitions of small high technology firms. In this paper we build on the process view of acquisition implementation by focusing on acquisition implementation challenges after the deal is done. More specifically, we discuss the two important dimensions of acquisition implementation process: structural integration and acquired CEO retention. The two dimensions are viewed as sequential events, with an aim to understand under which conditions the typical antecedents of structural integration apply. We analyse the determinants of structural integration conditional on acquired CEO retention. The findings suggest that typical antecedents of structural integration matter in the cases when acquired CEO left following an acquisition. Conversely, if the acquired CEO remained, the typical antecedents of integration do not play any role in determining its likelihood. Thus, acquired CEO retention may act as a substitute mechanism of structural integration by rendering integration less important as a post-acquisition coordination mechanism.

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**Abstract**

In contemporary conditions of high competition many companies choose to gain new technologies and enhance competitiveness through acquisitions of small high technology firms. In this paper we build on the process view of acquisition implementation by focusing on acquisition implementation challenges after the deal is done. More specifically, we discuss the two important dimensions of acquisition implementation process: structural integration and acquired CEO retention. The two dimensions are viewed as sequential events, with an aim to understand under which conditions the typical antecedents of structural integration apply. We analyse the determinants of structural integration conditional on acquired CEO retention. The findings suggest that typical antecedents of structural integration matter in the cases when acquired CEO left following an acquisition. Conversely, if the acquired CEO remained, the typical antecedents of integration do not play any role in determining its likelihood. Thus, acquired CEO retention may act as a substitutive mechanism of structural integration by rendering integration less important as a post-acquisition coordination mechanism.

**Keywords:** High-technology Acquisitions, Structural Integration, Acquired CEO retention

**1. Introduction**

In contemporary conditions of high competition many companies choose to gain new technologies and enhance competitiveness through acquisitions of small high technology firms (Grandstrand and Sjölander 1990, Venhaverbeke, Duysters and Noordhaven 2002, Higgins and

Rodriguez 2006, Desyllas and Hughes 2008). These acquisitions are challenging to implement and often exhibit poor performance (Kapoor and Lim 2007).

In this paper we build on the process view of acquisition implementation (Jemison and Sitkin 1986, Haspeslagh and Jemison 1991, Larsson and Finkelstein 1999) by focusing on acquisition implementation challenges after the deal is done. The process perspective recognizes acquisition process itself as a potentially important determinant of acquisition outcomes (Jemison and Sitkin 1986). The acquisition literature argues that the challenges of conducting smooth acquisition implementation process are substantial (Puranam et al. 2006, Graebner 2004, Ranft and Lord 2002, Pablo 1994, Haspeslagh and Jemison 1991). Thus, the difficulties in acquisition implementation process are commonly cited reasons for failure of many acquisitions (Graebner 2004, Ranft and Lord 2002, Puranam and Srikanth 2007).

The dominant dilemma of acquisition implementation represents the challenge of balancing structural integration and separation, so-called ‘coordination-autonomy’ dilemma (Puranam and Srikanth 2006, Puranam et al. 2006, Parachuri et al. 2006). This dilemma is especially prominent in acquisitions of high technology firms due to the fact that this type of acquisitions are commonly motivated by the desire to acquire and exploit acquired firm’s technical knowledge (Graebner 2004, Puranam et al. 2006, Ranft and Lord 2002). Since such knowledge is typically embedded in acquired firm’s employees, inventors and scientists, structural integration instead of desired coordination effects can easily lead to substantial disruption of acquired firm’s knowledge-based resources (Parachuri et al. 2006, Graebner 2004). On the other hand, acquired leaders are found to play critical role in post-acquisition reorganization through providing smooth interaction between acquiring and acquired organizations, alleviating the disruptive effects of integration and maintaining cross-organizational responsibilities encompassing both, acquired and acquiring firms (Graebner 2004). The role of acquired top manager is prominent in high technology acquisitions wherein, due to substantial information asymmetries, greater uncertainties and dynamics of these industries, acquiring firm’s executives may lack the knowledge and time required to implement their acquisitions successfully (Graebner 2004). In this paper we consider the dynamics of structural integration and acquired CEO retention with an aim to analyze under which conditions the typical determinants of structural integration apply.

This paper provides evidence that results of the literature on antecedents of structural integration apply only in cases when acquired CEO is not present following an acquisition. If acquired CEO

remained, the typical antecedents of integration are not important for explanation of the degree of structural integration, possibly due to the following effect. When acquired CEO remains, he may play “soft coordination” role by performing mobilizing actions aimed to provide more effective and accelerated post-acquisition coordination of acquiring and acquired firms (Graebner 2004). In such a scenario, acquired CEO retention may act as a substitute of structural integration, rendering integration less useful and decreasing its importance as a mechanism of post-acquisition coordination.

By considering the dynamics of structural integration and acquired CEO retention this paper contributes to “coordination-autonomy” dilemma in acquisition research (Graebner 2004, Puranam and Srikanth 2007, Puranam et al. 2006, Parachuri et al. 2006).

## **2. Theoretical framework**

### **2.1 The Role of Structural Integration in Post-Acquisition Implementation Process**

Since the seminal works of Jemison and Sitkin (1986) and Haspeslagh and Jemison (1991), scholars have emphasized the importance of acquisition implementation as a key process affecting value capture and gains from acquisition activity. Acquisition implementation involves several dimensions, most importantly; structural dimension related to organizational design and more “soft” dimensions such as joint meetings and cross-organizational responsibilities.

The critical decision determining overall post-acquisition implementation strategy is the extent of structural integration vs. separation of acquired organization (Pablo 1994, Larsson and Finkelstein 1999, Ranft and Lord 2002, Schweitzer 2005, Puranam et al. 2006, Puranam and Srikanth 2007, Puranam et al. 2009). These studies, starting from Thomson’s (1967) work, outline the construct “level of integration” as the extent to which the functions of the acquired firm are linked and centralized in the corresponding functions of acquiring organization (Zollo and Singh 2004). Structural integration is needed as a mechanism of close coordination to support efficient knowledge flow between the two firms (Pablo 1994, Ranft and Lord 2002, Schweitzer 2005, Puranam et al. 2006, Puranam et Srikanth 2007, Puranam et al. 2009). Structural integration, as such, allows the combination of formerly distinct organizational units into the

same organizational unit following an acquisition. As a formal design choice concerning the “grouping” of formerly distinct organizational units, structural integration is beneficial as coordination mechanism when large interdependencies between two organization exist (Puranam, Singh and Chaudhuri 2009). Corresponding to higher levels of interdependence are coordination mechanisms with increased coordination capacity, such as authority and mutual adjustment (Tushman and Nadler 1978, Puranam, Singh and Chaudhuri 2009). Structural integration provides increased coordination capacity by alligning interests of acquiring and acquired firms towards the goals of the integrated unit. Thus, structural integration typically results in common goals, common procedures and common authority between acquiring and acquired employees, as they are located in common organizational units. Even if imposition of these aspects on acured employees can provoke some disruption effects, these aspects can also increase reciprocal predictivity of actions as two parties adhere to the same procedures, have the same common goal and are responsible to the same authority (Puranam, Singh and Chaudhuri 2009). This enhances the efficiency of coordination between acquiring and acquired firms achieved through structural integration.

Structural integration has certain drawbacks as well (Puranam, Singh and Chaudhuri 2009).

Integration can provoke disruption of acquired firm’s pre-existing routines, since it ends acquired firm’s autonomous existence. Such “loss of autonomy” effect can occur in two different ways. First, specifically in high-technology acquisitions, structural integration can cause loss of autonomy of acquired inventors or scientists resulting in the decrease in their motivation and productivity (Paruchuri et al. 2006). Second, extensive integration implies common authority, work practices and procedures. To become a part of such an integrated unit, work and practices of acquired firm have to be alterred inevitably (Puranam, Singh and Chaudhuri 2009). Such changes can disturb valuable organizational routines of acquired firm and, consequently, undermine its innovative capabilities (Ranft and Lord 2002, Puranam, Singh and Chaudhuri 2009). Empirical studies have provided evidence in support of this view, due to before mentioned shortcomings, structural integration on average damages innovation activity of the acquired firm (Paruchuri et al. 2006, Kapoor and Lim 2007). The effect of integration on post-acquisition performance depends on several contingencies relating to both, firms and deal level characteristics. As to the former aspect, structural integration is found to be most beneficial in situations where i)

coordination between the two firms is most useful, and ii) it cannot be achieved by other allegedly less disruptive means.

## **2.2 The Antecedents of Structural Integration**

Empirical literature on high technology acquisitions stated as antecedents of structural integration acquisition motives (Puranam, Singh and Zollo 2006, and Puranam and Srikanth 2007), characteristics of acquired firm's technology (Puranam, Singh and Chaudhuri 2009), acquiring firm prior acquisition experience (Puranam and Srikanth 2007), dyad level characteristics such as relatedness (Coff 1999, Puranam, Singh and Chaudhuri 2009) and prior collaborations between two firms (Porrini 2004, Agarwal 2006).

Puranam, Singh and Zollo (2006) and Puranam and Srikanth (2007) found that structural integration is more beneficial when the main objective of the acquiring firm is commercial exploitation of existing technological artifacts of target. At contrary, structural separation is favorable when acquiring firm is motivated by ongoing use of technological capabilities of the acquired firm. Puranam, Singh and Zollo (2006) suggest that structural integration has particularly negative effect on the hazard rate of introduction of new products for target firms that have not launched any products prior to acquisition. Further, structural integration negatively affects the hazard rate of introduction of the first product after the acquisition. Their findings suggest that disruptive consequences of structural integration are particularly strong at stages of the innovation trajectory of acquired firm in which exploration is dominant; when acquired firm is in a pre-product stage and for initial innovation after the acquisition.

Puranam, Singh and Chaudhuri (2009) found that the likelihood of structural integration is higher in acquisitions characterized by greater extent of interdependence associated with buying a component technology<sup>1</sup> rather than a standalone product. They also argue that pre-existing common ground between acquiring and acquired employees provides an alternative, informal coordination mechanism. The notion of the common ground is closely related to the notion of common knowledge; a knowledge that is known iteratively among interacting individuals. In

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<sup>1</sup> Target technology is defined as component when it is used as a technological component of a larger acquirer's product or technology system.

contrast to structural integration that promotes coordination through formal mechanisms such as common authority, procedures and goals; common ground allows for informal coordination (Puranam, Singh and Chaudhuri 2009). As an informal coordination mechanism, common ground may to some extent “replace” formal coordination provided by structural integration. Common ground is measured as the existence of pre-acquisition patenting activity by the acquiring and acquired firms in the same technological classes to capture the proximity of the knowledge bases of the two firms.

In the component technology acquisitions, as the level of common ground increases, the likelihood of structural integration rapidly declines.

Puranam and Srikanth (2007) demonstrate that negative effects of structural integration on the ongoing use of target’s technological capabilities are alleviated when acquiring firm has substantial acquisition experience since learning by doing helps acquiring firms to overcome organizational problems caused by integration. They argue that repeated acquirers may develop capabilities to enhance effective implementation of structural integration through strengthening of the coordination effect and weakening the disruptive consequences of the loss of autonomy effect. Zollo and Reuer (2005) find that firms with greater acquisition experience are able to achieve superior performance when they manage the focal acquisition with greater level of integration. Thus, acquisition experience may be useful in managing the logistic of transaction to an integrated organizational form and building the integration capability (Zollo and Singh 2004). In particular, acquisition experience in high-technology sectors may be more relevant as a determinant of integration in these sectors than broad acquisition experience in other sectors.

Relatedness represents the extent to which acquirer and target industries draw on similar forms of expertise (Coff 1999). Unrelated buyer may face severe information problem in pre-acquisition evaluation of target, because he may lack the needed expertise to evaluate target. The information problem can be particularly prominent, if unrelated acquirer intends to integrate target. Coff (1999) argues that relatedness is particularly relevant when there are knowledge-based assets involved, such as in technology acquisitions. Relatedness decreases the level of uncertainty and information asymmetry, implying also greater absorptive capacity (Coff 1999, Graebner 2004). Thus, corporations may be more adept at managing businesses that rely on similar knowledge bases. Coff (1999) proposes scenario in which unrelated acquirers due to high information asymmetry do not intend to integrate, but rather use other strategies; thus relatedness would

decrease the likelihood of structural integration. Related buyers are better able to access the target's competences and resources, since they have related knowledge bases. Thus, in the case of related firms, structural integration would lead to less disruptive effects than in the case of low relatedness between two parties. Datta and Grant (1990) support this idea with finding that unrelated acquisitions result in less post-acquisition integration.

Agarwal et al. (2006) analyses the impact of prior alliances on post acquisition coordination and integration. They find that prior social contacts between firms have a positive effect on post-acquisition coordination since established communication allows for better mutual understanding. In a similar vein Porrini (2004) argues that alliance between acquirer and target provides a particular type of organizational learning, allowing acquirer to elicit a specific information about the target's potential compatibility and provide insights on target's firm specific resources, possibly benefiting the integration process in the situation of acquisition.

The literature exploring the antecedents of the degree of structural integration has failed to take into account the acquired top manager retention aspect. Acquired CEO is found to be an important generator of "soft" coordination through conducting mobilizing and mitigating actions following an acquisition (Graebner 2004). Thus, retention of acquired CEO may decrease the need for structural integration and its usefulness as a coordination mechanism. In the next section, we discuss in detail the effects that the retention or replacement of acquired CEO may have on the antecedents of structural integration.

### **2.3 Sequential model of acquisition implementation: when the antecedents of structural integration apply?**

It is important premise of research on upper echelons and corporate governance that who runs a firm matters to a great extent, while the changes in leadership may have significant consequences for both, the firm's strategy and performance (Hambrick and Mason 1984). Considering the importance of autonomy allowed to acquired firm in post-acquisition decision making, it is an important question whether the acquired CEO remained or left following an acquisition. The retention of acquired CEO may have substantial consequences for the structure of acquired firm and affect retention of its other employees (Baron, Burton and Hannah 1999; Ullrich, Wieseke

and Van Dick 2005). The capabilities and talent of acquired key employees may be lost through their departure, endangering in such a manner the purpose for which an acquisition was made in the first place.

The CEO replacement may occur voluntary or involuntary. It is important to emphasize that arguments developed in this section are more applicable when CEO leaves voluntarily at outset of an acquisition. Acquisition literature emphasizes that the choice regarding the desired degree of structural integration precedes other choices in acquisition implementation, such as choices on “linking” mechanisms of cross-unit teams or integration managers (Puranam, Singh and Chaudhuri 2009). This argument may lead to a conclusion that the choice of structural integration vs. separation also precedes the choice of acquired CEO retention. However, if acquired CEO voluntarily leaves at outset of an acquisition, it may affect the degree of structural integration.

A CEO may resign voluntarily for a number of reasons; most prominently better job opportunities and founding of new enterprises. An entrepreneur who founded and ran successfully small businesses or middle size firms, may find less appealing working environment in a more complex structure with large bureaucracies following an acquisition. Thus, such an entrepreneur may be motivated to exit and found new business. Retention of executives in high-technology acquisition context is particularly difficult since executives that have successfully sold a firm are often recruitment targets for venture capitalists seeking talented entrepreneurs to guide their portfolio firms (Mayer and Kenney 2002). Acquired executives may also voluntarily exit if they realized substantial economic gains when the firm was acquired, especially if they owned a significant stake in the company (Ranft and Lord 2000). Ranft and Lord (2002) found that key employees retention, autonomy of acquired unit and rich communication were factors affecting substantially the acquisition implementation process and transfer of tacit knowledge.

Graebner (2004) argues that acquired leaders played a critical role in technology acquisitions by performing actions of “soft-coordination”, as well as taking on cross-organizational responsibilities.

First, acquired leaders through mobilizing actions supported acquisition implementation by providing guidance for acquired firm and maintaining organizational momentum. Mobilizing actions took two forms; “internal pacing” and “accelerated coordination”. Efficient acquired leaders used “internal pacing” to set specific goals and timelines for acquired organization. More importantly, acquired leaders motivated “accelerated coordination” between acquiring and

acquired units by impelling the acquiring firm to interact more rapidly with acquired firm. Thus, acquired leaders were involved as a soft coordination mechanisms to support the overall acquisition implementation process.

Second, structural integration often causes negative emotions for acquired employees due to substantial, multiple changes and disruption of established routines. Mitigating actions by acquired leaders were aimed to minimize the negative consequences of these changes and protect their employees from negative outcomes of acquisition implementation. Effective acquired leaders helped to lessen the discomfort of their employees by engaging in activities that resolved complains and concerns of acquired personnel (Graebner 2004).

The third important form of activities acquired leaders took were cross-organizational responsibilities as tasks in which acquired managers had responsibility for activities, functions or strategies that encompassed both, acquired firm and components of the acquiring firm (Graebner 2004).

In an occasion of acquired CEO departure, the acquiring firm will stay without “soft” coordination mechanism acquired leaders are found to perform (Graebner 2004). The lack of “soft” coordination mechanism may increase the need for structural integration as a mean of close coordination and alignment of two organizations.

At contrary, if acquired CEO stays, he may provide a “soft” coordination of activities between the two firms involved. In this scenario, structural integration may be less important as a mechanism of coordination since acquired CEO can provide a specific link to coordinate activities of the two firms. Specifically, efficient acquired CEO can provide better communication, contribute to an increased level of understanding between two parties and accelerate coordination. This effect provided by acquired CEO may render the structural aspects of acquisition implementation less needed or useful. For instance, in the case studies conducted by Graebner (2004), in all high performing acquisitions where revenues thresholds exceeded planned, there was no loss of acquired top leaders. Acquisitions in which acquired leaders departed, fell short of achieving their expected value; in such acquisition the importance of structural integration as a coordination mechanism may be much greater than in the former case.

As a corollary, we expect that the marginal effects of the antecedents of structural integration on its likelihood would be greater when acquired CEO leaves than when he stays. To explore the

potential differences in the antecedents of integration conditional on the acquired CEO replacement or retention following an acquisition, we propose the following:

***P1: The antecedents of structural integration will differ conditional on acquired CEO retention or replacement following an acquisition.***

***P1a: If acquired CEO leaves following an acquisition, structural integration will be more likely when the acquisition is motivated by exploitation (than when acquired CEO stays).***

***P1b: If acquired CEO leaves following an acquisition, the structural integration will be more likely when acquired technology is a component to acquiring firm's system (than when acquired CEO stays).***

***P1c: If acquired CEO leaves following an acquisition, structural integration will be more likely when acquiring firm has greater high-technology acquisition experience (than when acquired CEO stays).***

***P1d: If acquired CEO leaves following an acquisition, structural integration will be more likely if acquisition is related (than when acquired CEO stays).***

***P1e: If acquired CEO leaves following an acquisition, the likelihood of structural integration, when target technology is a component, is reduced in related acquisitions.***

### **3. The Sample and Data**

In keeping with prior literature, we define technology acquisition as an acquisition of small technology-based firm by large established firms to gain access to its technology and capabilities

(Granstrand and Sjolander 1990, Puranam and Srikanth 2007, Puranam, Singh and Chaudhuri 2009).

We identify acquisition events from Zephyr with announcement dates in period from 01 January 1999 until 31 December 2004. Zephyr is a comprehensive record of the corporate deals published by Bureau Van Dijk, including mergers and acquisitions, initial public offerings, and venture capital deals.

We bound our analysis to high-technology industries. An acquisition event was characterized as a high-technology acquisition if the acquired firm participated in one of following sectors: Drugs (SIC 283), Computer and Office Equipment (SIC 357), Electronic and other electrical equipment and components except computer equipment (SIC 36), Instruments (SIC 38) and Computer programming (737). The definition of high technology industries conforms to the definition offered by OECD (1997) with the exclusion of aerospace and defense, which we excluded due to the fact that few firms in Europe operate in this industry. Other selection criteria we followed are the following: a) the headquarters of the acquirer and acquired firm were located in European Union or United States, b) acquiring firms are public companies, c) acquired firms had less than 1000 employees, d) acquiring firms had more than 1000 employees at the time of acquisition. In this manner we initially sourced 368 acquisition events.

We collected articles published on acquisitions from Lexis Nexis and online business articles. Out of 368 acquisition events, the data on the degree of structural integration and acquired CEO's retention were collected for 156 events. Due to lack of information for these two aspects for other acquisitions, we bounded our analysis to these 156 acquisitions. Data on explanatory and control variables are collected from secondary sources, notably Zephyr, Lexis-Nexis, Thomson SDC and Amadeus.

### **3.1 Variables**

*Structural Integration.* To determine whether the acquired firms were left as separate subsidiaries (Integration=0) or were integrated (Integration=1), we examined acquisition

announcement articles in Lexis Nexis. When articles reported: “Under terms of the acquisition.... **Citrix** will integrate **Sequoia** along functional lines”, we concluded that the structural integration had occurred.

Further, to corroborate this observation, we checked for the list of subsidiaries for each acquiring firm in Thomson Financial after the acquisition announcement. In cases when acquired firm was listed as a subsidiary, we conclude that there was no structural integration.

**Target top manager retention.** For each acquired firm we identified the name of the individual occupying the position of CEO in the fiscal year prior to the acquisition announcement. The definition we adopted for acquired CEO retention is whether the acquired CEO was reported in any capacity (as an officer or director of the combined firm) in the year following the acquisition completion (Top management retention=1). We sources this information from Lexis Nexis articles, SEC fillings for US target firms and business press online.

**Exploitation.** The technology acquisition is often instrumental to allowing the acquiring firm access to existing technological artifacts of acquired firm (e.g. an innovative product). These artifacts can be exploited commercially in combination with the complementary assets (brand, large scale production capacity, distribution channels) of the acquiring firm. Following previous literature, (Puranam et al. 2006, Puranam and Srikanth 2007), we label this type of acquisitions as exploitative. Thus, exploitation is a dummy variable that equals one when acquired firm at the time of acquisition had a concrete piece of technology (a product, patent or prototype). This information was sourced from European Patent Office (EPO), United States Patent Office (USPTO), articles stating motivation of acquisition from Lexis-Nexis and business press.

**Component.** To assess whether the acquired technology was a component to the acquiring firm, we examined the press releases about the acquisition. In accordance with Puranam et al. (2009), we construct a dummy variable equal to 1 if the acquired technology was to be used as a part of acquiring firm’s product or technology system (component =1). For instance, when article reported: “...The Sequoia product, XML Portal Server, will become an important element of the Citrix solution...”, the acquired technology was coded as component. Similarly, Analog Devices’ statement:”... As a result of our acquisition of BCO Technologies, we are incorporating Silicon-

on-Insulator technology (BCO product) into our next generation of inertial sensors...” resulted in coding the BCO technology as component.

***Product Relatedness.*** We measured the relatedness by the extent of overlap between the product codes assigned to acquiring and acquired firms by Thomson Worldscope. Following Puranam and Srikanth (2007) and Puranam, Singh and Zollo (2006), the extent of overlap was calculated as the number of 3-digit codes common to acquirer and target divided by the total number of product codes assigned to acquired firm. We did not use the patent based measure of relatedness since around 36 percent of targets in our sample did not publish patents prior to the acquisition.

***Hi-tech experience & Other experience.*** The acquisition experience of acquiring firm is proxied by the number of acquisitions conducted by acquiring firm before the focal acquisition. We partition the total acquisition experience on high technology vs. other experience. We expect that high technology experience may have greater effects on learning in acquisitions of high technology firms.

***Alliance.*** We create the dummy Alliance=1 if the existence of alliance between acquiring and acquired firms prior to the focal acquisition was reported in business press.

***Relsize.*** We control for the relative size of acquisition calculated as logarithm value of the number of acquired employees divided by the number of acquiring firm’s employees. Relative size may affect the selected degree of integration. Size of acquired firm can affect how it is treated by acquiring firm in terms of organizational autonomy (Puranam, Singh and Chaudhuri 2009). On the other hand, larger acquiring firm may be more inclined to conduct the structural integration of target.

***Aget.*** Aget is the acquired firm’s age at the time of acquisition. The age of acquired firm may be considered as a proxy for its maturity (Chaudhuri et al. 2005).

***Crossatlantic.*** We create a dummy variable (Crossatlantic=1) when the acquiring and acquired firms have headquarters located in different continents (EU acquirer and US target or US

acquirer and EU target). The greater geographical and cultural distance may render the structural integration less likely.

#### 4. Methodology

To estimate the effects of the antecedents of structural integration on its likelihood, we use the simple probit model.

A probit model is a commonly used specification for an ordinal or a binary response model which employs a probit link function. The dependent variable  $Y$  is binary with possible outcomes denoted as 1 and 0.

There is an underlying dependent variable  $Y_i^*$  defined by the regression relationship

$$Y_i^* = X' \beta + \varepsilon \quad (4.1)$$

The  $Y$  is an indicator variable for whether  $Y_i^*$  is positive

$$Y=1 \text{ if } Y_i^* > 0$$

$$Y=0 \text{ otherwise} \quad (4.2)$$

A vector of regressors  $X$  are assumed to affect the outcome  $Y$ . Specifically, the model takes form:

$$\Pr(Y=1 | X) = \Phi(X' \beta) \quad (4.3)$$

where  $\Pr$  denotes probability, and  $\Phi$  is the cumulative distribution function of the standard normal distribution. The parameters  $\beta$  are typically estimated by the maximum likelihood.

#### 5. Results

The table 5.3 reports the results of probit estimations.

Model 1 in the table 5.3 shows the effects of the antecedents on the likelihood of structural integration for the full sample. Models 2 and 3 show the effects of the antecedents of structural integration for CEO retention and replacement subsamples respectively.

The Model 1 shows that our data replicate to a large extent the results of prior studies exploring the antecedents of structural integration. Similarly as Puranam, Singh and Zollo (2006) and Puranam and Srikanth (2007), we find that likelihood of integration increases in the case of exploitation motivated acquisitions. Moreover, we replicate the findings by Puranam, Singh and Chaudhuri (2009) pertaining acquisitions of component technology. The likelihood of structural integration increases when acquired firm's technology is a component to acquiring firm's product or technology system. Thus, coordination through structural integration is beneficial when greater interdependence exists between the two firms (Puranam, Singh and Chaudhuri, 2009). We also replicate finding of Puranam, Singh and Chaudhuri (2009) pertaining acquisitions of component technology when the two firms involved have common knowledge bases. Puranam, Singh and Chaudhuri (2009) measure common knowledge by considering patenting activity of two firms in the same technology classes. We attempt to proxy relatedness of the two firm's knowledge bases by product relatedness. In high-technology sectors, highly product related firms often have related technologies and underlying knowledge bases. We find that in component technology acquisitions, relatedness of the pair decreases the likelihood of integration, what is consistent with the finding of Puranam, Singh and Chaudhuri (2009). The Model 1 also replicates arguments of Coff (1999) and Datta and Grant (1990) that structural integration is easier and smoother to conduct when greater relatedness exists between the firms involved. Further, we find that prior experience in conducting high technology acquisitions increases the likelihood of integration, suggesting that acquiring firms with greater high technology acquisition experience are more competent to conduct integration of acquisitions in high-tech sectors (Puranam and Srikanth 2007, Zollo and Reuer 2006, Zollo and Singh 2004).

In the Models 2 and 3 of Table 5.3 we split the sample on the two subsamples: acquisitions with acquired CEO retention and acquisitions with acquired CEO replacement. The retention subsample consists of 100 acquisitions, while replacement subsample of 56 acquisitions. Results of the split samples suggest that typical integration antecedents from prior literature to a large extent predict the likelihood of integration in the replacement subsample. The three of our propositions are strongly supported (P1b, P1c and P1e). The coefficient of relatedness (P1d) is

positive and almost significant ( $p < 0.11$ ). The coefficient of exploitation (P1a) is not significant, although positive in sign. In the retention subsample, none of the coefficients of integration antecedents is significant, suggesting that integration is not determined with its typical antecedents if acquired CEO stayed.

We use Chow test to assess if there are differences in the antecedents of integration across the two subsamples of CEO retention and replacement. We created interaction terms for each determinant of integration with dummy variable that equals one if acquired CEO stayed and zero if he left following the acquisition and re-estimated the full model with the inclusion of these interaction. The result of Chow test is shown below the Table 5.3. The null hypothesis that the subsamples of CEO retention and replacement have equal parameters of integration antecedents is rejected at  $p < 0.01$  level. Thus, the antecedents of structural integration are different across the two subsamples.

## **6. Discussion and conclusion**

In this paper starting from acquisition implementation literature we aim to contribute to a better understanding of the “coordination-autonomy” dilemma through a dynamic view of two important post-acquisition implementation events: structural integration and acquired CEO retention. The strategy literature argues that if strategic interdependencies (e.g. acquired technology component to acquiring firm’s system) exist between firms, autonomy prevents the firms from combining their resources and accomplishing the objectives of an acquisition (Chatterjee 1986). This literature, starting from proposition that structurally separated target is also autonomous, argues that structural integration is necessary to manage the interdependences between two firms. Structural integration assures close coordination and alignment of two firms’ operations in support of more efficient knowledge flow (Pablo 1994, Ranft and Lord 2002, Schweitzer 2005, Puranam et al. 2006, Puranam et Srikanth 2007, Puranam et al. 2009). We argue that structural integration is useful in cases when close coordination is needed, but cannot be accomplished through other less disruptive means of coordination. However, it is not only integration that matters as a mechanism of two organizations’ alignment and interdependence management. The role of acquired CEO at acquisition implementation can resolve to some extent

the “coordination-autonomy” dilemma. Acquired CEO can support acquisition implementation through a specific form of “soft coordination” by creating a communication bridge between acquired and acquiring organizations. The missing of such “communication bridge” often leads, most prominently, in small technology acquisitions to complete failures (Graebner 2004).

We claim that acquired CEO retention through “soft coordination” (Graebner 2004) may decrease the need for structural integration as a coordination mechanism. Thus, acquired CEO retention can act as a substitutive mechanism of structural integration by rendering integration less useful. In accordance with this view, we have documented that the antecedents of structural integration depend on whether the acquired CEO stayed or left following an acquisition. If the acquired CEO left, typical determinants of integration matter to a great extent in predicting its likelihood. Conversely, if the acquired CEO stayed, the antecedents of integration do not play any role in determining its likelihood. The model of CEO replacement driven structural integration received support from empirical data.

It is important to emphasize the limitations of the present study.

First, due to data limitations our acquired top management retention variable is bounded to acquired CEO retention. This measure could be improved by considering the situation of the whole acquired top management team following an acquisition. In particular, in the case of acquired CEO replacement, it would be interesting to track where the new director of acquired unit comes from; whether he is related to acquired or acquiring organization.

Second, we focus exclusively on technology driven acquisitions, thus the results cannot be generalized to other technology less intensive sectors. The structural integration as a coordination mechanism may have greater disruption effects in technology sectors due to motivation of technology acquisitions in respect to acquiring technological knowledge embedded in acquired personnel. Thus, acquired personnel in technology acquisitions is of great importance, and its potential disruption driven by integration leads to greater risks in terms of accomplishment of the purpose of acquisition. It would be interesting to understand whether the retention of acquired top manager has the same effect on the use of structural integration also in low technology acquisitions.

Third, we focus on acquisitions of small firms by large incumbents. The “mergers of equals” often having as underlying motivation efficiency gains from economies of scale or scope through combining complementary product lines and alignment of operations might require greater

integration efforts, while the role of acquired CEO in acquisition implementation process may not be as prominent as in small high-tech businesses. Our propositions are rather applicable for small firms where CEO is often a founder as well, designing the overall innovation strategy of the acquired business.

In spite of its limitations, this study significantly improves our understanding of the post-acquisition implementation process. It has important managerial implications in providing directions towards the use of acquired CEO retention as an alternative mechanism to structural integration, most prominently if the resource to be transferred is knowledge embedded in individuals, when structural integration may have strong disruptive consequences.

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**Table 5.1 Descriptive statistics**

Variable	n	Mean	Std. Dev.	Min	Max
Integration	156	0.275	0.4482	0	1
Retention	156	0.641	0.4812	0	1
Product relatedness	156	0.638	0.4278	0	1
Alliance	156	0.243	0.4306	0	1
Component	156	0.217	0.4141	0	1
Exploitation	156	0.775	0.4185	0	1
Hitechexp	156	13.173	18.522	0	95
Otherexp	156	3.730	5.898	0	43
Crossatlantic	156	0.179	0.3849	0	1
Aget	156	14.929	12.252	1	76
Resize	156	0.053	0.0925	0.0001	0.601

**Table 5.2 Correlations**

	1	2	3	4	5	6	7
<b>1 Integration</b>	1						
<b>2 Retention</b>	<b>-0.4056</b>	1					
<b>3 Product relatedness</b>	0.1777	0.2263	1				
<b>4 Alliance</b>	0.0176	-0.0511	-0.1383	1			
<b>5 Component</b>	0.0913	-0.0066	-0.0264	0.3515	1		
<b>6 Exploitation</b>	0.2286	0.1462	-0.0292	0.1262	0.2095	1	
<b>7 Hitechexp</b>	0.2833	0.056	0.0768	0.3247	0.2019	0.2056	1
<b>8 Otherexp</b>	0.0331	-0.0862	-0.2382	0.1377	0.0163	0.0329	<b>0.5072</b>
<b>9 Crossatlantic</b>	-0.1016	-0.0714	-0.1916	0.0459	0.0768	0.0914	0.0029
<b>10 Aget</b>	0.02	0.094	-0.1032	0.0363	-0.133	-0.105	-0.0199
<b>11 Resize</b>	-0.0779	0.1264	0.1754	-0.159	-0.0961	-0.2631	-0.2585

	8	9	10	11
<b>8 Otherexp</b>	1			
<b>9 Crossatlantic</b>	0.0811	1		
<b>10 Aget</b>	0.0304	-0.0657	1	
<b>11 Resize</b>	-0.2499	-0.0236	0.285	1

*r* above 0.10 significant at  $p < 0.1$ , *r* above 0.13 significant at  $p < 0.05$ , *r* above 0.18 significant at  $p < 0.01$  (one tailed)

**Table 5.3 Probit Estimation: The determinants of structural integration in retention and replacement subsamples**

	<b>Full Sample Model 1</b>	<b>Retention Subsample Model 2</b>	<b>Replacement Subsample Model 3</b>
<b>Exploitation</b>	0.781 (2.23)**	0.301 (0.65)	0.527 (0.60)
<b>Component</b>	1.248 (2.24)**	0.773 (1.00)	3.271 (2.25)**
<b>Prodrel</b>	1.040 (2.54)**	0.569 (0.98)	1.290 (1.58)
<b>Alliance</b>	-0.607 (-1.63)*	-0.252 (-0.51)	-2.038 (-2.00)**
<b>Comp_Prodrel</b>	-1.383 (-2.14)**	-0.247 (-0.27)	-3.913 (-2.54)**
<b>Hitechexp</b>	0.016 (2.04)**	0.013 (1.20)	0.058 (2.63)***
<b>Otherexp</b>	-0.011 (-0.38)	0.023 (0.75)	-0.086 (-1.28)
<b>Crossatlantic</b>	-0.451 (-1.36)	-0.798 (-1.45)	0.159 (0.27)
<b>AgeT</b>	0.015 (1.46)	0.009 (0.54)	0.028 (1.59)
<b>LRresize</b>	-0.116 (-1.32)	-0.021 (-0.15)	-0.253 (-1.85)*
<b>Constant</b>	-2.750 (-4.26)***	-2.186 (-2.41)**	-3.311 (-2.36)**
<b>N</b>	156	100	56
<b>Chi2</b>	31.91***	12.66	22.31**
<b>LogLikelihood</b>	-75.89 0.1737	-34.16	-27.62
<b>McFadden R2</b>	0.1737	0.1563	0.2876

\*p<0.10, \*\*p<0.05, \*\*\*p<0.01 (one tailed)

**Chow test** Ho: *Antecedents of integration are the same across the two subsamples*

H1: *Antecedents of integration are the different across the two subsamples*

Ch2= 20.26

Prob>Chi2=0.0025