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Abstract

This paper presents an alignment model to analyze the specific IT-based challenges of divesting a strategic business unit (SBU). The model identifies the interdependences among SBU application portfolios, undocumented local system customization, and other intra-organization links that a carve-out must identify and resolve. For large organizations that frequently buy and sell SBUs, four guidelines are proposed: 1) a SBU that will be sold - the so called carve-out object - should be autonomous, 2) the SBU IT application portfolios should be independent, 3) IT standards should be implemented in both the corporate IT platform and IT application portfolios, and 4) the intellectual property embedded in human resources needs to be replicated, and both retained in the vendor organization and divested to the buyer with the IT carve-out object. Complying with these guidelines is complex and difficult because they are frequently in conflict with vendor IT and line management goals. Carve-out management teams should consider and address these differences when structuring, designing and resourcing the IT work stream.

Keywords: Business IT Alignment, Dynamic Alignment Model, IT Carve-Out, RBV, IT Strategy, Case Study

1 INTRODUCTION

Acquiring and divesting business units are standard instruments of strategic management (Kromer and Stucky 2002). Increased globalization and deregulation, combined with a focus on the core business to capture new markets and protect existing market shares, are the key drivers of this development (Jaeger 1998; Jansen 2007). The extant literature focuses on the acquisition and integration of new strategic business units (SBUs). In contrast, the divestments of SBUs have rarely been researched (Müller 2006). In particular, there is no framework within which to evaluate and manage the IT work stream within carve-out projects (Wirtz and Wecker 2006), which is the focus of this paper.

The general intent of a carve-out is the separation of a part of an organization, usually a SBU, into a carve-out object. This object is to exist as an independent viable unit that can then either be integrated into another organization or can operate as an independent, standalone organization (Müller 2006). Examples include the disposal of IBM's personal computer business and its integration into Lenovo in 2004 and the carve-out of the semi-conductor branch of Siemens and the establishment of Infineon in 1999. In addition, carve-outs play a significant role in the private equity business, accounting for more than 35 % of all transactions (Taub 2006). This equated to €10 billion for the German market in 2005 (Spill et al. 2006).

Divesting a carve-out object is constrained by its dependence on shared IT services and gateway functions (Leimeister et al. 2008). However, these constraints frequently receive limited attention relative to their complexity and financial implications. Here, we begin to identify the challenges contingent on the IT components of carve-out projects and develop guidelines for their successful resolution. The question guiding this research is: *What are the IT-based threats to and resolutions for successful carve-out projects?*

2 FUNDAMENTALS OF IT CARVE-OUTS

Figure 1 presents the four phases of an IT carve-out: *Pre-Signing*, *Pre-Closing*, *Transition* and *Post-Cutting*. The first phase covers the key issues involved in the negotiation and signing of the contract. Importantly, the contract specifies the benefits to, and obligations of, the parties. This includes setting the contract dates for the carve-out.

The *Pre-Closing* phase focuses on the preparations for transferring the carve-out object to the buyer. At the close of this phase, the responsibility for the carve-out object is formally transferred from the vendor to the buyer. If not established earlier in the pre-signing phase, a project management framework that includes representatives of all stakeholders is established in this phase.

The first day after *Closing*, when the carve-out object is an independent viable unit, is frequently called "Day One" (Leimeister et al. 2008). After this milestone, the buyer is the official owner of the carve-out object, and can configure and customize it (Borowicz 2006). The final separation of the carve-out object, including processes, applications, data, etc., takes place during the *Transition* phase between *Closing* and *Cutting*. After *Cutting*, all work streams are finished except for the IT work stream. In this *Post-Cutting* phase, the buyer is still allowed usually to use IT systems in the network of the vendor in order to gather historical data or as backup in the case of system failure during the IT-integration. These access controls are specified in the transition service agreement (TSA).

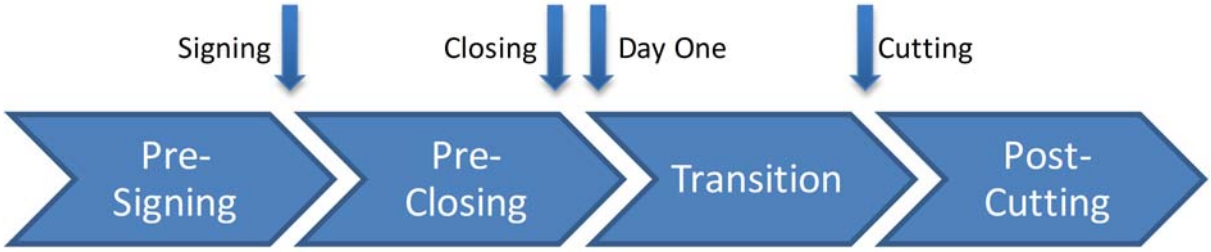

Figure 1 *The Four Phases of an IT Carve-Out (adapted from Fähling et al. 2009; Leimeister et al. 2008)*

The operations of most large multi-divisional organizations are critically dependent on information systems. To build an IT support system for an independent viable carve-out unit and to maintain IT support for the remaining SBUs in the vendor organization, an IT work stream is typically established within the general carve-out project. With the carve-out project being subject to demanding time pressures and severe penalty clauses, the variety of parallel IT tasks, and their uniqueness and inter-dependences are major challenges (Leimeister et al. 2008). Below, we analyze these challenges within a model of the alignment between business and IT (David 2003).

3 AN ALIGNMENT MODEL FOR IT CARVE-OUTS

Superior performance is based on developing a competitively distinct set of resources and capabilities, and deploying them in a well-conceived strategy. Importantly, the strategy literature distinguishes between corporate and business unit strategy. Corporate level strategy specifies the business in which the organization competes. In contrast, SBU level strategies determine how an SBU competes within its product or service markets. Managing multiple business units requires coherence between corporate and SBU strategies to generate and exploit synergies across the SBUs. Otherwise, corporate performance is simply the sum of the performances of the individual SBU's (Dosi et al. 1992; Teece and Pisano 1994). Corporate strategy leverages an organization's capabilities into both its existing and new markets, in which those resources contribute to competitive advantage (Collis and Montgomery 1995).

IT contributes to organizational competitiveness by building complementary capabilities that leverage the organization's business capabilities to generate business value (Melville et al. 2004; Milgrom and Roberts 1995; Teece 1987). These strategic benefits are dependent on the unique IT-based capabilities built by an organization and not on the IT itself. It is generally accepted that competitive advantage cannot be realized by simply investing in the newest technology or business application set. Those IT resources are available to other organizations and the opportunity for them to be a source of competitive advantage for a single organization is limited (Markus and Keil 1994; Wernerfelt 1984). Even if an organization achieves some measure of competitive advantage in the short run, the benefits are not sustainable, as the system is readily copied by competitors, transforming the investment into another competitive necessity for that market (MacMillan 1989; Vitale et al. 1986).

Instead, it is the IT capabilities spanning the organization that provide competitive advantage, rather than individual business applications (Clemons 1991; Duncan 1995). For example, Clemons identifies the potential for information systems that coordinate and integrate activities across SBUs into existing and new markets to create organizational value. These capabilities are an integral component of the organization's IT infrastructure or IT platform to support the portfolios of business applications of its SBUs (Weill and Broadbent 1998). This includes core business processes (Ross et al. 2006) and the supporting corporate IT management and business relationship capabilities (Mata et al. 1995). Here, following Reynolds and Yetton (2009), we refer to the strategic corporate IT capabilities as the IT Platform.

Integrating the two dimensions of Business and IT domains with Corporate and SBU levels, IT alignment is critical in both dimensions (Reynolds and Yetton 2009). Figure 2 illustrates the four components of alignment: corporate strategy, SBU strategies, corporate IT platform and SBU IT portfolios.

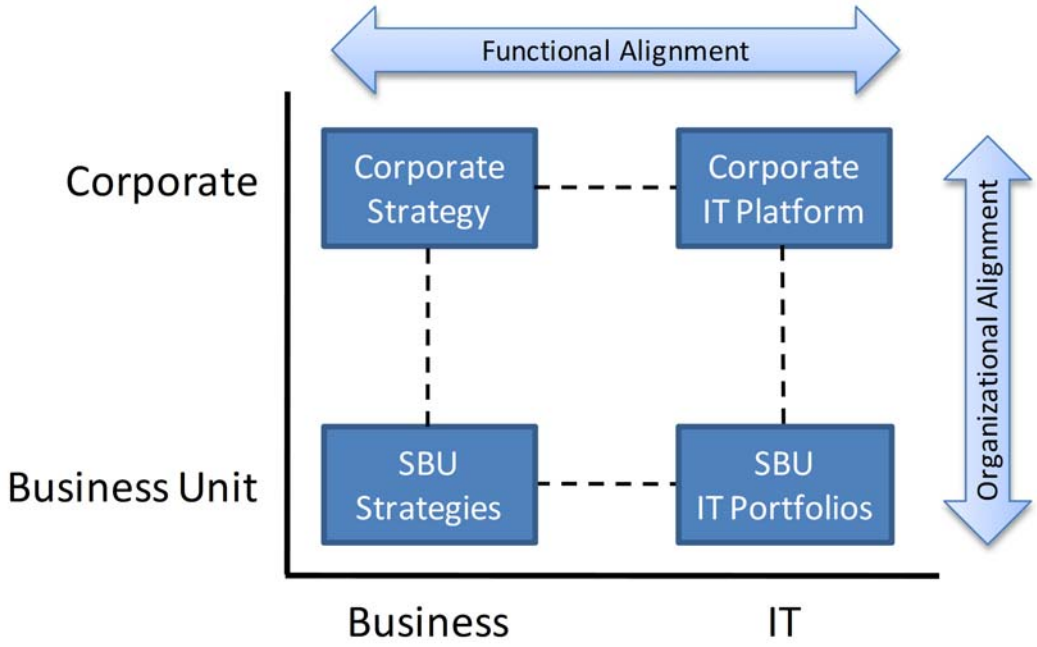

Figure 2 *A Model of IT Alignment (adapted from Reynolds and Yetton (2009))*

The alignment process illustrated in Figure 2 depends on two arguments. One is Thorogood and Yetton (2005) who use real option pricing to model the corporate IT platform as the option price to an organization for its SBUs to have the right, but not the obligation, to build new IT applications at a time of their own choosing, determined by market conditions. It follows that the IT portfolios of SBUs are independent of each other. The other is the explanation of Reynolds and Yetton (2009) and their dynamic processes of alignment as an organization first decides its corporate strategy, then builds its IT platform to deliver that strategy, while its SBUs are developing their strategies. To minimize complexity and interdependence, which maximizes agility, and minimizes future maintenance and upgrade costs, the SBUs' application portfolios are developed independently of each other (Reynolds and Yetton 2009).

Drawing on the strategy literature on "horizontal" and "vertical" alignment (Kathuria et al. 2007) and "corporate coherence" (Dosi et al. 1992; Teece and Pisano 1994), organizational performance is increased where strategic decisions support and enable future choices of strategies. Here, with respect to IT carve-outs, alignment critically includes organizational alignment between the IT platform and the SBU IT application portfolios. We accept the arguments of Reynolds and Yetton (2009) that, in the ideal type alignment presented in Figure 2, the effects of alignment between diagonal constructs, those between the corporate strategy and SBU IT portfolios, and SBU strategies and the corporate IT platform, are indirect, mediated by the adjacent components of the model.

In practice, organizations have not adopted the model presented in Figure 2. Instead, the general approach is to adopt a NPV-based (net present value) business case. That generates a complex, integrated IT investment model and related implementation program in which all four components in Figure 2 are highly interdependent (Thorogood and Yetton 2005). In this case, SBUs use applications developed for other SBUs and, in the process, customize those systems to their own needs. This creates a complex interdependent system. In contrast, in Figure 2, the IT carve-out work stream needs only to provide the carve-out object, represented by one SBU, with its own IT platform, which does

not compromise the organization's IT platform. In practice, as discussed below, the situation is much more complex and challenging.

4 THEORY SPEAKS TO PRACTICE: IT SUPPORT FOR CARVE-OUTS IN A "PERFECT WORLD"

Consider a hypothetical organization that is optimized for IT components of carve-outs as described by the model in Figure 2. The following four assumptions would hold for that organization:

Autonomous SBUs: SBUs act autonomously, making decisions about how to compete in their product or service market without regard to other SBUs. Interdependences among business strategy decisions are limited to those between the corporate strategy and the individual strategies of the SBUs. Thus each SBU acts independently in its product and service market. Activities and decisions of one SBU have no effect or influence on another SBU. Each SBU has its own strategy to achieve its individual business goals, even though they are derived from the same corporate strategy and corporate goals.

Independent SBU Information Systems: A business application is used by only one SBU. Each SBU uses an enclosed set of business applications. The same encapsulation accounts for data. This is a common principle in software engineering (Agarwal et al. 2009) and should be applied to systems design. It does not imply that there is no information exchange between business units but refers explicitly to the separation of applications and data. Information is exchanged through well defined interfaces. Neither does this assumption impose separate data centers for each SBU, since virtualization concepts and multiple instance architectures allow data and application separation on the same hardware infrastructure.

Corporate IT Governance: The corporate IT platform provides an information systems framework to accommodate current and future SBU business applications. Similarly, shared services are provided to support all SBUs. However, to guarantee that the corporate platform is beneficial to all SBUs, corporate standards must be established and the systems must be well documented. It is also necessary that SBU systems are well documented to ensure that all pre-requisites for interfaces, data, source codes, shared services, etc. can be achieved in the IT environment of the carve-out object.

This third assumption arises from the organizational alignment represented by the vertical arrow in Figure 2, which shows the alignment between the IT function at Corporate and SBU level. Organizational alignment leads to increased organizational performance because corporate level IT decisions support or enable SBU IT strategies (Reynolds and Yetton 2009). A corporate IT platform works well only if all SBU IT Portfolios harmonize with the corporate IT platform.

Competence Preservation: Carve-outs transfer both technical and human assets from one organization to another. With that transfer of human assets, there is a transfer of tacit knowledge and capabilities. To guarantee that the vendor retains and the buyer acquires the necessary intellectual property, one must assume that knowledge and capabilities can be cloned, preserving them in the vendor and embedding them in the carve-out object.

The fourth assumption arises from the functional alignment represented by the horizontal arrow in Figure 2, which illustrates the alignment between the Business and IT function. Functional alignment means that organizational performance is increased where IT strategic decisions support or enable the business strategies (Reynolds and Yetton 2009). As described above, the introduction of new technologies does not lead directly to competitive advantages. Appropriate competences are necessary to ensure a suitable usage of new technology.

If these four assumptions are satisfied in practice, carve-outs would not be a major IT challenge. Within the organizational environment presented in Figure 2, an SBU could be easily decoupled from the organization, taking with its information systems and data with it. There would be no interdependences with other SBUs. The only issue would be the decoupling from the corporate IT

platform to establish a similar environment for the carve-out object. However, these assumptions do not hold in practice.

5 PRACTICE SPEAKS TO THEORY: A CASE STUDY

The Gamma Group is a global organization that operates in 160 countries. In 2007, it employed 372,000 people worldwide, generating revenues of more than €71 billion, with a profit of over €2.4 billion.

Gamma IT Consulting (GIC) was part of the Digital Processing and Transmitting business area of the Gamma Group, offering a broad portfolio of multi-vendor IT solutions and services for the private and public sector. With more than 10,000 customers, GIC was one of the world's leading providers of IT services, generating revenues in 2007 of €3.8 billion. Its portfolio incorporated a range of services from consulting and system integration to the management and operation of IT infrastructure and entire business processes.

GIC was divided into three business divisions that covered the IT lifecycle. The *IT Solution Services (ISS)* division covered the first phase in the IT lifecycle. This comprised consulting services and the definition of customer solutions, including SAP, system integration, and IT and process consulting. The *IT Operations Services (IOS)* division covered the second phase in the IT lifecycle. This included both the outsourcing of IT intensive business processes, including HR and financial services, and the management of data centres, desktop environments, LAN/WAN and call centres. The *IT Product Services* division (*IPS)* covered the third phase in the IT lifecycle, offering maintenance and infrastructure services. These included platform-independent IT infrastructure services and solutions that addressed customers' high availability, consolidation, migration and lifecycle management requirements, supporting a range of third-party platforms.

In April 2007, the Gamma Group embarked on a major restructuring project, Ready4Success. At that time, GIC was expecting to lose €109 million, down from a profit of €40 million in 2006. As part of the restructuring initiative, the Gamma Group was looking for a solution for this challenged SBU. The solution adopted was to divest the IPS division. The subsequent carve-out is the subject of this case study.

5.1 Research Approach

Data for this case study consists of 11 semi-structured interviews, access to project documentation and status reports. Interviews included: the vendor project manager, IT project managers from the vendor and the buyer, assistant IT project managers and the country coordinator on the vendor's side, members from both sides of the carve-out committee and other members of the IT work stream. Interviews were recorded and transcribed in note form for further analysis. The interviews were conducted in 2007 and 2008. The goal of the case study was to identify IT-based critical issues within the carve-out project.

5.2 A Critical Case Analysis

The case analysis is organized under the headings of each of the four assumptions underpinning the model presented in Figure 2. The Gamma case is reviewed against each assumption from the perspective of every interviewee, identifying the consequences of departures from those assumptions for the IT work stream within the IPS carve-out project.

Autonomous SBUs: Gamma is a multi-national enterprise, operating in more than 160 countries, and offering a wide range of products and services in high technology sectors, including health, industry and energy. The broad and diversified portfolio, combined with Gamma's global representation, has generated a complex organization structure to meet the specific requirements of each line of business and geographical region. Gamma benefits from close collaboration between SBUs in various ways.

For example, because GIC was the internal IT service provider for the Gamma Group, many SBUs were internal customers of GIC and, therefore, were frequently customers of IPS – the carve-out object. The carve-out made it necessary to reorganize the supply relationship. In addition, IPS was a component of the lifecycle of IT services covered by GIC. This implies close collaboration between IPS and the other two departments within DIC. The three businesses were highly interlinked on a financial, organizational and technical level.

In the carve-out, Gamma addressed this issue with a combination of Transition Service Agreements (TSA) and Reverse Transition Service Agreements (RTSA). Typically, TSAs control the delivery of IT services by the vendor until all IT systems at the buyer work effectively and RTSAs manage the delivery of IT services of the carve-out object after Day One for the vendor. In this case, the agreements allowed a smooth decoupling of integrated business processes between IPS and other SBUs at Gamma.

These activities match with the IT alignment model in Figure 2 and the box labelled “SBU strategy”, which specifies the independence of the SBU strategies. The TSA and RTSA helped Gamma to decouple all services between IPS, and the other departments and SBUs. They were instrumental in first isolating and then carving IPS out of the corporate-wide value chain.

Independent SBU Information Systems: Because of the close collaboration between IPS and both IOS and ISS, some IT systems were used by more than one business unit. One example is the charging system. All business units of GIC adopted this IT system to improve cost transparency and to simplify the charging of customers across all business units. As a consequence, the charging system contained interlinked data from all business units. For the carve-out, all data pertaining to IPS had to be identified and separated from the other SBUs. One reason was to ensure that the buyer was not able to gain access to data from IOS and ISS. The other was to prevent the vendor from having access to data from the carve-out unit after Day One. The charging system was only one example of the dependencies between information systems that made the carve-out challenging for the IT work stream.

The use of application decision templates helped Gamma to identify the relevant IT systems and to find solutions to isolate each IT system and then to carve it out of Gamma’s corporate IT platform. A mutual decision process ensured that all decisions about IT applications were made jointly by representatives from the buyer and vendor. All issues concerning the identification and isolation of those IT systems and their related data were discussed as early as possible, in order to minimize unnecessary and redundant tasks.

Independence among SBU Information Systems is represented in the IT alignment model in Figure 2 by the box labeled “SBU IT Portfolios”. This box shows that each SBU manages its own IT systems which are independent from the IT systems of the other SBUs. In the Gamma case, dedicated IT systems within IPS were easily identified, evaluated and decoupled. In contrast, each application that was shared with other SBUs required the development of a specific application decision template. Many of the IT systems that were used at IPS were also shared applications, whose separation was complex, difficult and protracted.

Corporate IT Governance: Gamma had many formally approved and “enforced” guidelines for selection, adoption and usage of IT systems. However, corporate IT gave SBUs a high degree of freedom to fulfill specific and individual requirements in different industries or countries. In the case of IPS, the degree of freedom was high for geographical region in relation to the local IT systems. There was no overview of the affected local IT systems. For example, some geographical units used customized sales systems because of local legal requirements and pricing issues. Un-documented local IT systems represented a major challenge because they lacked documentation covering how they integrated into Gamma’s SAP landscape.

The IT work stream leader in the carve-out project team appointed a dedicated country coordinator to handle those and similar problems. The country coordinator was responsible for status reporting and

communication across all the affected countries. This helped to establish trust between the parties involved and simplified access to information about local IT systems. Organizational alignment represented by the vertical arrow in Figure 2 specifies the alignment between the corporate IT and SBU IT, shows that corporate level IT decisions support and enable SBU IT strategies to deliver high performance.

Competence Preservation: Rumors about the disposal of IPS surfaced long before the formal announcement of the sale and even longer before the beginning of the carve-out project. Before the rumors were confirmed, key personnel, including senior executives within GIC, left the company because of their uncertain future prospects. In addition, the initial negotiations were conducted without any involvement of IT management. Therefore, the concerns of the IT department, including, for example, existing IT competences, skills and intellectual property in IPS, many of which were not documented, were not considered in those negotiations and, importantly, were not specified in the contract.

Good change management practice limited the turnover among employees. Through targeted workshops, representatives from all affected parties became participants in the carve-out process. The workshops helped to bridge the culture gap between the vendor and the buyer, and to prepare a seamless integration of the affected personnel into the buying company. In addition, both the vendor and the buyer used Microsoft and SAP technology, which eased the integration of the IT staff. Both sides adopted a flexible approach that allowed Gamma to address some important IT issues after the negotiations were formally completed. This included the responsibility for data migrations and the time period for the delivery of IT-systems to the buyer.

The functional alignment represented by the horizontal arrow in Figure 2 shows that organizational performance is contingent on how well IT strategic decisions support and enable the SBU strategies. An effective change management program that helped them to retain key personnel was an important factor, which helped Gamma to achieve a high functional alignment.

The above differences between the theory and practice of carve-outs are summarized in Table 1.

Assumptions in a perfect world	**Situation in practice**
Autonomous SBUs	• SBU involvement in corporate-wide value chains • Multi-regional corporate structures
Independent SBU Information Systems	• Integrated information in common databases • Interconnected and mutually dependent IS • Isolated multi-purpose IS in regional subsidiaries
Corporate IT Governance	• Standards not implemented corporate-wide • Undocumented IS at various levels and locations
Competence Preservation	• Assessment of carve-out objects primarily based on bookable assets • Uncertainties led to a loss, of competency

Table 1. Differences in alignment between theory and practice

6 DISCUSSION

The source of threats to successful IT carve-outs frequently lies in a violation of one or more of the assumptions underpinning the ideal type alignment model presented in Figure 2. To design an organization to facilitate IT carve-outs, the following guidelines based on Figure 2 and Table 1 should be followed:

- The carve-out object should be autonomous
- The SBU information systems should be independent
- Corporate standards should be implemented in both the corporate IT platform and the SBU application portfolios

- The value of the competences, skills and experiences of the human resources should be recognised in the formal contract because the value of the information systems being sold is contingent on IT human resource competences and capabilities

6.1 Conflicts between vendor IT/line management and IT carve out management

The conflicts between these guidelines and practice, as presented in Table 1, can be the source of structural conflicts among the key vendor stakeholders. The guidelines are the basis for the IT carve-out management to optimize the carve-out process. In contrast, the vendor IT and line managements focus on the on-going operations of the retained SBUs. Trade-offs need to be made to accommodate these stakeholders' different objectives. Table 2 identifies the conflicts between those objectives.

Assumptions	**Vendor IT / line management**	**IT carve-out management**
Autonomous SBUs	• Loss of value chain efficiency (orchestrated processes) • Loss of economies of scale	• Simple identification of business-related IT applications and data
Independent SBU Information Systems	• Loss of information efficiency • Redundancy and inconsistency	• Simple decoupling of related IT applications and data
Corporate IT Governance	• Expensive • Undocumented local business customization	• Transparency • Risk identification
Competence Preservation	• Costs for continuous knowledge management • Difficult to assess competences (qualitative)	• No loss of competences • Suitable usage of IT

Table 2. Conflicts between vendor IT / line management and IT carve-out management

While vendor IT and line management lose value chain efficiency and economies of scale when SBUs are autonomous, this significantly reduces IT carve-out management costs and complexity because it is simple to uniquely identify the business-related IT applications and data. In the Gamma case study, Gamma benefited from the linkages between the SBU business processes and information systems before the carve-out. However, for the IT carve-out, it was necessary to make the SBU autonomous using TSAs and RTSAs.

A similar argument can be made for the benefits from having independent SBU information systems. Their existence simplifies the IT carve-out process because they allow a simple decoupling of related applications and data. On the other hand, vendor IT / line management lose information efficiency because the separation of datasets can lead to redundancy and inconsistency of data. In the IT carve-out team, application decision templates and a mutual decision process were used to identify the affected information systems and decouple them from other information systems. Gamma IT and line management were seen as part of the problem and not part of the solution.

Corporate IT governance is expensive for the vendor IT and line management. In particular, poor documentation of local IT responses to local business requirements raises the cost and complexity of corporate IT governance. Corporate management frequently colludes with local line management to avoid paying those costs. For the IT carve-out management team, strong corporate IT governance leads to transparency and reduces the risks from poor system identification. In the case of Gamma, the country coordinator had a major challenge to provide an overview of the status of systems in each country. The documentation of local customisations was critical to the success of the overall project.

The fourth assumption addresses competence preservation and the transfer of intellectual property from the vendor to the buyer. Competence preservation is a major challenge because it is difficult to

assess competences. For the IT carve-out team, it is hard to manage what you cannot measure. In addition, the competences can walk out the door. It is important not to lose important competences during the project. They are critical to establishing a viable carve-out object. Gamma was successful for two reasons: its successful change management processes and that both the buyer and vendor used similar ERP technology, enabling the transfer of tacit knowledge.

6.2 Future research

The above discussion identifies three areas for future research. One is the need to investigate the perspective of the buyer within the carve-out process. It is tempting to assume that this would merely be a mirror image of the vendor's perspective described above. However, some examples of carve-outs suggest that this assumption does not hold. One reason for this might be that buyers do not always reveal their strategic intent: obtaining core competencies versus buying a going concern. The natural asymmetry in any SBU acquisition or divestment makes the development of a successful carve-out process problematic.

The second area is embedded in the comparison above of the ideal, normative theory and the theory in practice. The challenge is to identify the costs of the IT carve out ex ante and include them in the contract negotiation. These costs are not limited to the direct IT costs incurred by the carve-out team, which are known ex post. Other SBUs and the corporate centre also incur indirect costs. Predicting the full IT direct and indirect costs ex ante, which are substantial, is a major challenge.

The third area is the challenge of designing the IT for a multi-divisional, global organization to minimise the costs of future acquisitions and carve-outs by implementing a design based on the ideal form presented in Figure 2. In addition to reducing acquisition and carve-out IT-based costs, the design would reduce the costs of IT-based maintenance and innovation. This would locate carve-out management within a new model of alignment.

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