A method for consolidating application landscapes during the post-merger-integration phase

Andreas Freitag, Florian Matthes, Christopher Schulz
Technische Universität München
Boltzmannstrasse 3, 85748 Garching bei München
Email: {Andreas.Freitag, Florian.Matthes, Christopher.Schulz}@in.tum.de

Abstract—**Mergers and acquisitions (M&A) have become frequent events in today's economy. They are complex strategic transformation projects affecting both - business and information technology (IT). Still, empirical studies reveal high failure rates regarding the achievement of previously defined objectives. Taking into account the role and importance of IT in modern business models, the consolidation of application landscapes and technical infrastructure represents a challenging exercise performed during the post-merger-integration. Unfortunately, not many artifacts in the form of tangible concepts, models, and methods exist facilitating the endeavors of merging IT.**

After providing a broad overview on relevant literature in the area of M&A from a business and IT perspective, this article presents a method artifact for consolidating application landscapes in the course of a merger. It originates from the approach applied during a case study in the telecommunication industry where the application landscapes of two formerly independent lines of business have been merged.

I. INTRODUCTION

For almost 100 years *mergers and acquisitions* (M&A) have been used as a strategic management instrument in many enterprises [1]. In the 21st century, the appearance of corporate consolidations and reorganizations remains remarkably high, whereas M&A are not single events, but rather an integral part of modern business strategies [2]. A typical driver for M&A is the realization of increased market power through inorganic growth, resulting in economies of scale and cost reductions [3]. Penzel [4] for instance, speaks of annual cost savings between 10% and 20%. Moreover, new markets may be conquered through the enlargement of the product and service portfolio in order to realize economies of scope [4].

Although the two terms "merger" and "acquisition" in M&A are often used as synonyms, both words denote slightly different things and should not be misperceived [5]. Whereas the terms are sufficiently defined and consistently applied in the Anglo-Saxon publications (especially in the United States), German literature still lacks a commonly accepted distinction between both concepts [6]. However, looking on M&A from an *information technology* (IT) perspective, it is sufficient to consider M&A as any type of enterprises' fusion under one economic authority, independent from the legal status of the participants.

Despite their frequent occurrence, approximately 50% of all M&A succeed [7]. Gerds [1] even reports a failure rate higher than 60% which is confirmed by a multitude of empirical surveys [8], [9]. Several studies evaluate risks and

common pitfalls in order to identify key success factors for M&A planning and *post-merger-integration* (PMI) projects. Our literature research resulted in the subsequent list, which is mutually agreed upon by the majority of authors ([10], [11], [12], [13], [14]), even though they apply different languages and terminology:

- Clear business vision - committed, explicitly described, and measurable
- High aspiration level, definite directions, common performance indicators
- Stakeholder management, effective communication, and corporate cultures
- Project organization (structures and processes)
- Coordinated and holistic planning of business and IT
- Consistent decisions for business and IT
- Knowledge management
- Risk management
- Realize growth and demonstrate early wins

Given that the majority of enterprises are characterized by intensive usage of IT today [15], [16] as well as regarding the items of above's list, it becomes obvious that IT also should be taken into consideration during M&A. According to the Gartner study "IT Spending and Staffing Report 2008" [17], typical investments for IT account for around 3.4% of the annual revenue. Even if for many of these enterprises' IT presently still plays an inferior role by supporting main business processes only, medium to large size companies cannot be imagined without it. Unfortunately, the significance of IT is often undervalued in the course of M&A and resulting *integration* endeavors [18], [16]. This argument is underpinned by the work of Johnston and Yetton [19], who emphasize that the IT division can be critical to merger success in M&A of large enterprises particularly during the intractable activities of the PMI phase.

In this article, the term integration refers to post-merger-integration phase of a merger or an acquisition. Although sometimes the term is differently defined when taking a closer look on current literature [20], [21], integration can be regarded as a logical consequence realizing a strategic decision in comprising the totality of changes and process steps necessary for the consolidation of two different entities. In the following, the terms integration, merge, and consolidation are used interchangeably for ease of reading. Furthermore, this

article considers an integration as a complete amalgamation of two or more entities resulting in one remaining entity.

The integration of IT includes the consolidation of two or more heterogeneously evolved application landscapes which previously supported different businesses. In the case of a complete integration, those landscapes are consolidated entirely, hence coupling solutions and green field approaches are not considered. Consequently, in the aspired future application landscape each single functionality is realized non-redundantly by one dedicated application. When it comes to specific artifacts facilitating the integration of application landscapes in the course of M&A projects, little literature exists, both in academia as well as in practice [22], [23], [19]. In this regard, an artifact refers to all innovations attempting to create utility for an organization: constructs, models, methods, and instantiations as specified by [24]. The present article proposes a method for consolidating historically independently grown application landscapes originating from a case study in the telecommunication industry in which two *lines of business* (LoB)s have been integrated. Thereby, the planning and implementation was based on the *enterprise architecture* (EA) framework *TOGAF* (The Open Group Architecture Framework) [25], which was tailored in order to fit to the specific merger context.

The remainder of this article is structured as follows: Section II provides a solid overview on existing M&A literature covering the business and IT view on the topic. In Section III, a method for integrating two different application landscapes is presented as applied in the case study. Finally, Section IV concludes by summarizing the article and outlining further fields of research.

II. RELATED WORK

When addressing the challenge of IT integration in the course of the merger business and IT related sources have to be taken into account. First group of literature focuses on the overall M&A process and conditions from a business point of view while the second group explicitly copes with merger relevant IT topics. Complementing both views, we also examine a representative subset of *enterprise architecture management* (EAM) literature, which provides a holistic view on an enterprise with regard to concepts and ideas addressing M&A challenges like consolidating application landscapes.

Approaching M&A from a business stance, the work of Bänzer et al. [26] constitutes a comprehensive and widespread overview. By differentiating between a general planning, execution, and integration phase, it thoroughly investigates on the different forms, activities, organizational impacts, constraints, and artifacts which designate M&A projects. Nonetheless, the role and importance of IT is solely motivated by a high-level IT due diligence checklist [26]. The in German-speaking countries well known book of Jansen [6], gives a systematic introduction to the topic of M&A from a business point of view. Once again, IT is not in the scope of this work. Gerds and Schewe [1] shed light on M&A by elaborating a so-called "recipe for success" regarding beneficial post merger

achievements. In providing several case studies from global positioned enterprises, the work points out main differences between top performer and M&A average. Nonetheless, the significance of IT is not elaborated on in detail. Further literature proposes specific taxonomies, calculation rules, and financial metrics to evaluate the outcomes of a merger [7]. However, IT mostly plays a minor role [27] or is even entirely omitted [28]. In summary, due to their business focus this group of literature sets the overall context of the merger but does not provide specific artifacts for the consolidation of IT.

Tackling M&A from an IT perspective, the work of Miklitz and Buxmann [22] points out four different integration strategies for application landscapes. The authors present a concrete design artifact for selecting applications expressed by a decision model which targets at the standardization of the landscape. Unfortunately, their article refrains from evaluating the model in practice. Penzel and Pietig [14] propose a so-called "Merger Guide" structuring bank mergers into time slices and dimensions. The authors highlight the importance of IT, represented through a proper dimension in the merger process and spend a dedicated chapter dealing with IT during M&A. Besides pointing out relevant system integration strategies, system transition plans, and a layer model of a bank's system architecture, the work also considers data migration and the shutdown of obsolete systems. Nevertheless, Penzel and Pietig do not provide concrete methods or key deliverables to carry out the transformation from multiple application landscapes to one.

Considering current literature in the domain of EAM, M&A is mostly addressed as one possible field of application and in a brief manner only. Ross et al. [29] observe, that a certain maturity level of EAM is a prerequisite to manage M&A. Nevertheless, the authors do not explicitly address EAM processes or methods, but rather present several M&A case studies. Niemann [30] shortly sketches a merger situation as well as the implications on the application and infrastructure landscape during the development of planning scenarios without providing a method to deal with this type of situation. Focusing on the general management of integration projects, Winter examines a series of case studies. He identifies M&A as one major trigger for integration projects [21] and motivates the need for a situation specific integration method being applied in the course of a PMI phase. Keller [31] dwells on mergers within IT application portfolio management. He consciously creates the link between EAM and M&A by presenting the ladder of integration and the basic pattern of application consolidation. Still, no specific method is proposed aiming at consolidating application landscapes.

Due to their high practical relevance and continual increasing awareness amongst academia, EA frameworks are a valuable source when it comes to M&A. While frameworks such as Zachman [32] only classify the descriptions of an EA, The Open Group Architecture Framework (TOGAF) [25] also provides elements to establish a sustainable architecture function in an organization and proposes an *Architecture Development Method* (ADM). However, since EA frameworks

are a collection of best practices covering a broad range of use cases, relevant parts of the chosen framework have to be selected and explicitly tailored to the specific needs. The same applies to the case of M&A.

In the reviewed literature, concrete M&A artifacts for merging IT are rarely addressed. Most notably, the consolidation of application landscapes is not elaborated in detail. In the majority of cases, the authors differentiate between the general strategies for IT consolidation: cherry picking, steamroller, co-existence and green field approach [19], [31], [22], [33]. Unfortunately, these depicted suggestions remain rather general and abstract. In contrast, the method proposed in subsequent Section explicitly copes with the consolidation of independently evolved application landscapes, ranging from initial clarification of the common business vision to planning of a roadmap on an application level.

III. METHOD TO CONSOLIDATE APPLICATION LANDSCAPES

A. Preliminary considerations

A M&A situation between two companies whose business models rely on IT inherently entails the complete integration of the application landscapes during the PMI phase in order to realize the intended synergies. Following a theory-building approach from one or more case studies as motivated by Eisenhardt and Graebner [34], this section suggests a method artifact for application landscape consolidation. Thereby, the method is based on a case study from the telecommunication industry, hence the focus lies on theory building rather than testing the designed artifact. After a brief introduction to the case study, the resulting method is presented in the first part of this section. Subsequently, the article continues by describing each method step in detail. In doing so, every single step is accompanied by the respective part of the case study printed in italic letters.

B. A case study from the telecommunication industry

The telecommunication group comprises two lines of business (LoB)s - fixed line and mobile business. The newly-defined corporate strategic goal driving the merger of both LoBs was to increase customer satisfaction achieved by high service quality during each contact. Another major requirement was the responsive support of personalized marketing campaigns providing customers with product and service offers in a timely manner. Consequently, the need for an integrated *customer relationship management* (CRM) had been identified. Both LoBs acted in different competitive environments with individual business models, products, and processes but with partly identical customers. Furthermore, their CRM application landscapes have been developed independently to a large degree in the past.

In order to establish an integrated CRM supported by a common application landscape, the commissioned CRM project team used the presented method to fulfill subsequent core tasks:

- develop a comprehensive and corporate-wide approved vision for CRM consisting of the business target picture and the architectural blueprint
- gain transparency about the current CRM application landscapes of both LoBs in addition to their associated costs
- develop the target CRM application landscape as well as general architecture principles for the subsequent implementation initiatives
- elaborate an implementation roadmap, taking into account the existing CRM roadmaps of each individual LoB

Thereby, it was especially important to balance between strategic corporate goals and operative process and data requirements of the various sales and service divisions at the two LoBs. Both had to be considered in the target application landscape. At this point in time, the parallel business project which was in charge to work out the common target business processes was not completed. Therefore, a stable structure to coordinate the business and the IT project was required to start work immediately and integrate the different requirements relevant to the common CRM later on.

C. Method overview

The presented method is based on the EA framework TOGAF [25] and provides an approach for consolidating application landscapes driven by a merger and acquisition activities. Typically, the main IT integration work is performed during the PMI phase by means of one to more dedicated project(s). Figure 1 shows the stringent top-down approach which has been derived from the TOGAF Architecture Development Method (ADM). The ADM, as one core element of TO-GAF, describes the holistic development of architectures (i.e. business, information systems, and technology architecture) following 11 distinct phases. Therefore, the method allows to interlink IT consolidation activities with general integration work conducted in other domains, e.g. business processes, resources, or staffing.

The final deliverables of the presented method artifact consist in a *business target picture*, an *architecture blueprint*, and an *implementation roadmap*. Table I provides short a definition of each term. After pointing out basic information and main context of the case study in which the method was successfully applied, the different steps of the artifact are explained in detail. At the same time, each individual step is exemplified by the experiences made and the challenges encountered during the execution of the case study.

D. Detailing the method

1) Design and establish governance model: Before working on the project's core task, i.e. the consolidation of application landscapes in the course of the PMI phase, an overall *governance model* is established. The main rationale behind is to provide a binding working environment and to form a foundation for all subsequent method steps performed by the responsible project team. As major constituents, the governance model gives information about the project organization, clear
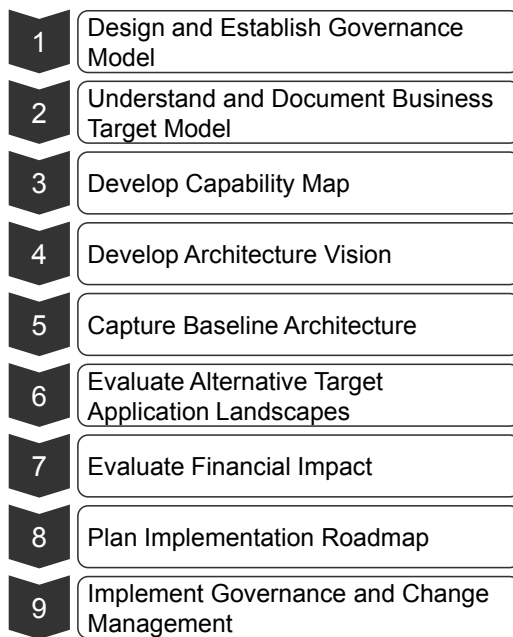
```
┌─┐ ┌─────────────────────────────────┐
│1│ │ Design and Establish Governance │
└─┘ │ Model                           │
    └─────────────────────────────────┘
┌─┐ ┌─────────────────────────────────┐
│2│ │ Understand and Document Business│
└─┘ │ Target Model                    │
    └─────────────────────────────────┘
┌─┐ ┌─────────────────────────────────┐
│3│ │ Develop Capability Map          │
└─┘ └─────────────────────────────────┘
┌─┐ ┌─────────────────────────────────┐
│4│ │ Develop Architecture Vision     │
└─┘ └─────────────────────────────────┘
┌─┐ ┌─────────────────────────────────┐
│5│ │ Capture Baseline Architecture   │
└─┘ └─────────────────────────────────┘
┌─┐ ┌─────────────────────────────────┐
│6│ │ Evaluate Alternative Target     │
└─┘ │ Application Landscapes          │
    └─────────────────────────────────┘
┌─┐ ┌─────────────────────────────────┐
│7│ │ Evaluate Financial Impact       │
└─┘ └─────────────────────────────────┘
┌─┐ ┌─────────────────────────────────┐
│8│ │ Plan Implementation Roadmap     │
└─┘ └─────────────────────────────────┘
┌─┐ ┌─────────────────────────────────┐
│9│ │ Implement Governance and Change │
└─┘ │ Management                      │
    └─────────────────────────────────┘
```

Fig. 1. A method for consolidating application landscapes

TABLE I
KEY METHOD DELIVERABLES AND THEIR DEFINITION

Name	Description
Business target picture	An explicitly documented common corporate vision for the respective functional scope.
Architecture blueprint	A description of the target application landscape on a logical level.
Implementation roadmap	A list of individual steps of change laid out on a time line to show progression from the baseline application landscape to the target application landscape.

responsibilities, conductive rules for collaboration, reporting, as well as effective escalation paths. Besides the formal governance model, the overall project success strongly relies on the management of multidisciplinary stakeholders and the establishment of adequate communication and information activities.

The project steering committee of the telecommunication company was given the mandate to act as the required cross-LoB decision board by forming an interim architecture board for the time of the project. In total, the CRM project had to manage a group of nearly 50 stakeholders. This included representatives of various business units (e.g. CRM, marketing, sales, and product management department), IT, and controlling from both LoBs, who had to be regularly informed about the transformation progress. Fortnightly information sessions were scheduled to present and discuss relevant architecture views.

2) Understand and document business target picture:
During the second step, the mandate of the application consolidation project including the functional scope, rights,

and responsibilities, is specified in more detail and formally agreed upon. The functional scope is defined with the help of *architecture segments*, which according to TOGAF are *"a detailed, formal description of areas within an enterprise, used at the program or portfolio level to organize and align change activity."* [25]. The business target picture is thoroughly analyzed and documented in order to derive the strategic requirements, which will drive the development of the *target application landscape.*

The clarification of the business target picture for CRM of the company was based on a study about CRM market trends in the telecommunication sector, an analysis of the company strategy and business goals, as well as interviews with selected executive management representatives of both LoBs. It included the substantiated requirements from a business point of view, which had to be addressed by the target application landscape. The definition of the functional scope of CRM was achieved in close coordination with the corporate-wide enterprise architecture initiative. This initiative had the mandate to develop an overarching architecture model consisting of non-overlapping segments which represent distinct business domains (e.g. CRM, billing, product management, or logistics). Based on the elaborated segment structure, responsibilities considering the business and IT requirements could be non-ambiguously mapped. By this means, the CRM project team was able to develop the target application landscape for the agreed CRM segment, while routing requirements to their respective projects. For instance, requirements which resulted from the business target picture for CRM but related to different segments. Additionally, a set of architecture principles was derived from the business target picture as main guidelines to ensure a strategy-aligned execution of the implementation roadmap.

3) Develop capability map: In this step, a common language and structure for the relevant segments of the consolidation project is established among the multidisciplinary stakeholders. This is especially important to ensure a high degree of acceptance and sustainability for the solution to be developed in the course of the project. A *capability map* is used to break down the relevant architecture segment. Again, this article adheres to the definition of TOGAF, where a capability represents *"an ability that an organization, person, or system possesses"* [25]. According to TOGAF, capabilities are typically expressed in general and high-level terms, e.g. customer contract management or campaign management.

The defined CRM segment was detailed using a CRM capability map to provide a common terminology and structure among the different stakeholders from business units, IT, and controlling of both LoBs. The commonly agreed cross-LoB definitions for the CRM capabilities have been identified during a series of workshops with business and IT representatives. Afterwards, the functional view of the capabilities was complemented with major business objects, including definition of ownership and depending information flows. As a mean of communication, a graphical representation of capabilities and assigned business objects was elaborated.

4) Develop architecture vision: The *architecture vision* depicts a high-level view on the as-is and target enterprise architecture, according to the priorly elaborated business target picture. As one key element of the architecture vision, the architecture blueprint describes the target application landscape on a logical level. It is needed to analyze and compare existing application landscapes in order to support the selection of the target applications. To facilitate the comparison of the different applications, logical *architecture building blocks* (ABB)s which cluster functional and non-functional requirements, are assigned to the capabilities identified in previous step. Thereby, an ABB *"represents a (potentially re-usable) component of a business, IT, or architectural capability"* [25] as defined by TOGAF.

The CRM target application landscape was described on a logical level, according to the formulated CRM business target picture. The architecture blueprint was worked out in a series of workshops with subject matter experts and business and IT representatives of both LoBs. The various requirements from the CRM business target picture could ultimately be classified and consolidated on the basis of the capabilities. Afterwards, the planned IT support for the elaborated capabilities was described in the form of ABBs before key business objects were mapped to those ABBs in order to define data mastership and information flows derived from data usage. To ensure consistency regarding further IT initiatives in the company, the resulting architecture blueprint was also cross-checked in terms of feasibility against other segments. At this point, the business requirements which have been refined and detailed by the parallel ongoing business project were incorporated in the identified ABBs.

5) Capture baseline: In order to select the applications that optimally support the elaborated architecture blueprint, the baseline of existing applications is captured. Different applications are compared on the basis of information about their lifecycle, functional, non-functional, and financial criteria. Thereby, the developed architecture blueprint including capabilities and architecture building blocks is applied as a common reference structure to make results comparable.

To define the major applications from both LoBs that support the described architecture blueprint, the baseline of existing CRM applications was captured. To compare nearly 150 applications, a tool-based inventory with lifecycle information, functional and non-functional requirements, as well as financial properties was created. The analysis of the baseline did also include already planned changes within the application landscapes of both LoBs and existing migration roadmaps. Depending on the main functionality identified with subject matter experts from business and IT of both LoBs, each application was assigned to those ABBs it supports. This allowed for a direct comparison between the functionality offered and as-is costs of both application landscapes on ABB and capability level.

A brief illustration of assignment of applications to ABBs is depicted in Figure 2. In this example, the business segment "Customer relationship management" consist of the

two distinct capabilities: "Contract management" including three ABBs, and "Campaign management" containing two ABBs. In the depicted scenario 1, ABB 1 and ABB 2 of the capability contract management are realized by the functionally enhanced application of LoB2 (APP 2). For ABB 3, a new application (APP 7) is needed to meet the common requirements. The capability campaign management is best supported by an application of LoB 1 (APP 5). Note that the business objects described above are not shown in this example.

6) Evaluate alternative target application landscapes: To select the optimal target application landscape, different alternatives are evaluated against functional and non-functional requirements attached to the respective ABBs. In each case, the required migration steps towards the target application landscape are elaborated and documented (e.g. functional extensions, data migration, or retirement).

In the case of the telecommunication company, three different target scenarios were evaluated. In each case, the required migration steps towards the target application landscape have been derived by the project team, additional subject matter experts of business departments, and IT of both LoBs.

7) Evaluate financial impact: To support the decision for one target application landscape, a corresponding business case is worked out. The calculation has to encompass estimated transformation costs, current operation and maintenance costs, as well as estimated saving potentials. Costs are structured according to LoB-specific cost center structures, but for an in-depth comparison a common reference is necessitated. The different alternative target application landscapes can be evaluated using the formerly elaborated capability map which is extended through the application of a novel controlling approach allowing to analyze costs and benefits of the transformation on capability level [35]. Finally, the step is concluded with the decision for one target landscape.

Due to the project scope, an IT cost case model was applied in the case of the telecommunication company. The estimated costs and saving potentials on application level were structured and communicated using a CRM capability map which was extended by financial information. In follow-up projects, the IT cost case model was complemented to a full business case by incorporating benefits identified on the business side.

8) Plan implementation roadmap: Finally, an implementation roadmap (cf. Figure 3) for the selected target application landscape is elaborated. The business vision is broken down into major milestones, which realize concrete business value (e.g. establishment of a common information base). The required activities concerning the different application landscapes can be grouped in workpackages according to these milestones. In addition, those applications that have to be modified (e.g. functional extensions, data migration, or retirement) can be assigned to each of these workpackages.

The implementation roadmap represented a step-by-step migration plan for the preferred scenario. It points out the sequence of projects to be carried out in order to build
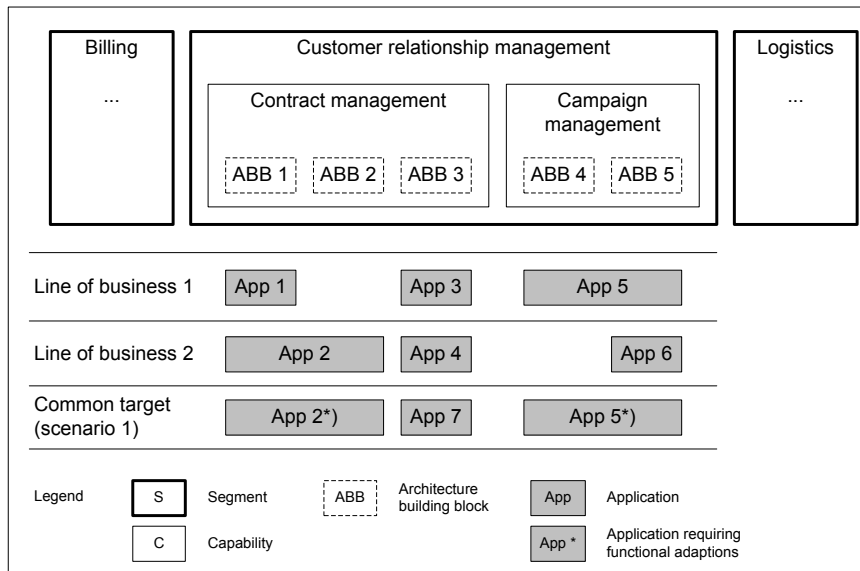
Fig. 2.   Exemplary assignment of different LoBs' applications to the elaborated architecture building blocks

one common CRM application landscape. Additionally, the developed roadmap considered all formerly existing projects of each LoB and highlighted resulting dependencies.

9) Implementation governance and change management: Lastly, an adequate *implementation governance* has to be established in order to guide the following implementation projects. According to TOGAF [25], implementation governance provides an architectural supervision of the implementation. Therefore, a common set of recommendations and guidelines is formulated. Regular checkpoints are established along the implementation process to guarantee conformance with the defined target architecture and ensure the realization of the estimated business value. Furthermore, a proper change management establishes procedures to identify needs and manage changes in order to adjust the implementation roadmap if necessary. Implementation governance and change management have to be closely integrated into general integration activities.

The set of architecture principles defined in step 2 ensured a strategy-aligned execution of the developed implementation roadmap and change management was organized. By reasons of the continuous character of these two activities, the project organization was formally closed and the responsibility was handed over to the line organization.

E. Conclusion

This section presented a method for consolidating application landscapes by following a theory-building research approach. In the presented case study, the defined core tasks have been achieved in time and budget. Due to the successful accomplishment, the method has been debriefed as a reference method for the respective telecommunication company. The main benefits of the method perceived by the project sponsor and the participating stakeholders were
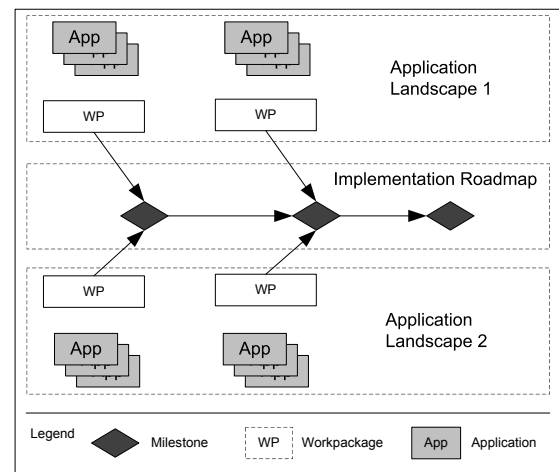

Fig. 3.   Exemplary implementation roadmap

- the consistent planning, from corporate strategy for CRM to IT implementation,
- the stringent methodology, transparent and traceable for business and IT,
- the establishment of a common terminology and a common understanding for CRM, and
- the strong involvement of key stakeholders.

These benefits generated in this PMI project tie in with the general key success factors for M&A presented in Section I.

IV. OUTLOOK & DISCUSSION

M&A can be seen as complex and intricate company-wide transformation projects attempting to integrate two formerly disjunctive business entities. Unfortunately, they are often leading to disillusioning economical results or complete failure. Due to the fact, that IT is an integral part of the

business model in many industries, its importance during an M&A should not be underestimated. However, the selected literature analyzed in this article does not provide relevant artifacts, i.e. concepts, models, and methods helping to meet the challenges of an IT integration. In particular with regards to the complete consolidation of different application landscapes in the course of a merger, no comprehensive approach exists to the knowledge of the authors.

By examining a real-world case study in which two differently administered lines of business had to be integrated from a business and IT perspective, this article proposes a method artifact aiming at consolidating formerly independently evolved application landscapes. As one core concept of the presented method, capabilities proved to be valuable in serving as a stable foundation between business and IT when assessing two landscapes from a functional, non-functional, as well as financial point of view. Furthermore, the document also showed how an adapted TOGAF Architecture Development Method (ADM) can be successfully applied in the context of M&A.

The method requires further evaluation and justification in order to prove its applicability and relevance for the merger context. While the artifact has been established as a standard method in the respective telecommunication company, it is currently re-applied in the course of an application landscape consolidation project of two German software companies. In this vein, the artifact could be further on extended by a distinctive role and organizational model depicting the different actors and their respective points of action during the method. Moreover, specific context factors of M&A as described by business resources (e.g. [1], [15]) should be taken into account when refining the method. In a subsequent step, concrete architecture viewpoints validated by means of complementary case studies should be designed and evaluated.

In all, this article presents an initial foundation when studying IT integration during M&A situations. The depicted method is one of several artifacts which is useful in supporting the consolidation of application landscapes during the PMI phase.

REFERENCES

[1] J. Gerds and G. Schewe, *Post Merger Integration: Unternehmenserfolg durch Integration Excellence*, 3rd ed. Berlin, Heidelberg, Germany: Springer-Verlag, 2009.

[2] R. Sperry and A. Jetter, *Mergers and Acquisitions: Team Performance*. Portland, USA: IEEE, 2007.

[3] C. B. Bark, *Integrationscontrolling bei Unternehmensakquisitionen: Ein Ansatz zur Einbindung der Post-Merger-Integration in die Planung, Steuerung und Kontrolle von Unternehmensakquisitionen*, 1st ed. Frankfurt am Main, Germany: Peter Lang, 2002.

[4] H.-G. Penzel, "Post Merger Management in Banken – und die Konsequenzen für das IT-Management," *Wirtschaftsinformatik*, vol. 41, no. 2, pp. 105–115, 1999.

[5] D. DePamphilis, *Mergers, Acquisitions, and Other Restructuring Activities, Fifth Edition: An Integrated Approach to Process, Tools, Cases, and Solutions (Academic Press Advanced Finance Series)*, 5th ed. Burlington, MA, USA: Academic Press, 2009.

[6] S. A. Jansen, *Mergers & Acquisitions: Unternehmensakquisitionen und -kooperationen. Eine strategische, organisatorische und kapitalmarkttheoretische Einführung*, 5th ed. Wiesbaden, Germany: Gabler, 2008.

[7] M. Koetter, "Evaluating the German bank merger wave," H. Herrmann, T. Liebig, and K.-H. Tödter, Eds., vol. 12. Frankfurt a. M., Germany: Deutsche Bundesbank, 2005, p. 44.

[8] R. A. Chang, G. A. Curtis, and J. Jenk, *Keys to the Kingdom: How an Integrated IT Capability Can Increase Your Odds of M&A Success*, New York, USA, 2002.

[9] A. Watkins and S. Copley, "Operational and IT Due Diligence," 2004. [Online]. Available: http://www.pwchk.com/home/eng/oprisk.html\#F

[10] M. J. Epstein, "The Drivers of Success in Post-Merger Integration," *Organizational Dynamics*, vol. 33, no. 2, pp. 174–189, 2004. [Online]. Available: http://linkinghub.elsevier.com/retrieve/pii/S0090261604000142

[11] B. Görtz, *Due Dilligence als Schlüssel zum Erfolg von Mergers & Acquisitions*. Wiesbaden, Germany: Wirtz, Bernd W., 2006, pp. 519–532.

[12] M. M. Habeck, F. Kröger, and M. Träm, *Wi(e)der das Fusionsfieber. Die sieben Schlüsselfaktoren erfolgreicher Fusionen.*, 2nd ed. Wiesbaden, Germany: Gabler, 2002.

[13] G. Picot, *Handbuch Mergers & Acquisitions*, 4th ed. Stuttgart, Germany: Schäffer-Poeschel, 2008.

[14] H.-G. Penzel and C. Pietig, *MergerGuide*. Wiesbaden, Germany: Gabler Verlag, 2000.

[15] G. Kromer and W. Stucky, "Die Integration von Informationsverarbeitungsressourcen im Rahmen von Mergers & Acquisitions," *WIRTSCHAFTSINFORMATIK*, vol. 44, no. 6, pp. 523–533, 2002.

[16] M. H. Larsen, "ICT Integration in an M&A Process," in *Proceedings of the Pacific Asia Conference of Information Systems (PACIS)*. Copenhagen Business School, 2005, pp. 1146–1159.

[17] M. Smith, B. Gomolski, J. P. Roberts, and R. D. Souza, "IT Spending and Staffing Report," 2008. [Online]. Available: http://www.gartner.com/DisplayDocument?id=607608

[18] D. Brown, "Don't overlook IT in the merger," 2001. [Online]. Available: http://www.computerweekly.com/Articles/2001/05/31/180596/dont-overlook-it-in-the-merger.htm

[19] K. Johnston and P. Yetton, "Integrating information technology divisions in a bank merger Fit, compatibility and models of change," *The Journal of Strategic Information Systems*, vol. 5, no. 3, pp. 189–211, September 1996.

[20] T. Schäfer, *Stakeholderorientiertes Integrationsmanagement bei Fusionen und Akquisitionen*, 1st ed., A. Picot, R. Reichenwald, E. Franck, and K. Möslein, Eds. Wiesbaden, Germany: Gabler, 2008.

[21] R. Winter, *Management von Integrationsprojekten: Konzeptionelle Grundlagen und Fallstudien aus fachlicher und IT-Sicht (Business Engineering) (German Edition)*, 1st ed., H. Österle, R. Winter, and W. Brenner, Eds. St. Gallen, Switzerland: Springer, 2009.

[22] T. Miklitz and P. Buxmann, "IT standardization and integration in mergers and acquisitions: a decision model for the selection of application systems," in *Proceedings of the 15th European Conference on Information Systems (ECIS)*, St. Gallen, Switzerland, 2007, pp. 1041–1051.

[23] P. Wirz and M. Lusti, "Information technology strategies in mergers and acquisitions: an empirical survey," in *Proceedings of the winter international synposium on Information and communication technologies (WISICT)*, vol. 58. Cancun, Mexico: Trinity College Dublin, 2004, pp. 1–6.

[24] A. R. Hevner, S. T. March, J. Park, and S. Ram, "Design Science in Information Systems Research," *MIS Quarterly*, vol. 28, no. 1, pp. 75–105, 2004.

[25] The Open Group, "TOGAF "Enterprise Edition" Version 9," San Diego, USA, 2009. [Online]. Available: http://www.opengroup.org/architecture/togaf9-doc/arch/http://www.togaf.org

[26] B. Bänzer, E. Bartels, H. Bergmann, C. Brugger, and D. Classen, *Handbuch Mergers & Acquisitions: Planung - Durchführung - Integration*, 4th ed., G. Picot, Ed. Stuttgart, Germany: Schäffer-Poeschel, 2008.

[27] P. Morosini and U. Steger, *Managing Complex Mergers (Financial Times Series)*, 3rd ed. Harlow, England: Financial Times/ Prentice Hall, 2003.

[28] C. Kummer and U. Steger, "Why merger and acquisition (M&A) waves reoccur: the vicious circle from pressure to failure," *Strategic Management Review*, vol. 2, no. 1, pp. 44–63, 2008.

[29] J. W. Ross, P. Weill, and D. C. Roberts, *Enterprise Architecture as Strategy: Creating a Foundation for Business Execution*, 1st ed. Boston, MA, USA: Mcgraw-Hill Professional, 2006.

[30] K. D. Niemann, *From Enterprise Architecture to IT Governance: Elements of Effective IT Management*, 1st ed. Wiesbaden, Germany: Vieweg Verlag, 2006.

[31] W. Keller, *IT-Unternehmensarchitektur. Von der Geschäftsstrategie zur optimalen IT-Unterstützung*, 1st ed. Heidelberg, Germany: Dpunkt Verlag, 2007.

[32] J. A. Zachman, "A framework for information systems architecture," *IBM System Journal*, vol. 26, pp. 276–292, 1987.

[33] C. E. Rentrop, *Informationsmanagement in der Post-Merger Integration*, 1st ed. Berlin, Germany: Erich Schmidt Verlag, 2004.

[34] K. M. Eisenhardt and M. E. Graebner, "Theory Building From Cases: Opportunities And Challenges," *Academy of Management Journal*, vol. 50, no. 1, p. 25âĂŞ32, 2007.

[35] A. Freitag, *A Controlling Model for the Enterprise Architecture and SOA: Increased Cost Transparency for Modular IT Architectures*. Vdm Verlag Dr. Müller, 2008.