Strategic Release Planning Challenges for Global Information Systems – A Position Paper

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Abstract. In global companies there is a shift from local to global information systems that need to satisfy the needs of many different divisions all over the world. This raises particular problems for strategic release planning, as the succession of releases needs to satisfy multiple business strategies of several countries. Identification of large-scale business aspect similarities, and thus synergies between these strategies, is a strong contributor to success. Features are a common way to represent early requirements or requirement bundles during strategic release planning. Planning global features requires a particular process regarding capturing and selection validation. The goal of this paper is to present challenges for strategic release planning of global information systems gathered from an industrial company in the health care domain. A preliminary literature review investigates to what extent these challenges are already recognized or solved in academia.

Keywords: strategic release planning, product roadmapping, long-term feature selection, global information systems

1 Introduction

The development of information systems (IS) for global companies is changing from locally towards globally oriented customer-specific development, which is reflected by the transition from locally to globally used IS. Globally used IS (abbreviated to global IS in the following) means that due to the globalization of companies, products, and markets the IS needs to satisfy country specific needs of a geographically distributed company. The different company country sites follow to some extent the same global company strategy, but in addition apply for different business strategies depending on country specific settings such as markets, competitors, or regulatory aspects.

Therefore, the integration of multiple business strategies into one global IS imposes major challenges for strategic release planning (SRP). Furthermore, SRP of global IS aims at finding the largest common overlap of multiple business strategies comprising an optimal set of features regarding costs and available resources. For that, important decisions are necessary: *Which features are useful*

or necessary for most of the company sites and should become a standard functionality in the global IS? Which of them concern only locally driven needs and should be handled separately?

Accordingly, global companies need a standardized global IS that still provides the possibility of locally driven customizations. Therefore, a corresponding SRP process for global IS is required.

The motivation for companies to shift from local to global IS is primarily based on organizational aspects such as efficiency enhancement and improvement of support. Global IS support *(1) global usage of applications, (2) elimination of inconsistent data* resulting from redundant systems, e.g. when several systems in different countries support the same processes and *(3) interoperability of business across different business segments and countries* by cross application and global master data management.

Within this paper we present challenges for strategic release planning of global IS gathered from an industrial company in the health care domain.

This paper is organized as follows: Section 2 provides background information regarding strategic release planning, Section 3 describes the industrial context and the identified challenges. Section 4 discusses related work and Section 5 concludes the paper.

2 Strategic Release Planning

SRP, also called product or release roadmapping [7] aims at long-term feature assignment to subsequent releases fulfilling technical, resource, risk and budget constraints. In contrast, operational release planning focuses only on the development of the next software release [11]. The output of the SRP process is a roadmap document that comprises the future planned features for the software product and is used for communication and risk or budget estimations. Features represent the information technology (IT) view of high-level business requirements derived from business topics. Due to the long-term planning of SRP the business needs are not specified in detail and therefore the feature specifications either. As a result, SRP has to cope with two crucial issues: *(a) fuzzy feature specifications*, where implementation risks and effort are difficult to estimate and *(b) continuous re-planning needs*, because of the persistent requests of the customer for new features or the revision of existing ones.

3 Strategic Release Planning Challenges in Industry

In this section the difficulties for SRP of global IS in the context of a specific company are explored.

3.1 Global SRP in the Health Care Domain: An Example Company

The company under consideration is active in the health care domain operating globally in 56 countries. Its global IS is developed by an in-house IT department

and comprises an evolving customer relationship management (CRM) system with country specific local implementations. The CRM system stakeholders are segmented in different company business units such as sales, marketing or service units. Altogether that constitutes a heterogeneous group of stakeholders, which have different business unit priorities. CRM system roadmaps are created per business unit by so called *Change Advisory Boards (CABs)* where the board members involve IT people and business unit representatives comprising the respective key stakeholder in the different countries. Priorities of the specific business units are defined by a company panel and depend on the governance structure. Still, these priorities are not static and can change due to different reasons such as changes in the market or the need to integrate acquired companies.

The elements of a typical roadmap are high-level features, which represent the IT view on the according business topics (e.g. the topic *interoperability of business across different countries* results in a *master data management feature*) associated with a time frame and cost estimations. These high-level features are derived from two different channels. The first channel is business strategy driven based on changing markets, regulatory law or new technology capabilities. The second channel is end user feedback driven where the end users of the IS raise bug, feature or change requests. These requests encompass a pool of requirements of different abstraction levels and are used by IT to suggest further features. Therefore, feature creation is done top-down by refining business topics into features and bottom-up by bundling related low-level requirements into features.

Strategic release planning considers a time horizon of three years that comprises typically two release cycles per year. The focus of SRP activities is on new features neglecting the validation of existing features in terms of usage and suitability.

Since local impacts on a global IS for health care business are very strong, the company aims at providing transnational IS which are oriented on regions such as Asia Pacific and Japan. These regional solutions cluster countries based on geographic distribution and similar market environments. Customization based on regions is assuming that countries, sharing similar markets, also share similar customization needs. At this point *software product line* [10] concepts seem to be appropriate, but there are several reasons why software product line development is not possible or difficult in this company. One reason is that the existing software architecture is not suitable. Another reason is that the company wishes to limit the IS variability and not to encourage it.

3.2 Identified Challenges of Global Strategic Release Planning

The following challenges regarding SRP have been identified together with the health care company and are discussed in this section.

The major problem of SRP for a global IS, based on the authors experiences in the health care domain, is to *balance standardization and customization possibilities* of the IS. On the one side standardization of the IS reduces costs for

planning, implementation and maintenance, but decreases stakeholder satisfaction, since only the business topics common to all stakeholders are considered. On the other side, there is still a need to be able to customize the IS due to country specific needs. In particular, this entails the following four challenges, which may be also common to other domains.

(C1) Identification of Business Strategy Similarities. So far different company country sites have their own local solution without taking advantage of synergies. Examples for such synergies are large-scale reuse similar to product line concepts [9] or identification of business topics that are addressed by many countries and therefore of high priority. So far, the company has managed to integrate multiple business strategies of a small number of countries, by small adaptations of the processes used for local systems. However, since business is an inconsistent environment, the comparison and linking of multiple business strategies are difficult and complex. Thus, for many different countries more powerful methods are needed to support decisions during the strategic release planning and re-planning process for global IS to achieve an applicable combination of customization and standardization capabilities.

(C2) Common Understanding of Global Features. Using global features for release planning requires that several countries must have a common understanding of the features and their relation to the countries own business strategy. Furthermore, during global SRP and alignment with a huge number of heterogeneous stakeholder groups the business topics, mostly represented as features, have to be organized and linked more business oriented. Therefore, the challenge is to utilize business topics for feature creation to get a closer link between business strategies and planned IS.

(C3) Continuous Validation of Roadmaps against Multiple Business Strategies. A roadmap is a living document reflecting the continuous change of business and IS aspects over time. This requires a continuous validation process of the roadmap elements such as selected features against business objectives. A close link between business strategies and planned IS (see C2) is necessary to validate a roadmap against the strategy. Clearly, for multiple business strategies the validation task gets more complex and difficult, as the number of changes is multiple. For example, it is difficult to decide what the right frequency for roadmap validation is or which events call for a re-validation.

(C4) Missing Hybrid Role: Business Engineer vs. Software Product Manager. Planning and developing global IS is a difficult and complex task that requires both deep knowledge about business aspects (e.g. strategies or processes) and technology aspects (e.g. possible mobile data and application access). It is important to have one role responsible for this global SRP. In particular, the

required role would be responsible for the development of new business strategies or models triggered through new IS capabilities or business environment changes (e.g. globalization of markets). This entails that IT takes over business responsibility, which is not always desired by the business. Therefore, a hybrid role, comprising both business and IT power, could encourage the next steps to harmonize business development and according IS evolution.

4 Related Work

In literature there are several approaches and models regarding the SRP process, see [13]. However, all of these approaches neglect the global context of system usage. Suomalainen et al. [12] provide a common product roadmapping process and identified roadmapping process stakeholder. The described SRP process aims at standardized products without considering customization opportunities. [1] introduces a productization process that describes the transition from developing customer-specific software to a standard software product. However, e.g. C1 (business strategy similarity detection) is not supported or considered. Several approaches focus on the enhanced linkage of the business view to the IT view that is part of C2 by aligning business objectives with requirements [6][2][3][5]. Nevertheless, the aspect of global requirements or multiple country business objectives is missing. Integration of variability-based feature modeling during release planning is provided by [4] using feature trees to structure requirements. However, a linking of the features to business objectives for validation of business objective fulfillment (validation according to C3) is not addressed. Related to software product management there exists the role of the product manager which is responsible for creating and maintaining the release roadmaps [8]. It is not clear which additional responsibilities are necessary to fulfill the missing role described in C4.

5 Conclusion

This position paper presented the challenges for SRP of global IS from an industrial perspective. The major problem is balancing standardization and customization possibilities of the IS. For this problem four challenges were identified in a company in the health care domain. A preliminary literature review showed that the problems of global SRP are not addressed in research. It is the aim of our future work to define and evaluate a method for global SRP.

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