

Collaborative BPM Based on Industry-specific Reference Models

Thomas Karle
Research and Development
Horus software GmbH
Ettlingen, Germany
thomas.karle@horus.biz

Abstract Industry specific reference models, as for instance the SCOR Model (Supply Chain Operations Reference Model) or the eTOM (Enhanced Telecom Operations Map Reference Model) are providing a basis to define and align cross-company business processes between different organizations, providing standardizing criteria for certain business process structures and the corresponding industry. In order to reconcile the cooperation and the common processes between the organizations, the use of Social BPM mechanisms has proved to be very suitable. All involved parties communicate globally through a social BPM infrastructure. This BPM infrastructure with its underlying BPM repository provides predefined process descriptions based on these industry reference models integrated with social media components.

Keywords: *Business Process Management, Collaboration, Industry-specific Reference Models, SCOR, eTOM, Social Media*

I. INTRODUCTION

In the field of supply chain management globalization and the resulting competitive pressure are enforcing the transformation of business-centered supply chains to global supply networks. Local vendors and exporters are going to be replaced by company networks offering a much higher flexibility. Previously used push-strategies with lineal supply chains optimized to bulk business need to be substituted by pull-strategies based on globally integrated supply networks. Planning on enterprise level, which would have been sufficient up until then, now needs to be supplemented with collaborative optimization and comprehensive supply network planning.

Whereas the telecommunication market is currently dominated by acquisitions and mergers. In this area, the use of industry-specific, pre-defined process structures is reasonable in order to apply them when merging different processes of two Telco-businesses. Such undertakings are challenging and require the consolidation of potentially deviating business processes and combining various implementations with individually distinctive system components.

In both cases different parties, which may be allocated globally, need to coordinate and define aims, strategies, and processes or joint services. The complementary use of Social BPM when applying respective reference models is advisable. The general idea of Social BPM is to enable a collaboration of different parties for the definition of aims, strategies and

business processes together, each assigned person virtually working via a web 2.0-based social network. This collaborative work takes place in a so-called Social BPM Lab, a conjoint workshop. The participants operate as a team to accomplish the assignment of consolidating business processes or constructing a global supply chain. Amongst creating a common understanding for the task, the associated processes, and the required organizational structures – even going beyond geographical, cultural and linguistic barriers – the participants often develop sensible compromises and present creative results.

This contribution depicts an approach, combining the advantages of predefined, industry-specific reference models with those of Social BPM.

II. SUPPLY-CHAIN OPERATIONS REFERENCE MODEL (SCOR)

The Supply Chain Operations Reference Model (SCOR) was developed with the aim of analyzing and describing all corporate and cross-company supply chain processes with the same standardized method [1]. The supply chain council (SCC), an independent American non-profit organization created this reference model.

The SCOR model is based on the following five essential supply chain management processes:

1. Plan:
Analysis of future plans and conditions in terms of specific aims and definition of required measures.
2. Source:
Procurement of products and services.
3. Make:
Production of end- or intermediate products for delivery to customer.
Make-to-stock-production, make-to-order-production and engineer-to-order-production.

Copyright © 2015 for the individual papers by the paper's authors.

Copying permitted for private and academic purposes. This volume is published and copyrighted by its editors.

In: W. Schmidt, A. Fleischmann, L. Heuser, A. Oberweis, F. Schönthaler, C. Stary, and G. Vossen (Eds.):
Proceedings of the Workshop on Cross-organizational and Cross-company BPM (XOC-BPM) co-located with the
17th IEEE Conference on Business Informatics (CBI 2015), Lisbon, Portugal, July 13, 2015.

4. Deliver:

Dispatching and delivery of products or services to customer including stock, order and delivery management.

5. Return:

Return and receipt of defective products and organizational management of return of goods to supplier.

Figure 1 shows the hierarchical structure of SCOR with the different layers. The structure and processes are defined until Level 3. For Level 4 the processes have to be provided based on the specific requirements of a corresponding project.

	Level		Examples
	#	Description	
Within scope of SCOR	1	Process Types (Scope)	Plan, Source, Make, Deliver, Return and Enable
	2	Process Categories (Configuration)	Make-to-Stock, Make-to-Order, Engineer-to-Order Defective Products, MRO Products, Excess Products
	3	Process Elements (Steps)	<ul style="list-style-type: none"> Schedule Deliveries Receive Product Verify Product Transfer Product Authorize Payment
Not in scope	4	Activities (Implementation)	Industry-, company-, location- and/or technology specific steps

Fig. 1. Process Structure of SCOR [1]

III. eTOM

The enhanced Telecom Operations Map (eTOM) is a framework for business processes in the field of telecommunication [2]. The framework is published by TM Forum (previously known as TeleManagement Forum and Network Management Forum), an association of more than 700 telecommunication and IT businesses from more than 70 countries. The mutual goal is the provision of predefined guidelines, process structures and basic solutions for the improvement of management and business process operations in the telecommunication sector.

The eTOM-approach is based upon the idea of telecommunication businesses and their constant data exchange with other corporations and organizations to transact across a process chain. To ensure both execution and quality of the future performance the parties involved need to develop a common understanding. Therefore, the businesses processes' transparency is a core requirement for the successful implementation.

Ideally, the parties concerned have already constructed the processes in question in the same standard. eTOM offers process structures for the telecommunication sector accordingly. Nevertheless, businesses do not need to fully implement all eTOM-processes to benefit from them, but can also just convert certain processes into eTOM-standard.

In comparison to other process frameworks as for instance ITIL, eTOM focusses on transparent service delivery throughout multiple businesses and organizations, though ITIL can complement eTOM. Thus, detailed ITIL processes can be used within the eTOM framework. Besides process structures eTOM also provides descriptions of the object structures, which supports the data exchange's definitions between participants.

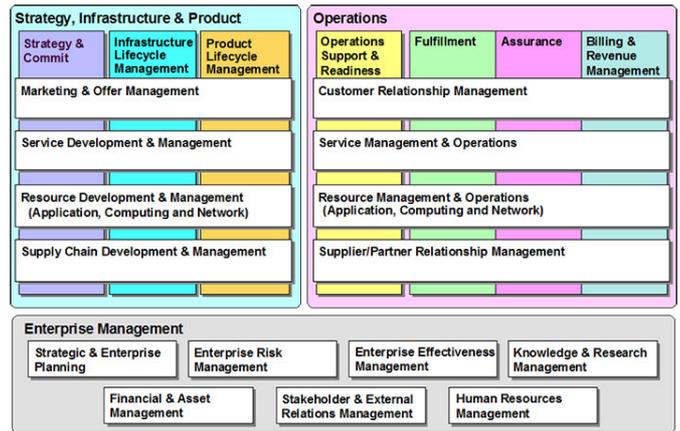


Fig. 2. Process Structure of eTOM [2]

Figure 2 depicts the framework's rough process range of Level 0 and Level 1. The top Level 0 distinguishes the following three sections:

1. Strategy, Infrastructure & Product:

Describes the planning and the life-cycle management based on the strategic planning activities up to a products and its infrastructures roll-out.

2. Operations:

Describes the operative core processes from the provision of according services up to accounting and booking.

3. Enterprise Management:

Describes the management and support processes of the business.

The Level 1 processes are illustrated in white boxes within the areas (for instance: Marketing & Offer Management). The L1-processes describe each end-to-end process within the process realm given on Level 0.

The framework contains seven vertical L1-process alignments. Those divide the L1-processes into logical process blocks (Strategy & Commit, Infrastructure Lifecycle Management, Product Lifecycle Management, Operations Support & Readiness, Fulfillment, Assurance and Billing &

Revenue Management) and help to structure the end-to-end process and then to define process segments in detail.

IV. SOCIAL BPM AND REFERENCE MODELS

The new possibilities of Web 2.0 have opened doors for collaboration in social networks in various areas of life [3]. It enables an efficient access to experience-based knowledge, creative solution management and Best Practices. Social BPM describes the combination of procedures and technologies of Web 2.0 with methods of Business Process Management.

Starting point for Social BPM is the socialization of business requirements engineering. The business members of involved companies and organizations are granted for access to a Social BPM environment for modeling, simulation, analyses and evaluation of business processes to be discussed. In a Web 2.0-based social network, they can then exchange requirements, business use cases, process models and other artifacts that require a more detailed definition in order to find a solution.

The next step consists of collaboratively producing designs that are to be implemented based on the previously defined requirements. This can either be the design of process consolidations or cross-organizational processes. For the collaborative design, both people from the business-side and IT experts are needed.

After the implementation of the processes, they will be monitored according to the monitoring component acquired during the implementation. The monitoring refers to both the supervision of functional key figures and the controlling of technical process instances. This means, that this step too needs the input from Business and IT of all involved companies and organizations.

Figure 3 shows the mentioned steps of this overall Social BPM approach. This contains Social BPE (Social Business Process Engineering) for the steps requirements engineering, design and implementation and Social BPX (Social Business Process Execution) for the deployment and operation. Involved Persons and roles will change during this process. Key Users from the business are usually involved during all steps. During the phase of design and implementation the developers are more involved, while in the operation phase the administrators are playing the active role from IT side.

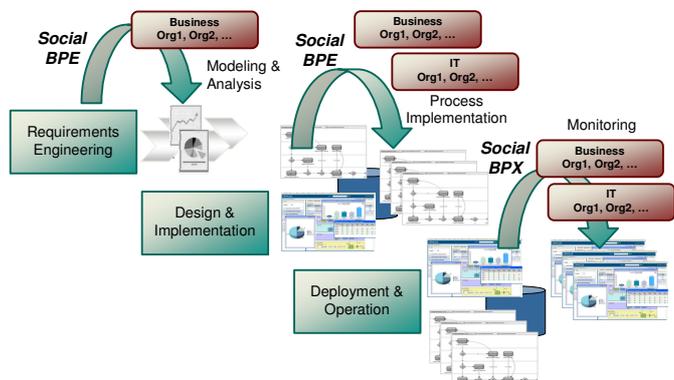


Fig. 3. Social BPM Process [cf. 4]

The difference to traditional process integration is the efficient way to utilize the knowledge of all involved parties (business, process owners and IT) in corresponding projects.

The comparison, design and implementation of business processes is supported by Web 2.0 features in a collaborative environment with specific views for business, process owner and IT shown in Figure 4. Here, the definition of new business processes to be implemented is done by process owners and IT in the modeling tool, while the key users are working on the process models via Wikis. This can be provided by using a Wiki environment linked with the business process modeling tool via a bidirectional synchronization mechanism.

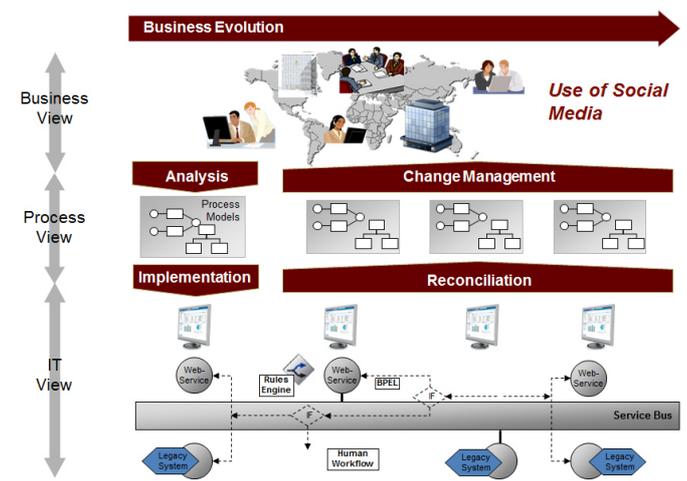


Fig. 4. Social BPM Process [3]

As a technical IT view the executable processes which have to be integrated or implemented are documented and linked with the processes from the business view. In that way the three aspects of a business process will be created in a collaborative manner. The process owner is responsible for the process view and communicates with business and the technical IT experts.

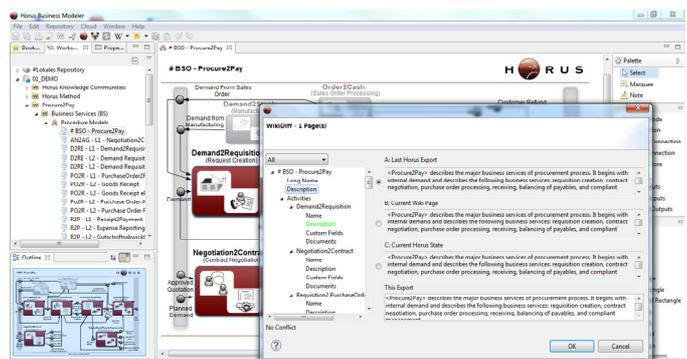


Fig. 5. Synchronization between Wiki and Modeling Tool

Figure 5 shows the wiki access for the business people in which the key users can easily make textual adjustments, add comments about changes to be made. Via the wiki synchronization which can be processed by the process owner that is the responsible role for the design and implementation of a business process during all phases of a project. Changes

are reconciled and conflicts can be resolved if changes were made on both sides.

Specific industry reference models like SCOR or eTOM could have additional accelerator effects for mergers, acquisitions and projects to implement complex cross-organizational processes. They provide a neutral base for discussion and can be delivered directly in a Social BPM environment.

The following requirements accruing from cross-organizational cooperation in the course of joint definition of business processes have to be covered by the Social BPM environment:

- The probability for conflicts in such projects is very high. A big advantage of such an approach is that Social BPM platform and neutral reference models force working on concrete business and IT problems. If nevertheless conflicts occur they can be documented in the social environment. To handle such incidences also project management functionalities have to be included in the Social BPM environment.
- As a base for such projects objectives and strategies have to be defined and published in the environment for all involved parties.
- For the coordination of future business processes relating to mergers and ERP rollouts, in a first step a rough mapping of business use cases to be integrated has to be prepared. Afterwards the detailed process levels for the specific implementation of the business use cases has to be compared. Based on the predefined process description of the reference models changes for the common processes will be identified. If changes or extensions are identified in the analysis, they will be marked in the process. In this context, a standard activity in a process means that they are part of the documented process in the reference model. Modification or extension activities indicate that the relevant process steps have to be changed or added.
- To align the technical integration the communication between the IT professionals from all involved parties on a technical level is required. Detailed technical steps and data structures of the lower process levels have to be discussed. Many of these technical integration processes have to be analyzed in the context of corporate mergers or ERP rollouts by appropriate IT professionals and possibly changed or extended. Often it is sufficient to adjust the individual technical components to the specific requirements of the processed data structures. The associated data structures should also be part of the provided documentation in the Social BPM environment.

V. USE CASE FOR SOCIAL BPM AND SCOR

Figure 6 shows a project specific defined process segment on Level 4. This example describes the receipt product process, which outlines a refinement of the source stocked product process, by default located on Level 3 of the SCOR reference

model. Processes on Level 4 are not included in the delivery and need to be modeled individually for each business use case.

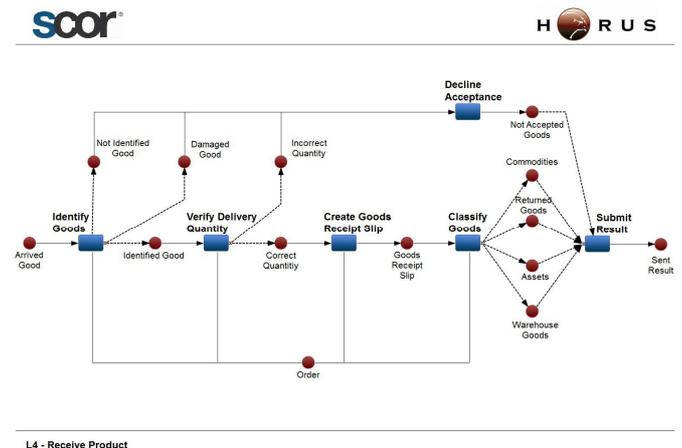


Fig. 6. Project-specific Process in SCOR Structure

This particular case describes the goods-receipt process. Beginning with the delivery of goods from a supplier different control steps are being run. Hereby, the incoming goods are identified and checked, before comparing the received to the ordered quantity. If both control steps are successful, the goods receipt slip is issued and the goods are classified, in which step four cases may occur: Commodity, Returned Good, Asset, and Warehouse Good. The Outcome of this control step is reported to the supplier or the carrier, both in case of acceptance or denial of the received good.

The process segment depicts an example for a sub-process, which needs to be coordinated between several supply chain involved companies. The basis for this collaboration is provided by the SCOR process structure, supplied in a common Social BPM repository. Supplier, carrier, and retailer then define for instance the end-to-end-process from the supplier's dispatching, to the transports executed by a logistic company, up to the retailer's stock. To remain in this example, all three parties need to determine which information is sent back to the supplier and the carrier in the last step. Beyond that, they should communicate, how the technical implementation of the data transfer is supposed to be concluded.

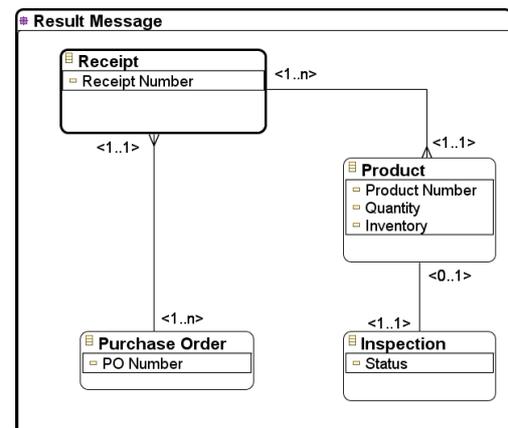


Fig. 7. Data Structure for Transfer between Involved Parties

In this case the involved parties have to discuss and define the common data structures to be transferred and the technologies to be used. For example they define a data structure of the result message for the final step of the predefined process as shown in Figure 7. Regarding the technologies they agree for example to a SOA-based transfer using XML files that fit to the defined data structure.

VI. USE CASES FOR SOCIAL BPM AND eTOM

Figure 8 shows a project specific defined process on Level 3 of the eTOM process structure, a possible modeling example of a fragment of the order handling process that is part of the customer relationship management on the top level. The order data from dealers and web shops are being transferred to a credit check function and are verified. If this control check is positive, the data can be sent to the ERP-system as an order. If it is negative, the respective dealer or web shop supplier is notified.

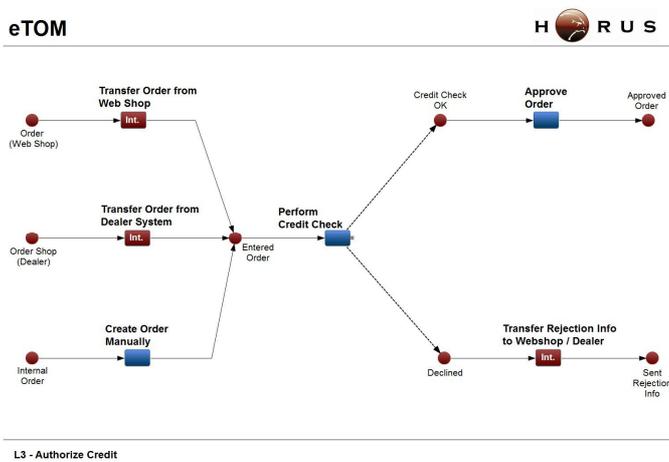


Fig. 8. Project-specific Process in eTOM Structure

In the shown example the integration with the web shop and the shops of the dealers have to be extended. Such adoptions and extensions occur very often in this industry because usually they have different systems or other sales channels to be taken into account.

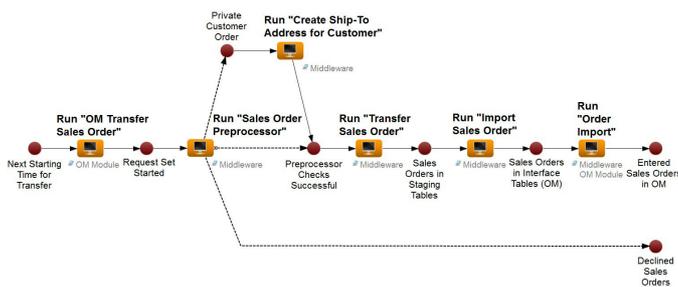


Fig. 9. Technical Integration Process

Figure 9 shows a technical integration process that has to be aligned during a telecommunication project with detailed information about the calls of specific programs. It describes for each process step which technical component is responsible for the execution.

The process fragments depicts typical examples for process segments (business processes and technical processes) that needs to be coordinated in case of a telecommunication merger. To help that coordination, a common Social BPM repository could be allocated. The two telecommunication companies can then define a consolidated business process for the order handling. Among other subjects, they would need to decide which mutual sales channels and which credit checks are to be implemented in the consolidated process. In addition, there needs to be a decision about how to handle the technical implementation of interfaces (red activities).

VII. CONCLUSION

This paper shows the multiple possibilities how Social BPM and industry reference models can be used for the coordination between different businesses and organizations. Typical scopes hereof are found in the supply chain and telecommunication sector, both areas presenting quite a high complexity and degree of automation within their processes.

To manage this complexity during the coordination a combination of predefined industry reference models and Social BPM have proved to be very helpful. Predefined standards for SCM via SCOR define a grid, by which means the communication regarding cross-company processes between parties involved in supply chain, such as suppliers, carriers, retailers, etc., can be coordinated. Within the reference model, process interfaces are at one's disposal accordingly.

In the sector of telecommunication, eTOM would be the respective reference model, a predefined grid for telecommunication processes. In case of a merger of two businesses in this sector, a substantial advantage will emerge, when using eTOM, since it helps identifying and consolidating differences and similarities.

The additional use of Social BPM enables a favorable and much more effective alternative of global coordination and collaboration, in comparison to the classic approach of doing so through many face-to-face-meetings. On the base of a repository, which contains the respective reference models, the reconciliation is accomplished in a web 2.0-mechanism, using functionalities as for instance a context related chat, forums, wikis and collaborative modelling in combination with BPM within an integrated environment.

REFERENCES

- [1] SCOR: <http://www.apics.org/sites/apics-supply-chain-council/frameworks/scor>
- [2] eTOM: <http://www.tmforum.org/businessprocessframework/1647/home.html>
- [3] Schönthaler F., Vossen G., Oberweis A., Karle T.: Business Processes for Business Communities: Modeling Languages, Methods, Tools. Springer-Verlag Berlin Heidelberg, 2012.
- [4] Schönthaler F.: BPM is not for programmers – It's a business tool and makes your business processes more excellent, Collaborate 14, Las Vegas, 2014.

