

## 8.1 To Go

My process is finished; it is modeled and validated—why should anything be improved?



... in case the deficiencies cause us to either partially or even completely miss the process objectives. We want to avoid unnecessary work, if possible.



By validating, we have determined that we do the right things. However, we still need to check whether we do these with the least possible effort. It may be, e.g., that we still perform unnecessary actions or communications. Then, the process should be optimized...



We have already considered this in the course of validation! Nobody wants to perform unnecessary tasks.

*validation and optimization are mutually related. In the context of optimization, however, we want to reduce expenses without questioning already achieved effectiveness targets. Process managers cannot just turn a button, in order to change the overall behavior. Optimization is a complex process requiring the collaboration of all subjects and actors.*



## 8.2 The Nature of Optimization

In Chap. 7, we have described validation, which ensures the effectiveness of business processes. Its goal is to make sure that a process delivers the results as described by analysis. When optimizing, the efficiency of processes is at the focus of interest, in order to achieve the desired results with the least possible expenditure of time and resources. Efficiency targets are set in the course of analysis in the form of reference values of performance parameters derived from a corporate strategy. If the comparison of the recorded actual values with the target values in the course of monitoring leads to negative deviations (see Chap. 11), optimization measures need to be taken. Such a situation indicates that the process is not (or no longer) meeting its requirements, and consequently, not (or no longer) achieving its objectives.

It is not only the selection of appropriate means for accomplishing tasks (effectiveness), but also their economical use (efficiency) that determines the success of S-BPM—the latter is ensured by optimization.

For instance, it may happen that a process has been running satisfactorily over a long period of time, but then, for no obvious reasons, unplanned deviations, such as an increase in process duration time, occur. In the course of optimization, the causes for these effects need to be explored. They are often a result of changes in the configuration limits for a process, so that perhaps more process instances need to be run than originally planned. This in turn can mean that employees are overburdened, or that the tools used do not meet the changed requirements. In this case, organizational leaders (Governors) initiate optimization after an analysis, without previously modeling and validating.

In an organizational development project following a linear approach to S-BPM, e.g., designing a new process, the Facilitator can initiate a first optimization of the process immediately after its modeling and validation. In this case, the validated process model is checked to see whether, based on its current design, the process can be improved with respect to the achievement of its defined efficiency targets.

An increase in efficiency already at this stage of an organizational development project reduces the likelihood of the necessity for subsequent adjustments during operation of the considered process.

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## **8.3 S-BPM Optimization Stakeholders**

### **8.3.1 Governors**

Governors play an important role in the optimization. At the management level, they need to decide which processes are subject to optimization and what associated objectives should be pursued, while taking into account the respective overall goals, the positioning, and the resources of the organization (see Sect. 8.4). Moreover, the time horizon for achieving the goals, and possible intermediate objectives, needs to be defined. The process owner can also act as Governor in the context of optimization, when it comes to optimization approaches with manageable organizational changes, such as enriching existing software with additional functions to support the process.

### **8.3.2 Facilitators**

A Facilitator initiates optimization induced by a Governor. He organizes, usually as a project manager, the individual activities within an optimization project. In particular, he coordinates the Actors, whose involvement is of crucial importance because they usually know best how processes can be improved in their area of expertise.

### **8.3.3 Actors**

The individual Actors involved in the practical implementation of a process model know best the distinguishing characteristics of “their” process through practical experience at working with the process. They are able to identify weak spots of the process and to provide respective explanations (see Sect. 8.6.2). Problems can arise from the fact that the individual Actors possibly only optimize a process according to their subjective point of view, which can lead to significant time and resource savings, but then makes it necessary for the Facilitator to, potentially with the assistance of Experts, achieve a balanced design of the overall process and thus avoid suboptimal behavior as a result of limited individual views of process participants.

### 8.3.4 Experts

Experts support an optimization step by bringing in expertise where appropriate. Above all, they support the Actors in the diagnosis of weak spots and are specialists in optimization methods (see Sect. 8.6). Experts can complement local views of Actors through an expanded, holistic view. They are particularly required when processes are simulated in the context of optimization, as specialized technical knowledge and extensive experience are necessary to perform simulations and to interpret their results.

## 8.4 Specifying Optimization Targets

Before performing the optimization, it needs to be specified which characteristic of a process needs to be improved and which does not (cf. Best and Weth 2007, p. 95). These optimization targets should be derived from organizational and process goals. For example, it could be specified that all customer processes have to be completed within a designated period of time. For other processes, however, speed of processing is of less importance. Thus, e.g., an organization that has positioned itself with its product quality in the upper price segment will consider potential for savings, at the expense of quality, as critical.

Process transparency is the key to continuous process optimization.

In general, a process should not contain any activities, which do not stand in direct relation to its results and do not contribute to value creation. Moreover, the entire process should be operated with as little effort as possible (cf. Schmelzer and Sesselmann 2010, pp. 3). Consequently, the following points are usually referred to as traditional goals of process optimization:

- Optimization of process costs
- Optimization of process times
- Optimization of process quality

### 8.4.1 Process Costs

Process costs are understood as the expenses required to execute a process instance. In process cost accounting, the costs for each process activity are assigned to executing units.

Process cost accounting differentiates between performance volume-induced costs and performance volume-neutral common costs (Hans-Jürgen Kupper 2011, p. 67). Performance volume-neutral common costs are basic costs incurred for the process at all times. Volume-induced costs are instance based and play a role only

when the process is executed. These include, e.g., consumption goods required for processing.

The process costs per instance are calculated by adding the volume-induced costs for an instance to the basic costs allocated to the number of instances per unit of time. An optimization of the process costs can therefore be achieved via a reduction of the performance volume-induced and/or performance volume-neutral common costs. This becomes necessary, once the actual costs of the process exceed the predefined targets.

Optimization can target both volume-induced costs and basic costs. This also applies in the case of the business trip application process. In its context, process cost components can be, among other things, the process-related personnel costs, in particular with respect to the travel office, and the software cost for process execution. The latter may contain volume-related shares, such as user-based licensing costs, and volume-independent components, such as maintenance fees. These basic costs can be reduced, e.g., by negotiating a discount on the annual maintenance fee with the provider.

### 8.4.2 Process Time

The process time can be measured in terms of cycle time or throughput time. The throughput time is the duration from the process start to the completion of the process results (cf. Schmelzer and Sesselmann 2010, pp. 250 ff). The cycle time includes the duration of each substep, also those running in parallel. While the cycle time is more the focus of internal analysis (e.g., cost and capacity optimization), the throughput time plays a major role in the external visibility of a process, namely as reaction time toward the customer.

As an example, an online service provider guarantees all orders to be delivered within 3 days. This can be a unique selling proposition in the marketplace and linked to promotions (“money-back guarantee”). However, if this goal is not achieved, it will not only result in a negative impact on income, but also a loss of image will be experienced. If competitors are faster in delivery, this can result in optimization pressure for the own organization.

For the business trip application, the timeframe between the submission of the application, and its subsequent processing by the travel office, can be an important indicator of process time, impacting booking of travel modalities, hotels, etc. The shorter it is, the more likely it is that early booking discounts can be claimed, and ultimately, associated costs saved. The processing time largely depends on the reaction time of the manager and the work capacities of the travel office. An optimization, for instance, could lead to a delegation scheme for cases in which a manager does not respond within a specified time period. An additional employee in the travel office could help in shortening the response time for processing. An essential prerequisite for the realization of early booking discounts is of course the timely submission of the travel request as soon as the need for the trip becomes evident. A corresponding briefing of employees in this respect could contribute to optimization.

### 8.4.3 Process Quality

The third optimization goal is process quality. This is measured as the quality of the process result from the perspective of the internal or external customers (cf. Tomys 1995, p. 17). For instance, if a process does not deliver its expected result, it is considered to be malfunctioning. Therefore, a quality index could be defined, such as the produced number of defects for the manufacturing of products, or the number of customer complaints for the provision of services. In addition, the meeting of deadlines, i.e., adherence to predetermined throughput times, is traditionally an important quality attribute. Such directly measurable quality criteria also influence another additionally or alternately used common measurement of process quality, namely customer satisfaction. This is determined by regular customer surveys and reflects the extent of fulfillment of customer expectations.

In the case of the business trip application, quality can be measured, e.g., by the number of erroneous travel bookings (wrong date, wrong class, etc.). When serving employees as customers, satisfaction could be extended by meeting individual demands such as a window seat reservation.

### 8.4.4 Target Triangle

The goals of cost, time, and quality represent a so-called magic target triangle. Optimization objectives in this triangle can have a conflicting, complementary, or neutral relationship to each other. The optimization goals specified by the responsible managers of an organization for improvement measures depend on the prioritization of overall process goals.

The process attributes “cost,” “time,” and “quality” can lead to target conflicts. Prioritizing helps to avoid negative consequences of improvement activities. Governors should assess mutual relationships of process attributes, even though the reduction of process costs is a key driver of optimization efforts in daily operations.

Particularly in the case of conflicting goals, the negative impact of an improvement measure on other parameters needs to be assessed in terms of an overall optimum. Thus, the reduction of throughput time by parallel processing of process steps can lead to an increase of costs due to an associated increase in staff. In such cases, the Governor needs to intervene. He can decide on the basis of the priority of process goals, whether the improvement measure should be carried out as planned.

Ideally, an improvement in one dimension also positively affects the others. An example for this could be the shortening of processing time by transfer of competencies. Thus, a bank could shift approval competence for processing a loan offer from the department head to operations staff. By eliminating this

manager approval loop, not only can time be saved, which means the customer receives the offer faster, but this also results in a reduction of the operation costs, especially with respect to the associated labor costs of the approval loop for the department head. The cost for the latter is higher than the newly incurred staff costs due to the organizational change on the operational level.

In practice, reducing process costs is often regarded as the most important optimization goal. It is also targeted by responsible management when optimizing other parameters (cf. Rosenkranz 2006, p. 257).

Optimization opportunities may not only be limited by negative effects on other predefined objectives but also through environmental conditions. For instance, an improvement option cannot be pursued, if it is not possible to alleviate deficiencies of the required knowledge and skills through appropriate personnel training, development, and recruitment activities.

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## 8.5 Foundations of Optimization

For the pursuit of the goals addressed in Sect. 8.4, it is important to provide operational definitions—goals need to be expressed in terms of performance figures (what?), target values (how much?), time references (until when?), and organizational roles (by whom?).

As a starting point for improvement, we need the actual (as-is) performance values detailing a goal. Such values can be obtained as follows:

- Hypotheses about time and resource requirements for process execution: In this case, assumptions are made about the number of processes to be executed per time unit, as well as about the thereby required time and resources. These assumptions can be supported by more or less extensive experiences. Such a procedure is required whenever a process is introduced from scratch, or has been significantly reworked, and no reliable measurements are available yet.
- Measurements of previous process executions (see Chap. 11): The situation is simpler when a process is already in production and there are measurements available for instances, which allow calculating resource and time consumption of processes and process components.
- Benchmarks: Sometimes managers can also access and use values from comparisons with business partners (customers and suppliers), and even with competitors, or with industry averages. In order to get meaningful results in simulation when using such basic data, however, it is important to know the calculation scheme of the used benchmarks.

For optimization, as a minimum requirement, a process model should provide some orientation for optimization measures. In the process model, the appropriate assumptions about required resources and time with regard to process execution or, respectively, available measurements, can be included. They allow deriving necessary changes to the model and determining requirements for the organizational and/or IT implementation of the process, respectively.

Process optimization can only be achieved if all key performance processes of an organization are streamlined to its global goal.

8.6 General Optimization Possibilities

After specifying the objectives of optimization, it is important to identify those elements of a process that allow reducing costs and time while increasing quality. Optimization opportunities arise mainly from the following three areas:

- Process model
- Organization-specific implementation
- IT implementation

In practice, optimization measures in these fields are not independent. A process model could support only selected organizational and technical aspects of an implementation. Conversely, organizational or technical constraints could preclude certain process specifications.

Figure 8.1 provides an overview of fundamental optimization capabilities, focusing mainly on resources and execution alternatives (cf. Bleicher 1991, p. 196; Stoger 2005, pp. 109 ff. Gadatsch 2010, p. 21). They can also be applied to the behavior and communication structures of subjects engaged in processes.

Optimization	Explanation
Omitting	Remove unnecessary steps
Outsourcing	Assignment of tasks to external service providers
Summarizing	Grouping of several work steps to one step
Parallelizing	Distributing of work steps to multiple resources so that they can be executed simultaneously
Shifting	Earlier starting of currently downstream activities
Accelerating	Providing (better) work equipment, which allows a faster completion of tasks (e.g., IT systems)
Supplementing	Adding work steps (e.g., for assurance of quality and results)

Fig. 8.1 General possibilities of process optimization

In the following sections, we discuss various methodological aspects of optimization, before going into the details of subject-oriented optimization.

8.6.1 Simulating Process Models

A simulation verifies process behavior by simulating instances, even before a process has been used in practice (cf. Tomys 1995, Harrington 1998). Thus, before



productive utilization, it can be determined on the basis of a process model which processing times and resource requirements for a given quantity, i.e., a certain number of process instances per time unit, are likely to be incurred.

For example, a simulation can provide valuable information with respect to potential bottle necks if it reveals that with a certain amount of orders, congestion in subjects occurs, and their carriers (Actors) are no longer able to cope with the resulting workload on site.

For simulation, adequate parameters need to be defined. Gadatsch (2010, p. 224) distinguishes between workflow-related and resource-based variables for analysis. They are determined by time, values, and quantities, respectively (see Fig. 8.2).

<div>Relation</div> <div>Orientation</div>	Workflow-related	Resource-related
Time-oriented variables	Processing times Execution times Waiting times	Operating times Waiting times Downtimes
Value-oriented variables	Process cost	Used capacity costs Idle time costs
Quantity-oriented variables	Executed process steps Unexecuted process steps	Object input Object stock Object output

**Fig. 8.2** Analysis parameters for the simulation of process instances

Check your points of measurement on the process. S-BPM mainly considers communication flows, along with functional task accomplishment.

In order to simulate, the mentioned variables of analysis are assigned different probability distributions. The process model is then processed in fast motion with given parameters several times. Using random number generators, the corresponding times and resource requirements are determined according to the distribution functions for each cycle and recorded for each process execution. The data are evaluated after an appropriate number of executions. In this way, it can be explored how the process performs, e.g., under execution load, in terms of time and costs.

As the simulation executes a process model in fast motion, it requires an executable process model. Simulations are frequently applied to several process variants to determine the most efficient variant in terms of cost, time, etc. We therefore also understand simulation as “systematic experimentation” (Gadatsch 2010, p. 216) using models of actual problem situations.

In the example of the business trip application, the processing time can be simulated to obtain indications for the staffing of the various processing stations. Execution times, waiting times, and communication times of the subjects are

assigned values from practical experience. Then, the application process is simulated with the given resources, in the various stations, with varying numbers of submitted requests (instances) per unit of time (simultaneously). In this way, it can be determined whether the processing time increases when the number of applications per unit of time increases. This could be an indication that the human resource capacities of the travel office can only account for a certain number of cases within a specific period of time, and that bottle necks could be experienced once business travel activities increase.

The difficulty in simulation is to find appropriate parameter data. To carry out a simulation, it must be known, e.g., how many instances are to be processed per unit of time. This requires a corresponding probability distribution with parameters. In addition, for each action, it must be known how much time or how many resources are needed. These time and resource requirements are usually not only constant but also follow probability distributions with the corresponding parameters. In an ideal situation, measures from executing actual process instances exist. Otherwise, these need to be estimated.

For S-BPM, the semantic comparison is crucial, as it provides evidence for correspondence between models. When comparing models, the semantic compatibility of their respective content needs to be considered.

Running a simulation requires special expertise, both for its preparation, and also for the evaluation of obtained results with respect to their plausibility, their interpretation, and for drawing associated conclusions regarding resource and time demands. It is the responsibility of the Facilitator to involve people with such expertise, when required.

### 8.6.2 Identifying Weak Spots and Root Cause Analysis

While in simulation, the efficiency of a given model is examined, regardless of its use in organizational work practice, the analysis of weak spots aims at the critical examination of the behavior of a process in productive operation. It is therefore considered, how efficiently a process runs with a given model in its organizational and technical environment. The analysis of weak spots is composed of identifying deficiencies to this respect, and subsequently determining their (root) causes.

The identification of weak spots is a result of observations in most cases. For instance, it could become evident that the processing of the business trip application currently takes much longer than it did 1 year ago. This could be a result of monitoring, if appropriate performance indicators are available. Not all weak spots can be diagnosed with metrics, especially in cases in which the maturity is low and, accordingly, no metrics have yet been defined. Such a situation is common for processes that run “somehow,” i.e., without knowing the reason why they work,

and without any documentation. Fischer et al. (2006, p. 39) refer to such processes as “zombie processes.”

Figure 8.3 shows examples of weak spots. The table is composed of columns according to key characteristics of processes described in a subject-oriented way and rows capturing important aspects of organizational design. The listed weak spots affect in varying degrees cost, time, and quality.

Related to	Weak spots in	Subject behavior	Subject integration	Business object
Organizational structure (organizational implementation of processes, see Chapter 9)		<ul style="list-style-type: none"> <li>• Inadequate skills</li> <li>• Lack of incentives</li> <li>• Unclear responsibilities, inadequate responsibility of decision making and processing</li> </ul>	<ul style="list-style-type: none"> <li>• Pronounced hierarchy with official channels</li> </ul>	
Operational structure		<ul style="list-style-type: none"> <li>• Sub-optimal sequence of sub-steps</li> <li>• Long processing times</li> <li>• Duplication of work</li> </ul>	<ul style="list-style-type: none"> <li>• Unclear official channels</li> <li>• Long waiting times</li> </ul>	
Operational structure		<ul style="list-style-type: none"> <li>• Missing features</li> <li>• Lack of usability</li> <li>• Lack of integration at the application level (e.g., by portal)</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of technical integration of communicative devices</li> </ul>	<ul style="list-style-type: none"> <li>• Media breaks</li> <li>• Many paper-based documents</li> </ul>

**Fig 8.3** Selected weak spots of processes

The identification of weak spots does not mean however that their source of origin has already been revealed. Deficiencies in fact point to “phenomena,” the root causes of which possibly lie elsewhere than in the organization segment or perspective currently under consideration. Especially for IT-based and networked processes, the actual cause of problems is often difficult to determine.

Therefore, a sound root cause evaluation is the most important component of the weak spot analysis and should involve all stakeholders, ranging from Actors in the process to the process owners (Governors). One common method, which can be applied in this context, is the so-called Ishikawa analysis (cf. Schulte-Zurhausen 2002, p. 513). It allows identifying primary and secondary causes of a problem via the criteria “man,” “machine,” “environment,” “material,” “method,” and “measuring.” This is performed in work groups in which the primary problem is identified through collaboration of relevant knowledge carriers. Root cause analysis in S-BPM is therefore subject-oriented in itself. This does not mean that the subjects are the causes of a problem; it is rather assumed that subject carriers can specify best why work processes are performing poorly.

In our example of the business trip application process let’s assume, e.g., that there are a high number of erroneous travel bookings, which results in the travel office not meeting the expected service quality requirements. In a joint workshop, the participants recognize that the root cause is not the human being. Rather, the material used consists of forms, which are partly filled out using a word processing application and partly manually. This procedure contains the actual cause: forms are differently interpreted and filled out. As a result, the travel office needs to check

back with applicants frequently, or it wrongly interprets provided information. As a solution, the workshop group proposes automation support, whereby inquiries are delivered through business objects in a standardized form.

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## 8.7 Optimization Aspects

In the course of subject-oriented optimization, various aspects can be tackled:

- Improvement in the behavior of subjects
- Communication between subjects
- Restructuring the behavior of subjects
- Improving business objects

The orientation toward subjects allows the immediate participation of stakeholders and facilitates activities aimed at organizational development.

### 8.7.1 Improvement of Subject Behavior

A first approach to optimization is the investigation of the behavior of subjects. Often, steps are rigidly anchored in the behavioral repertoire of the Actors in the process. An impetus for changing individual behavior may be interpreted as a personal attack on the stakeholder, in particular, when the subject carrier too closely identifies himself with the subject at hand. Or a “tunnel vision” is created which leaves no room for improvements in the behavior.

The Japanese method KAIZEN is an example of a method for optimizing subject behavior. According to KAIZEN, every employee is able to review his own behavior and to subject it to a continuous improvement process. Each employee must be aware of his responsibility for the optimization of processes in which he is involved. Thereby, the employee takes on a second role: he is not only an operating Actor but also an active designer. “The participation of every individual is welcome” (cf. Steinbeck 1995, p. 38, Bösing 2006). This is not a matter of checking the behavior of individuals and improving it. Rather, subject carriers review the subject as object and look for joint improvement.

This process is not controlled externally. The subject carriers themselves take over the role of optimizers. As knowledge carriers they can exchange knowledge about a possible “best practice” according to their operational behavior. This method is not necessarily self-evident and needs to become an explicit element of corporate culture. For the staff it needs to be clarified, in particular, that Kaizen does not mean that everyone can do what he thinks is right. A change in the process, for instance, requires approval from the Governor.

Although Kaizen has not been designed specifically for business process management, it can still also be used for the optimization process in S-BPM. All concerned stakeholders need to be involved, and process goals have to be measurable. Because subject orientation transparently conveys to each employee what is expected from him in which process (see Sect. 9.4.1), it is also clear that the

optimization refers to the corresponding subject carrier. This can affect the behavior of the process model or the organizational and technical implementation.

In the context of the business trip application, the staff of the travel office could participate in a common Kaizen workshop. In the course of the workshop, they discover the existence of an Internet portal which, after entering a specified travel time and destination, automatically delivers the fastest means of travel and the most inexpensive hotel arrangement, and then also automatically makes the corresponding bookings on demand. The work group calculates the realistic potential for improvement and suggests the integration of the portal into its own process to the Board.

### 8.7.2 Communication Between Subjects

There is high potential for optimization in the communication between the subjects. Often, too much insignificant, and too little important, information is exchanged from one subject to another. The result is that the subjects can neither perform their tasks in an adequate timeframe nor deliver results meeting the required quality. This has a direct impact on time and quality. In addition, communication is always related to cost. This results in a high potential for optimization.

By changing the communication relationships between subjects, the achievement of defined goals can be facilitated. Thus, in our example, the approved business trip request could be sent directly to the travel office by the employee, without involving the manager. Such a change optimizes the organization with respect to self-responsible budgeting of time. It is accompanied by job enrichment in terms of vertical reintegration of tasks. Changes in the structure of communication result in appropriate changes in the behavior of the respective subject—in the above-mentioned job enrichment, the applicant no longer needs to seek approval from his superiors.

The modification of the communication between the subjects could also require adapting the structure and content of business objects. Certain information needs to be distributed to other business objects or can be summarized, depending on what information needs to be sent to which other subjects after the change.

In addition to the previously mentioned adjustments to the process model, it may also be necessary to improve the realization of the communication, especially through the use of a suitable communication medium. In the organizational environment, this could mean that personal or cultural barriers need to be eliminated. Cultural barriers can represent a major optimization challenge, especially in the case of cross-organizational processes. Technical aids, such as e-mail or workflow systems, can help to simplify the communication from a technical perspective. Sending a business object by e-mail involves less effort than sending a paper form. Thus, business processes and the associated communication are increasingly realized through appropriate IT infrastructure (see Chap. 10).

In the case of the business trip application process, travel documents (tickets, hotel vouchers, etc.) are sent to the employee by conventional mail. Accordingly,

for each business trip request, considerable costs occur. The process could be changed in such a way that only online tickets are ordered. Hence, the tickets could then be sent to the employees much quicker and at almost no cost by e-mail.

### 8.7.3 Restructuring Subject Behavior

An extensive optimization approach is the complete redesign of the subject structure. The existing communication and activity structures are thereby completely dissolved and redefined. This corresponds to a radical, far-reaching reorganization of the company, which Hammer and Champy have introduced as business process reengineering (BPR) (cf. Hammer and Champy 1993). This should be applied in situations where short-term changes no longer seem adequate. A complete reorganization of business processes should enable cost and quality improvements, because single or multiple processes are rebuilt from the ground up.

However, it is usually a very radical cut in an organization. Employees partially lose their “identity” because transfers take place, responsibilities are shifted, and tasks are outsourced to external service providers, etc. In this way, a wealth of experience may be lost, and great uncertainty created within the organization. Moreover, organizations cannot be seen as bare frameworks. Processes have to fit to a certain extent to the existing organizational structure, staffing, and infrastructure. To completely rebuild all of these from the ground up would be a very expensive and a time-consuming endeavor. Moreover, it is often unrealistic. BPR is controversially discussed, as a result of the above-mentioned advantages and disadvantages (cf. Fischer and Fleischmann et al. 2006, p. 22).

Reengineering is the rigorous redesign of subject behavior. It can lead to incompatibilities with the way of thinking and the work styles of concerned stakeholders, if they are not actively involved.

Possible reasons for a rigorous approach are:

- Due to changes in the personnel structure, certain subjects can no longer be engaged. Continuing work as usual is not possible; the subjects need to be completely reassigned.
- Qualifications of subject carriers are not sufficient to accomplish the required tasks. By reorganizing, the tasks will be widely redistributed.
- Requirements are derived from process standards for specific roles. These roles are not yet available in this form in the organization. A mapping of the current functions to the new roles seems too difficult.
- The maturity of the process has decreased and simple improvement measures are no longer sufficient—so that the management decides to redefine the process from the ground up.

In the example of the business trip application, the management could decide that processes not critical to business success, i.e., support processes, including the business trip application process, will be run via a service desk of an outsourced service provider. The consequence would be the dissolution of the travel office, and booking through travel agencies, which have been commissioned by the external service provider, but are unknown to the company. This would correspond to a far-reaching transformation of the business trip application process, involving the release and reassignment of staff, at least in the travel office.

A less rigorous form of restructuring activity and communication structures of subjects is the horizontal reintegration of subtasks (job enlargement). This leads to a change in behavior of the subjects. Some subjects then perform additional work steps, others fewer. This can lead to the complete dissolution of a subject in an associated process, namely when all of its corresponding activities can be shifted to other process participants. Such a move requires empowering other subjects to accomplish tasks new to them (e.g., through training and adequate IT support). As a result of this kind of reintegration, communication steps, interfaces, latency, etc. can be omitted.

#### **8.7.4 Improving Business Objects**

For business objects, it is already needs to be ensured in the process model that only data which are actually needed are included, and accordingly, that only data which are required for other subjects to accomplish their tasks are sent to them. The concerned data need to be correct and sufficiently detailed. By meeting these requirements, considerable effort in resolving deficiencies can be avoided.

This also applies to the layout of user interfaces of business objects, regardless of whether they are in paper or electronic form (display screens). An ergonomic design facilitates the manual collection of information for the Actor, thereby accelerating task completion. The Actors generally know exactly how forms and input dialogs can be improved. Consequently, their perspective should be shared in any case.

The way that business objects are implemented provides another approach to optimization. Here, the replacement of a paper form with an electronic counterpart could represent considerable potential for improvement. This begins with the more simple methods for filing, copying, distribution, resubmission, etc. and continues with the ability to automatically complete input fields and check entries for plausibility.

In the case of the business trip application process, the name, first name, organizational unit, and availability data of the applicant could be automatically transferred into an electronic form. Such information can be obtained using the login information from the entries of user directories. A plausibility check could prevent Actors, e.g., from entering an end date for the trip, which is prior to the start date.

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