

INCORPORATING COLLABORATION IN BUSINESS PROCESSES

How to merge business processes and collaboration activities in an efficient and agile way

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Abstract: Nowadays, in order to remain competitive, organizations strive to be efficient and agile. They need well defined and optimized business processes, without sacrificing the agility of collaboration. This can be achieved by applying a new approach for combining and tuning these two into a single concept. To implement the new approach characteristics of business processes such as task, goal, participating roles, resources, etc. and the characteristics of collaboration like flexibility, informal communication, collaborative tools, shared knowledge, the two should be merged together in a mixture called “task context”. Intelligent collaboration business portal solutions that utilize the task context approach provide a unified environment where users can collaborate while following the end-to-end process. Such solutions provide agility while maintaining adequate levels of process control thus improving efficiency and effectiveness.

1 INTRODUCTION

The organizations’ need for agility and efficiency improvement can be fulfilled through the use of intelligent collaboration portal solutions, which incorporate both the business processes of the organization and the collaboration. These new portal solutions introduce a novel approach for business process automation. It allows retaining process agility and covers the ad-hoc activities possible within the organization. At the same time it allows efficient performance of the daily tasks by providing all needed information and tools at the right time.

2 WHY IS A NEW APPROACH NEEDED

An agile and efficient work organization is a must if companies strive to quickly adapt to an ever changing external environment. Nowadays the successful management and execution of the tasks within the organization could be compared to jazz improvisation which is a symbol of high creativity (Scheer, 2007, p.2).

To be adaptive to change and at the same time retain and improve its efficiency, an organization needs an innovative approach for combining and tuning its primary components:

- Business processes - the actions which the organization carries out;
- Resources - people (the human component which performs tasks), technological environment, facilities, knowledge, etc.;
- Collaboration and communication - working together to achieve a goal.

2.1 Current state of the organization

If an organization is examined today, the following conclusions can be made:

- Importance of business processes is realised: „In the last 30 years companies have become more business process aware” (Huberts and Petten, 2007, p.3);
- Business processes are described but not used: There are organizations in which the business processes are in fact described but not used in the actual carrying out of activities;
- Business processes have been automated

without achieving the required effect:

The automation of the processes inside a single IT system cannot be a sufficient solution. (Huberts and Petten, 2007, p.3). Moreover the introduction of new processes in this type of system can result in the need for substantial additional investments for software development (Scheer, 2004, p.8).

Another option is to integrate multiple information systems to automate business processes. This approach handles the communication between IT systems and synchronization of the data, but it does not support the communication and collaboration at human level (Huberts and Petten, 2007, p.3).

- Collaboration could be inefficient. In every organization there are many communication and collaboration channels. Collaboration tools are powerful software products, but their uncoordinated usage leads to a loss of efficiency and can lead to the loss of valuable information.

The state of the organizations indicates that a new approach for their setup is needed. That approach should ensure the execution of processes in a collaborative environment without limiting users.

2.2 Company characteristics

In order to extract this approach, the organization's components, that are subject to automation have been analyzed - namely processes and collaboration.

3 BUSINESS PROCESSES

The business processes are not only something that organization does, they are the business of the organization (Brabander and Davis, 2007, p.2).

“Business Processes are logically ordered sets of activities that produce a result of value to the customer” (Indulska, Kittel, and Muehlen, 2008, p.3);

“The process defines what activities are performed by who, when they are performed, and how they are performed” (Crow, 2002);

Business processes are a set of tasks in a given order. Each task has a trigger, executor, resources required, input, output and an expected result.

The main business process characteristics are:

- Predefined goal – each process has a goal that should be achieved;
- Set of activities – process contains a number of tasks. They can be individual – performed by

single user or collaborative – a group of people working together to achieve common goal;

- Defined participants with their roles - the participant can have different relation to the tasks (e.g. execute, must be informed, etc);
- Required resources for execution - to execute a process certain resources are needed (data, documents, knowledge, applications, time, etc)
- Formal communication paths.

Processes can be classified as very rigid (production processes), more flexible (sales) and ad-hoc (not predefined process that can occur during the daily work) (Brabander and Davis, 2007, p.2).

The processes are usually used as means for analysis, optimization and control. During the daily execution of processes the executors see and carry out certain tasks without necessarily focusing on the process as a whole. (Figure 1: Process and tasks)

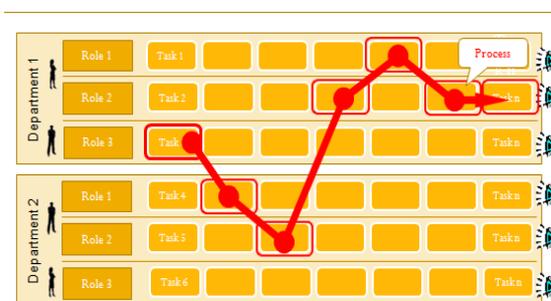


Figure 1 Process and tasks

The main issue when automating processes is that described process models have some constrains:

- Too rigid - the defined process models represent a predefined set of activities in a given order. It is not possible to describe all variants, because they are even not known at that moment. The result is that flexible and ad-hoc processes are unsupported. Thus the direct automation and execution of the process models leads to rigidity, omission of some possible scenarios and cannot be used in a changing environment.
- Missing collaboration and real communication – the defined process models represent the formal communication. The possible additional actions and collaborations that could occur and are part of the process are not taken into consideration (i.e. while carrying out a task the executor may need help from a more qualified employee).

The question is how an organization can be flexible and at the same time controlled. For achieving this balance in the organization it has to be positioned on the edge of chaos.

According to Scheer (2007):

Modern organizational theory pursues approaches that take into account the dynamics within companies and in markets, and that overcome inflexible organizational principles.

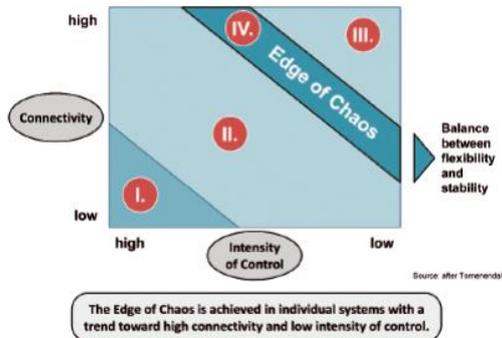


Figure 2 Balance Flexibility and Stability (Scheer, 2007)

Figure 2 shows an illustration of how connectivity – which can also be interpreted as communication and interaction – and the intensity of control with an organization determine the possibility for flexible, creative behavior (c.f. Tomenendal, 2002, and Scholz, 2000). If the organization has many rules, then all work processes are set. If, at the same time, there is little communication between the participants, then the organization stagnates. It is unable to react quickly to unexpected situations (lower-left section of Figure 2 Balance Flexibility and Stability). If, however, no rules exist, chaos rules (top-right section of Figure 2 Balance Flexibility and Stability). The shaded area represents a corridor of balance between minimal constraint and maximum communication. Area II describes a more stable organization that has not yet stagnated, but does not demonstrate spontaneity and flexibility as in the shaded area.

Having the business processes characteristics and the business models constraints on one hand and the theory of the edge of the chaos on the other the role of business processes in their automation and execution should be defined. Before that the hierarchical structure of process models and their tendency to change should be considered.

The structure of process models can be depicted as a pyramid having high-level abstract processes on top (see Figure 3 Current Structure of Business Process Models). Going down processes get more granular and volatile down to a point that requires many details and loop-backs. The bottom zone is where things get done.

As the base provides the added value of the business process it is essential to ensure that it serves

the purpose flawlessly and strictly. This usually means that business analysts try to define very rigid control flow of the execution. Taking processes a step further and trying to automate their execution it becomes obvious that the base is not stable. There are changes that occur frequently, but these changes are minor viewed from higher levels.

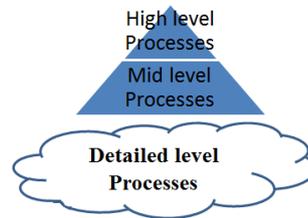


Figure 3 Current Structure of Business Process Models

The root cause of the problem is often business processes models try to capture the collaboration activities together with the control flow of the process. This over-detailization induces instability. To achieve stability and manageability it is imperative to find a way to recognize individual tasks and collaborative tasks and enable users to convert individual tasks into collaborative if need arises. Each such task will be defined as a small perceivable brick in the foundation and will have strongly defined boundaries both in time and resources. The illustration will be changed from Figure 3 Current Structure of Business Process Models to Figure 4 Structure of Business Process Models with defined collaboration task.

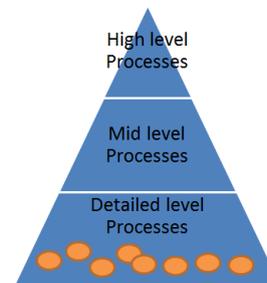


Figure 4 Structure of Business Process Models with defined collaboration tasks

4 COLLABORATION

Collaboration is a process through which people who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible. Nowadays the collaboration is one of the most success factors for the organizations.

4.1 Collaboration Types

Examining the collaboration within the organization three types can be distinguished (see Figure 5 Collaboration types).

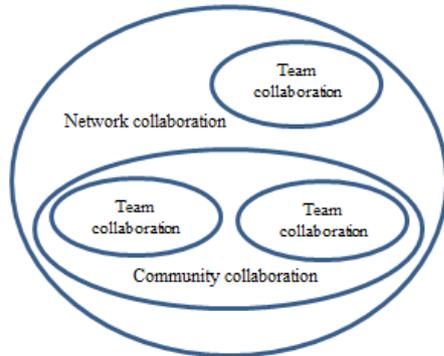


Figure 5 Collaboration types

According to Callahan, Schenk, White (2008):

- Team collaboration – there are clear goals to achieve within explicit time-line. In such collaboration group all members are known and they have roles. Leadership increases the productivity of the team collaboration.
- Community collaboration – goals are more often focused on learning rather than on tasks. Members of a team contact another team in their community to ask a question or take advice.
- Network collaboration – it covers the collaboration beyond the team and the community. There are no explicit roles and time-lines.

The main collaboration characteristics are:

- Flexibility – collaboration is used for almost each problem area in the real life. The collaboration is in the human nature and a various ways of collaboration have been developed so far. There are various collaboration tools for different situations.
- Understanding – it is important to ensure that all collaborators know what the goals are and all of them can participate actively. For fruitful collaboration a common language should be set.
- No clear roles – how strict are the roles depend on the collaboration type but in general in most cases all collaboration members are treated equally. The benefit is that the roles delusion encourages creativity and the set back is that focus is easily lost. That is why leadership is key for establishing good collaboration.
- No clear list of required participants – participants should be invited based on the

collaboration goals and the knowledge of the problem domain that each one can contribute.

- Informal communication – the collaboration should be organized in such way that all members feel comfortable and can openly express their opinion. At the same time the result of the collaboration should be recorded and accessible for each contributor at any given time. A variety of technical tools could be used to support such collaboration.

4.2 Different way to collaborate

There are different ways how to collaborate, but most commonly they fall in two groups:

- Information sharing and decision making;
- Contribution to common knowledge or resources.

In addition collaboration channels can be various (ordered by their “synchrony” – from synchronous to asynchronous): Phone, Meeting, Instant messaging, E-Mail, Forum, Wiki, File sharing.

People usually get accustomed to their preferred channel of collaboration and rarely think if it is the most appropriate one for the task at hand. This leads to delays in collaboration and frustration. In order to prevent such inconveniences there should be some kind of aid that will present the right tool at the right moment to the user. Most of the time this is done using rigid business processes that confine the collaboration activity to a predefined sequence of tasks that should be done to produce the desired output. Such decision makes matters even worse:

- Business process analysts have a hard time defining the process and all loopbacks typical to a collaborative activity (e.g. brainstorming cannot be described as a linear predictable sequence of activities);
- People who have understanding of how to accomplish certain tasks get frustrated because they have to follow new strange rules and they cannot recognize easily the benefit of the “standardization”;
- It is hard to follow procedures that describe collaboration activities. Especially if business analysts have “captured” all the details and subtleties in the process.

Business processes models are not appropriate to describe collaborative activities. Rather than describing what to do it will be better just to define certain boundaries and tools that will help them steer in the right direction at maximum efficiency.

5 THE NEW APPROACH

Collaboration activities tend to lose efficiency as they start to go off-topic or loop around themselves. Thus a better boundary or constraints around the problem domain is needed. Business processes can lend several ideas how to set certain boundaries on the collaboration. Taking the best from the business processes and collaboration, a sensible mixture can be compiled with the following characteristics:

- Goal – a clear shared goal transmitted to all participants;
- List of participants – a way to include the necessary involved people and people that have knowledge to share or decision making power;
- Allowed time period for the activity – work tends to consume whole time dedicated to it according to Parkinson’s Law. For activities such as collaboration that is often the case. It is better to restrict the time available than to have open-ended collaboration sessions;
- Resource availability – putting some constraints on the resources at hand can make many decisions easier and faster and will help focus on the real goals;
- Necessary information – only the relevant data and information to the current task is shown;
- Required knowledge – this includes the persistent knowledge base of the organization (like procedures and policies) and implicit knowledge from the employee experience. The second one requires that the experienced employee is invited as a participant in the task.
- Task execution tools – most of the time the task at hand will require a tool to be used in order to achieve the goal. Providing the right tool to people will eliminate the time and effort lost in seeking the tool and will minimize the risk of making a wrong choice.
- Collaboration tool/channel – standardization of tools and channels for each kind of collaboration activities within the organization brings the benefit of reduced number of tool and IT systems. This way organizations can reduce cost and clutter;
- Activity history – keep track of what and when happened prior to the current tasks so if there are any notable changes with regards to the landscape everyone is alert of them;
- Dependencies – collaboration activities rarely exist by themselves and affect no one and nothing. All participants should be aware of the dependencies between tasks in the process.



Figure 6 Task context

Based on the set of characteristics a new concept – task context, is introduced (see Figure 6 Task context). Collaboration activity can be wrapped into single task and attached to the proper task context that includes the fore-mentioned properties. The gap between business processes and collaboration activities can be bridged with the following rules how to integrate both:

- Individual tasks inherently receive task context from the business process. They are treated in the same manner as they are. If someone needs to collaborative support in such task the context easily allows facilitation of such collaboration.
- Collaboration activities are modelled as a single task inside the business process without any collaboration implementation details. The task is given the necessary sufficient context.

Let’s take as an example the process Project Management. At a certain moment during the process the task Perform risk assessment should be done. The task should have the following context:

- Goal: assess relevant project risk;
- Participants: project manager (Nikolay Nikolov), risk officer (Ivan Ivanov);
- Deadline: March 25th;
- Necessary information: project scope, plan, client information;
- Required knowledge: risk assessment form and methodology;
- Execution tool: document management;
- Collaboration tool: chat/phone;
- Activity history: previous meeting minutes;
- Dependencies: task should be performed after project plan and before kick-off meeting.

Note that there are no execution details, i.e. exact steps how risk assessment should be done. Note also that only information relevant to the project at hand and to the specific task is present.

The only obstacle to implement this approach is the lack of single orchestration tool that will drive the business process to follow the model and will

provide task context to process and collaboration activities. It will be a benefit if the tool is collaboration enabled so it can host collaboration channels.

6 ENTERPRISE PORTALS

Current collaboration tools focus primarily on content management, specifically group editing and reviewing of documents but lack integration with the rest of the processes. On the other hand business applications generally follow a rigid process and collaborative tasks are done “outside” them. The idea for the context and how it benefits from the process and the collaborative approaches has been introduced previously.

The context materialization is done by Enterprise Portals or also known as Business Portals. The concept behind portals is a Web site that serves a single gateway to company information and knowledge base for employees and possibly for customers, partners, and the general public. Most of the existing portals are missing one vital for process and collaboration execution element – orchestration.

This can be solved by implementing Intelligent Collaboration Business Portal (in short ICB Portal) with the following main features:

- Access/search - allows a user to get all the information needed in the desired context. For example, a loan officer does not need marketing information to approve a loan. The portal shows the loan officer only the information needed;
- Categorization - the portal categorizes all information so that it is delivered to the user within the context needed;
- Collaboration - single web portal spanning to intranet or even internet allows individuals to collaborate regardless of geographical location;
- Business process execution – does the hard job to orchestrate the whole process;
- Personalization - The information provided to individuals using a portal is personalized to that person's role, preferences, and habits;
- Expertise and profiling - Expertise and profiling is essential for the collaboration element of a portal. Individuals within an enterprise are profiled according to their experience and competencies so that project members can be chosen according to their qualifications;
- Application integration - This allows individuals to deliver, access, and share information regardless of applications used, provided IT systems are SOA based and can

provide parts of their functionality as a service;

- Security - This provides information to users based on security clearance. The user authenticates and accesses only information that has authorization for based on company rules and policies.

An ICB Portal allows following structured business processes, providing data to and from various orchestrated applications, and enabling collaboration whenever it is needed within the relevant task context.

7 CONCLUSION

If organizations embrace this new approach and implement the task context they will be able to preserve the controllable process execution in a collaborative environment enabling employees to be productive and use company knowledge. This single workspace will provide the executors knowledge, information and tools needed at the right time for the task execution. The concept of the task context can be expanded further with the introduction of the problem domain of project management. In this way organizations can get maximized view on the activities inside them and manage them better.

8 ACKNOWLEDGMENTS

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