

Aligning the Core Business Area Behavior with Non-Core Business Area Behavior by Synchronizing Business Operations with Accounting Records, using a Business Process Management System

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Abstract

This article aims at establishing the context in which a finite repository of business processes executed within an enterprise can automatically generate manageable transactions, and after that registered and preserved in accounting records. Typically, the actual enterprise software architecture starting from a sum of functionalities, can be perceived as an accumulation of graphical user interfaces, driven by business logic and storing relevant information in a database. The To Be enterprise architecture, proposed by the authors of this paper, consists of a standardized sum of business processes ran through a BPM platform, having an enterprise data model as an operational data base and also a data warehouse. Using this new enterprise architecture case, human action will be linked to the enterprise system through graphical user interfaces, scheduling very accurate human tasks execution and stabilizing the human behavior component for increasing overall enterprise performance. This transformation of the enterprise is provided by synchronizing business operations with the accounting principles applied for recording financial transactions. Consequently, this drives the enterprise towards the standardization of operations according to the best reference model at the moment, real time accounting, and eliminating the traditional gaps between operations and accounting. This method enhances enterprise improvement, by continuously controlling and monitoring business processes and implementing change at all levels.

Keywords: *enterprise architecture, enterprise behavior, business process, enterprise data model, business objects, business process management, accounting records, reporting services, business intelligence*

JEL classification: M21, M10

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1. The As Is Enterprise Architecture

In the context of globalization, even remote disruptions — such as economic changes, shifting market needs— can have a ripple effect that can impact the day to day operations of an enterprise. When combined with the effects of anticipated and planned changes in operations, the result is that the so-called "best practices" are not any longer suitable. Efficient operations, achieved by adapting the best practices through business processes automation, have to be oriented for implementing an operational improvement loop embedded in the enterprise architecture (Stănescu, et al., 2010) in order to tackle these frequent disruptions.

However, the typical enterprise is being confronted with a non-natural segregation of operations from their subsequent reflection in accounting records. Managers become eye witness to the phenomenon of “organizational schizoism”, where the operations within an organization are not aligned with accounting, increasing the heterogeneity of the enterprise behavior.

This is due to the fact that the actual As Is Enterprise architecture, oriented towards functionalities, has enhanced the development of silo applications, designed to address specific functions of the organization. Therefore, the general tendency manifested in the last years consisted of implementing modular business solutions (Enterprise Resource Planning Systems) in order to integrate the data layer of different processes (e.g. Accounts Payables/Accounts Receivables, Payroll, Order Entry, etc.) within larger business areas (e.g., Operations, Financials, HR, etc.). As illustrated in Figure 1, an ERP application allows the user to develop a single focused view into the existing data, having access to pieces of information updated on demand.

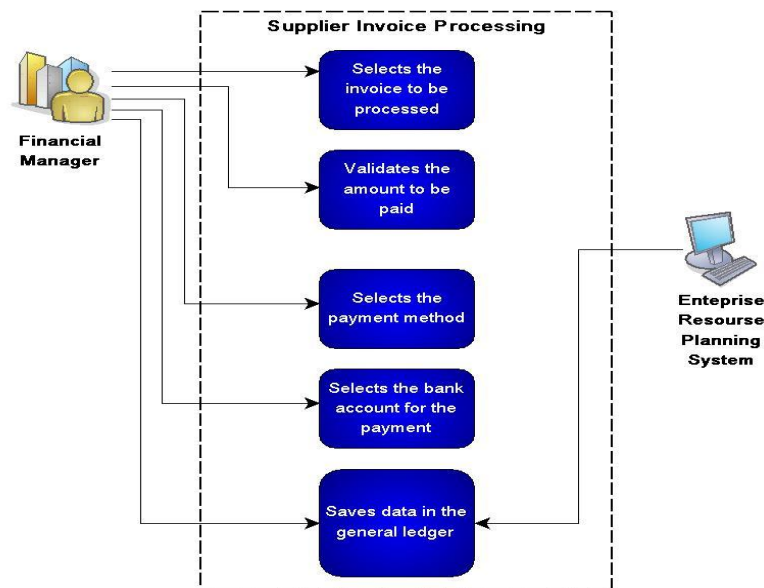


Figure 1: User Specific Activities for Processing Payment of a Supplier Invoice

This results in mechanizing human activities, since user's interaction with the system is reduced to performing a specific set of activities, instead of creating the premise for automating and gaining visibility of the end to end business process. As a matter of fact, this explains the reason why enterprises encounter difficulties in quantifying the real benefits they gained from implementing an ERP: **the system cannot provide the user with a synchronization of operations with the generated transactions and their subsequent registration according to the accounting principles.**

The traditional gap between operations and accounting within the enterprise is being preserved.

Therefore, any disruption coming from the business environment will have a potential higher impact over business operations, since the ERP system is a major drawback for the adaptation of an enterprise to change, which becomes slow and painful. Gathering the information related to processes from different sources, monitoring process execution and registering the transactions generated are now a major issue for decision makers in any enterprise.

Consequently, as a bottom line, the authors of this paper suggest that organizations need to find their new **op tempo**² and **increase dramatically the inner enterprise behavior homogeneity**, since nowadays the competitive, fast developing business environment demands a real time synchronization of business operations with transactions and the subsequent accounting records.

2. The To Be Enterprise Architecture

The enterprise architecture proposed by the authors of this paper consists of a standardized set of business processes³ (aggregated in a process portfolio) through which operations can be managed and monitored easily, enhancing operational efficiency and effectiveness.

To support this architectural perspective, the authors of this paper emphasize that processes directly contribute to enterprise performance by driving business process agility, in addition to operational efficiency.

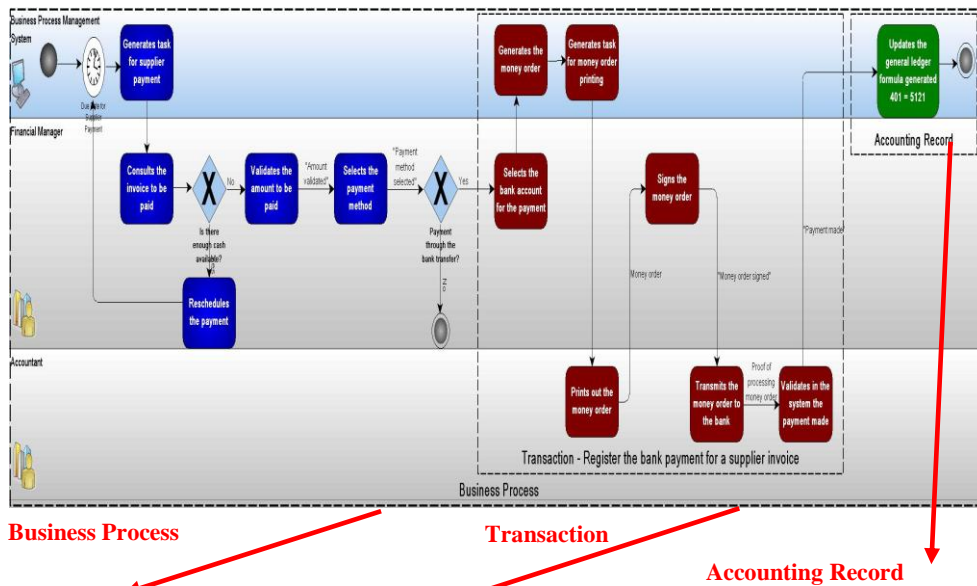
Process agility is a new measure of operational excellence (not only efficiency gained through process standardization). Agile processes enable the organization to sense and respond appropriately to pressure to alter "normal operations" and deal with disruptions to "business as usual."

Therefore, we argue that the visible benefit of implementing process oriented enterprise architecture would reside in increasing the agility of the enterprise by aligning business operations, transactions and accounting records.

In order to develop a thorough understanding of the proposed enterprise architecture and its most critical business objects, we consider mandatory defining them and describing their main attributes, using the following example.

² Operational Tempo; how frequently a unit deploys or goes to the field.

³ Selected according to the Porter Model and/or other internationally acknowledged frameworks of processes.



Business Process	Process Description	(X) $OPS = FIN$ Operation (OPS) = Operational Transaction (FIN)	Accounting Formula for X				Modified Elements (from the Balance Sheet or The Profit & Loss Statement)				Operations according to the modified elements
			Debit		Credit		1	2	code 1	code 2	
			Account Code	Account Description	Account Code	Account Description					
Processing supplier payment	Register the payment for a supplier invoice	register the bank payment for a supplier invoice for goods and services (standard invoice, in Romanian currency)	401	Supplier	5121	Bank Account in Romanian currency	Liabilities	Short term assets (cash and current bank accounts)	BG 52/BD 41	BB 28	A - X = P - X

Figure 2: Synchronizing Business Operations with Accounting Records through the usage of a Business Process Management System

A **business process** is a coordinated chain of activities intended to produce a business result (Bruce Silver Associates, 2006) or a “repeating cycle that reaches a business goal” (Debevoise, 2005). In the above case, the business process refers to processing payments based on the invoices issued by suppliers. The process is being executed by making use of BPM System, which aims at assisting the human resource to perform their daily activities.

A **transaction** is an agreement, communication, or movement carried out between separate entities or objects, often involving the exchange of items of value, such as information, goods, services, and money; more specifically, a financial transaction involves a change in the status of the finances of two or more businesses or individuals. In the exemplified process, the transaction consists of all activities which aim at registering the bank payment for a supplier invoice of goods and services.

An **accounting record** consists of all sources of information and evidence that are used in preparing, verifying and or auditing financial statements. The

accounting formula applied in the case of processing the payment of an invoice is $401 = 5121$, illustrating that the modified elements are the liabilities and the short term assets. The operation $A - X = L - X$ indicates the usage of short term assets (in values of X) to extinguish debt to a supplier.

The above example shows that a process oriented approach towards business can determine, as a strong benefit for the company, the alignment of any operation with its subsequent transaction and reflection in accounting. Therefore, the traditional gap between operations and accounting can be now bridged, transforming the enterprise into a more efficient system.

The example illustrated above can help generalize the proposed model, as follows:

The business interactions of an enterprise with its stakeholders from the value chain take the form of business operations, which trigger the execution of one or more processes. ,

Depending on the types of stakeholders involved in the business interaction (e.g. suppliers, customers, employees, etc.), business processes are often cross functional in the organization or are even crossing organization's boundaries.

As illustrated in Figure 3, the standardized set of business processes identified within the enterprise are organized into a portfolio of processes, easily manageable and controlled.

Furthermore, transactions are determined through the execution of business processes, their result being eventually registered into accounting records.

Another mainstream advantage of the To Be architecture is **the decomposition of the enterprise processes into invariant, more atomic business objects, such as roles and activities.**

Any enterprise, disregarding its dimension, is based on a **quasi-static association between these two business objects**, so that one can know anytime the finite inventory of activities performed by a role and the processes in which a certain role is being involved.

At the same time, the model suits large size companies, which have people specialized in different types of activities and the number of roles resulted cannot be easily managed without using such a reference classification.

Contrastingly, one can adapt the model to small or medium size enterprises, which use a mono role per activity while the inventory of roles has a narrower range as compared to the first case.

Therefore, we can state that each of these business objects is invariant, preserving its attributes no matter the size of the reference enterprise.

As a bottom line, **the novelty of the To Be enterprise architecture results in giving stakeholders an overall understanding of the current status of existing processes, the transactions generated and their real time mirroring into accounting records, together with an effective association of roles to a well-defined inventory of activities per process within the enterprise.**

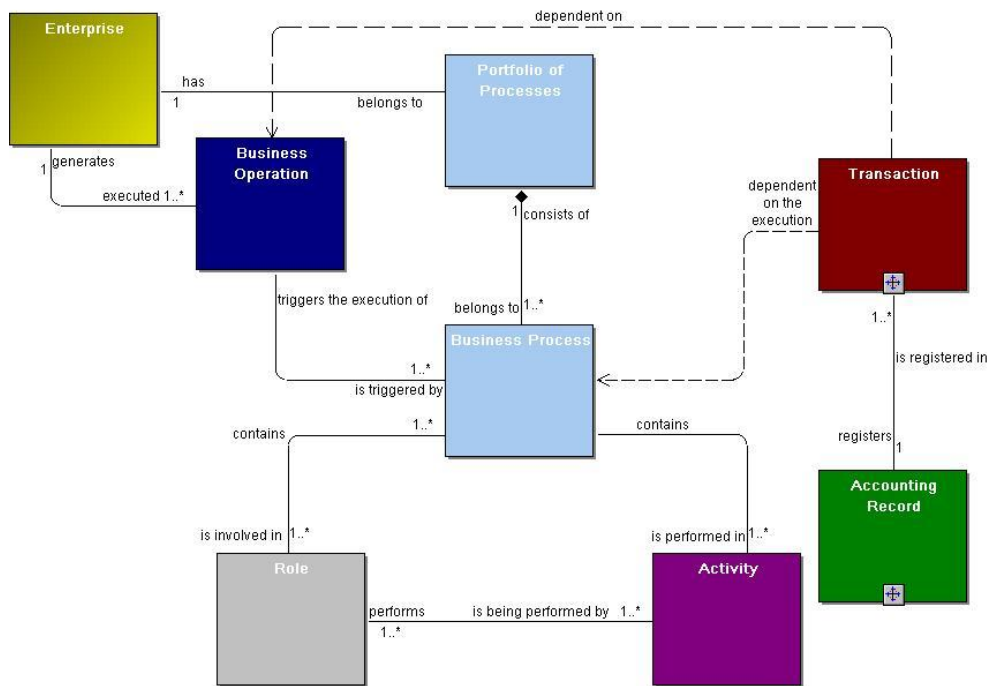


Figure 3: Business Class Model in the To Be Enterprise Architecture

3. Implementing the To Be Enterprise Architecture

In terms of methodology steps, the proposed approach uses steps that are common in process improvement methods but it also provides some additional enhancements. Firstly, unlike business process reengineering, the authors do not suggest radical and revolutionary improvements in all processes. However, at the same time, the methodology does not suggest to focus on small-grained details that cause the big picture to be lost, which is often the case for statistical-oriented improvement methods.

Instead, our proposed methodology suggests a loop approach of improvement, which easily adapts the operational tempo of the enterprise to the business environment. This is based on a well-established **enterprise data model** and a **business class model**, used as references for each subsequent iteration, which deals with the most important processes. Also, unlike classical improvement methods that have trouble gathering information about processes scattered across an organization, the proposed framework provides a data exchange layer capable of obtaining data from different sources including data warehouses and business intelligence systems, identified in the enterprise data model. Often, the focus of the deployment phase of a BPM project is to automate the processes modeled however, we believe this phase also offers opportunities for improving the subsequent phases, if it is integrated with information systems that produce data useful for the

monitoring and performance management phase. Deploying a data warehouse (DW) that collects performance measurement data related to business processes is one approach (Kimball&Ross, 2002). A data warehouse plays an important role in process measurement, which typically provides statistical process data that combines with business data to determine the performance of business processes.

In the proposed enterprise architecture, the data warehouse is mainly used as a query-able source of business information, to either provide data directly to monitoring services or feed data to a business intelligence engine for further refinement. This enables one to investigate business processes in their associated context along different dimensions.

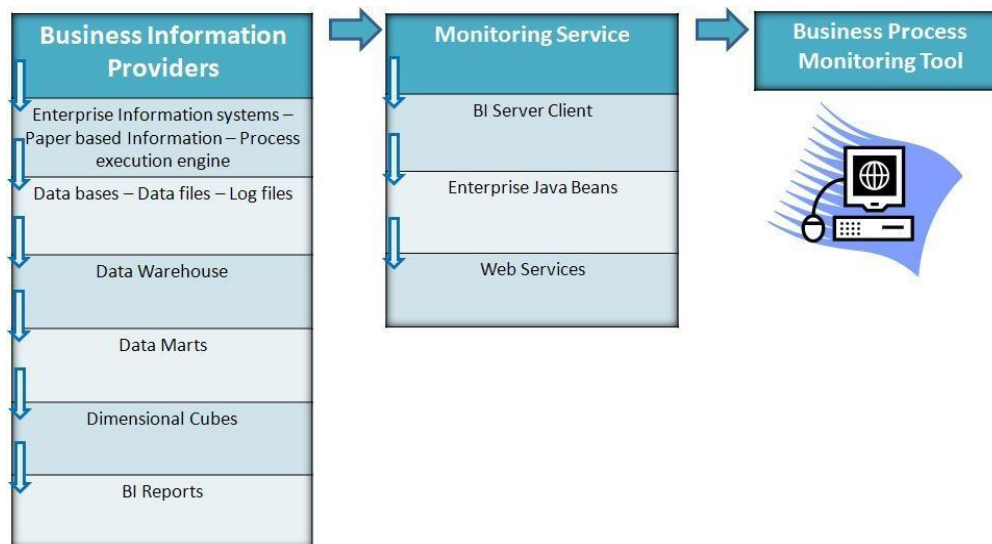


Figure 4: Architecture of the Reporting System

Additionally, the implementation of a BPM System provides the capability for users to pinpoint a malfunctioning process and drill down to the next levels of abstraction to find out the causes of problems. The improvement phase can use performance measurement results from the monitoring phase in combination with a repository of process redesign patterns. In other words, redesign patterns to improve the target process can be suggested based on a problem observed during the monitoring phase in order to better align the process with goals defined in the modeling phase. If a process performs well, then its key performance indicator can also be revised to become more ambitious. These are some of the main reasons to further insert a performance measurement framework.

Finally, we consider that implementing this model based methodology would further increase the business maturity of an enterprise, directing it towards the standardization of operations, real time accounting and organizational improvement. By using the proposed model the mainstream of the enterprise

consists of operations, while transactions and accounting records are the synchronous effects of operations. Therefore, the result is a core business oriented enterprise, with an increased level of behavioral homogeneity which enhances agile responses to external disruptions.

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