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BUSINESS PROCESS IMPROVEMENT FROM THE ADAPTIVE CASE MANAGEMENT PERSPECTIVE

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This paper describes the risks, challenges and outcomes associated with the adaptive approach to business process change and improvement within an organization. The article focuses on aspects related to supporting the company's business operations (business processes) with information technology tools. This article explains that it is necessary to use Adaptive Case Management (ACM) systems instead of existing Business Process Management (BPM) solutions due to the fact that the latter are demonstrably inadequate in comparison to the more recent adaptive process management concept. The paper addresses the challenges and risks involved in business process optimization. The author argues that ACM is a better tool or approach for adaptive business process improvement, since it significantly reduces the risk inherent in business process improvement. The case studies provided in the paper serve to support this thesis.

Keywords: adaptive case management, business process management, BPM, ACM, Advanced Case Management, IT project management, risk management

1. Introduction

Faced with recession and a fast-changing business reality that demands adaptation and optimization of its business operations, an organization must embrace continuous optimization of its business processes in order to compete in the marketplace. Market dynamics indicate that a company's processes must increasingly evolve and change over time. However, addressing this area with IT support in the

form of BPM systems entails a substantial risk, since such systems cannot effectively support fast changing processes that require complex decision making.

A typical approach to business process management is to optimize business operations by automating work, with a strong focus on process centralization. Data is fed into and generated by every process. Moreover, every process defined in the BPM (Business Process Management) system is designed to achieve a repeatable goal through a sequence of specific steps performed in the right order. A participant in the process can only access a portion of process data as relevant to the specific process step in which he or she takes part.

Enterprise Business Process Management systems make it possible to define and manage the exchange of information within the company by using business process semantics. Process execution involves various parties, including employees, customers and business partners, and relies on IT systems and databases. BPM systems are IT tools that provide managers with the ability to monitor business process execution in order to better understand such processes and modify them to achieve better outcomes. The BPM standard enables companies to gain insight into their internal business procedures by using graphical notation to optimize communication processes. Graphical notation also makes it easier to understand and improve collaboration and business transactions between organizations. It enables companies to gain a mutual understanding of their operations and the individuals involved in such operations, making it possible to adapt to both new internal circumstances and changes in the external business environment.

However, with the classic BPM approach, the risk associated with adaptive business process improvement increases. There is a danger that if one cannot determine what the process involves and how it is going to change (e.g. in response to changes in stock market situation, stock prices, raw material prices etc.) at the beginning of the process using the BPM model, then the process will not be optimal due to its limitations (i.e. its static, specific and repetitive character).

Risk also increases due to the fact that the expenses and time required to create or re-engineer the process definition cannot be estimated unambiguously. In order to mitigate these risks, this article proposes an adaptive approach to business case management.

In contrast to the classic BPM approach, processes defined using Adaptive Case Management tools are dynamic. Unlike BPM's traditional processes described using BPMN, such processes are not finalized until they are actually executed. In order to make it easier to manage processes whose flow cannot be predicted due to high complexity and a large number of decision-making considerations, organizations increasingly choose an adaptive process management (case management) system. Literature refers to this approach as Adaptive Case Management [1] or Dynamic Case Management.

This solution helps manage difficult, unstructured processes, which have an unpredictable flow (and are, in most cases, the most expensive and complex ones), making it possible to improve such business processes adaptively.

The author of this paper stresses the fact that by choosing to use a BPM tool to support adaptive business process management, one runs the risk of losing the valuable experience possessed by the knowledge worker (who has a more efficient tool to support his work).

The paper also explains and structures certain concepts pertaining to the implementation of adaptive business process management systems by using actual market examples. This paper attempts to explain the most important aspects of the implementation of adaptive business case management systems in terms of both methodology and real use cases.

2. Business Process Management – state of the art

Business processes and the associated decisions are key to the operation of any organization. They set the pace of the company's business and determine its competitiveness. The way the company manages the flow of work and information along process paths has substantial impact on the speed, flexibility and quality of its decision-making processes. This is why implementing a platform that supports business process management should become a priority.

According to definitions quoted by G. Lee and B. G. Dale [2], business process management means:

- a structured approach to the analysis and continuous improvement of core activities, such as manufacturing, marketing, communication and other key aspects of a company's operations;
- a systematic, structured approach to analyze, improve, control and manage business processes with the aim of improving the quality of products and services (P. Elzinga, W. Horak, J. Chung-Yee) [3];
- creating and improving a synergistic set of horizontal processes that cross the boundaries between functional units both within the organization and outside its hierarchical organizational structure, intended to generate value for recipients (while cross-functional process teams are responsible for implementation, policy goals and guidelines as well as operational guidance are still cascaded down from the top levels of the hierarchy).

Companies often believe that they can solve most business problems in the area of process management simply by implementing a BPM system. This line of thinking, however, entails two risks, which can be fatal to any company:

- Operational innovation may be reduced due to restrictions imposed by business procedures or processes. Generally, there are two mutually reinforcing factors

that stifle innovation: delays caused by the bureaucratic processing of changes under approved process maps, and constraints that result from the beliefs of decision makers (who typically have no direct exposure to how the work is actually performed).

- The processes being executed may become "averaged" by the models.

Unfortunately, with the ever-increasing pace of changes in technology and the rules of market competition, the above risks will be even quicker to negate the benefits of implementing a traditional BPM model. In times of recession and crisis, when competition becomes fierce, enterprises already face the challenge of adapting key business processes to individual customers' requirements, correlating them with stock market performance etc.

At the same time, a business process used for example to deliver a construction project or process a loan application must be executed differently depending on the type of the project and the requirements of a particular customer. Since it is impossible to predict and model all types of projects and customer requirements, there must be an option to adapt the business process dynamically to the unique needs of a particular execution. In this case, process management may not be limited to routine, repetitive execution of the same process, no matter how well optimized. The risk associated with this approach is, more and more often, the reason why customers choose to invest in ACM systems. With the personalization of customers' requirements, it also becomes necessary to customize the company's business processes. The advantage smaller businesses have over their larger counterparts (even big multinationals) in terms of innovation and adaptability clearly demonstrates that the key to success is no longer an optimum business process, but rather the ability to skillfully and dynamically design business processes depending on customer demands. Large companies that spend enormous amounts of money on implementing new management methods and complicated IT systems are unable to achieve the operational flexibility inherent in smaller, family-run businesses, and their business process optimization efforts are exposed to major risks.

In most cases, these risks involve the increasing cost of adapting static workflows run in BPM systems to the fast changing business requirements. In addition to the visible increase in expenditure, the time to produce the final deliverable (e.g. response to loan application, correct evaluation of a customer's case etc.) also becomes longer, which may significantly undermine customer confidence and cause further financial losses.

The current approach to preventing and reducing the consequences of potential risks relies on a set of activities referred to as risk management. As a result of these activities, the probability of adverse events is reduced (preventive action), and appropriate measures and specific corrective approaches are prepared in order to reduce the adverse effect of events that occur due to the materialization of the previously identified risks (risk management techniques). Risk management is a

management technique that rationalizes decision-making under conditions of uncertainty (which, with respect to the area discussed in this paper, involves business process optimization). This approach is considered to be the most effective when operating under conditions of uncertainty (associated, for example, with supporting adaptive or time-variable processes), since it allows various types of security features to be reduced, thus improving the cost-benefit ratio.

The risk associated with business process improvement can be reduced significantly by using a methodology referred to as Adaptive Case Management (ACM). An enterprise managed according to the ACM concept inextricably combines day-to-day ability to create and validate innovations on a wide basis with its core business. By allowing process operators to change their processes dynamically, the entire enterprise management system becomes open to creative initiatives from a broad community of workers. At the same time, there is no risk of chaos that would result from uncontrolled changes to operational principles. Additionally, with the ability to trace the effect of changes, it is possible to enhance the organization's collective knowledge base by adding information as to which practices and solutions deliver the best and the worst results. This means real, day-to-day business process improvement and adaptation on the basis of knowledge possessed by a broad community of workers and validated by the customer. With the introduction of the ACM concept, a new definition also appeared to describe the workers involved in the processes. As opposed to traditional process participants, the new type of worker is referred to as a "knowledge worker". Professor Van Der Aalst describes the difference in definition between the two types using the "blind surgeon" metaphor [4]. The traditional process approach only gives the participant a partial view of the complete process, restricted in most cases to the specific process step as part of which the participant is expected to make a business decision.

Knowledge worker has full access to information on a given case or process. Knowledge workers are a new category of professionals whose primary responsibility is to use and exchange knowledge productively.

Due to the requirement to perform activities at the pace expected by the customer, and considering the sheer number of processes that run in parallel, the owner of a process executed using the traditional BPM model is unable to analyze, decide on, and modify the process as it is being performed. With ACM, this burden is shifted onto knowledge workers. Depending on their assigned authority, these workers (and not just process leaders as was the case in the past) need to be able to make on-the-spot changes to the process being executed.

In a standard BPM system, the workers who perform a given process are expected to follow an algorithm created according to a standard BPMN process map and designed according to the company's current best knowledge. In real life, there are no two identical sets of conditions for the execution of a process (e.g. two identical consulting or investment projects), so it must be possible for operators to

adapt the standard processes dynamically depending on actual operational requirements. The traditional process improvement cycle where process leaders model the processes, monitor their execution, draw conclusions and then use the resulting knowledge to make the processes better is too slow and generally inadequate. In addition, with conflicting customer (investor) expectations, it may prove impossible to design a "universal" process that is acceptable to all customers currently supported by the company.

A compelling argument in favor of the modern ACM approach is the ability to engineer processes whose structure is not known during the initial phase of the project. This approach significantly reduces project risk and helps mitigate business risks associated with business process optimization and adaptation.

Examples may include court cases and medical records. For such processes, participants must be able to modify existing or create new tasks in the process dynamically, and it is these process participants that the term "knowledge worker" applies to.

3. Examples of business process adaptation risk mitigation by using ACM

3.1. Vehicle insurance claims

By using a case management system, details of the claim and the applicant can be linked to the appropriate documentation that has been submitted. A business analyst can quickly make any required changes to the vehicle insurance claim solution. By configuring the solution with the ACM system, it is possible to reduce the risk of incorrect (e.g. incomplete) claim processing.

The challenge

Vehicle insurance claims may involve input documentation and supporting documentation from multiple sources, such as the applicant's claim, documents provided by the garage, police reports, and documents from other official sources of information regarding the value of the vehicle or traffic conditions. Moreover, various analyses are often required in order to evaluate and enter additional information in the insurance claim for the duration of the process. Complete documentation and all information associated with the claim must be easily accessible so that adjusters can properly assess and resolve the insurance case.

There may be significant differences between various claims. With such diversity, it may be necessary for case managers to initiate any processes that allow incorporating new roles and changing task execution method and timing as the claim is routed across various areas of the organization. Executing the above sce-

nario in a traditional BPM system would entail the risk of delays, or even a failure to handle the case properly.

The solution

A business analyst at an insurance company works on improving the process used for handling vehicle insurance claims. He or she creates roles for each step of the claim process and assigns privileges to these roles to accommodate groups of employees who execute tasks at each stage of the process.
The solution combines the following items:

- properties of the claim, such as policy number and details of the accident;
- roles, such as claim adjuster and assessor;
- types of cases, such as general claims, claims involving bodily injury or total loss claims.

When using traditional solutions based on a predefined workflow process map, the risk involved in handling dynamic cases or adaptive processes is enormous. In order to manage the risk, an adaptive approach to business case management should be adopted. This makes it possible to change roles quickly, and to process or add tasks as necessary.

Due to the flexibility of the case management system, case managers can solve problems much more quickly and effectively, and customers bring their claim cases to completion much more easily. The above case study uses the insurance sector as an example to demonstrate how the ACM approach reduces the risk involved in supporting dynamic business processes.

3.2. Financial services: credit card payment dispute resolution

Adaptive Case Management can provide card issuer banks with a case management solution to help resolve credit card disputes. ACM delivers a broad view of each case to the case managers, improves productivity, and reduces the risk of errors being made as the case is being processed.

The challenge

Banks that issue credit cards have observed a significant increase in the number of cases that involve disputes. Furthermore, regulatory changes and increased pressure to improve customer satisfaction force banks to resolve each case in the most efficient manner possible. This means that banks need a solution that will enable them to process any incoming dispute and decide (with the least possible risk of error) whether to submit the dispute to a particular credit card operator in order to issue a chargeback.

Credit card companies have strict requirements concerning case submission, and the bank's solution must provide the operator with accurate and relevant information that allows efficient processing.

The solution

A business analyst at the bank verifies the credit card operator's requirements for dispute processing. He or she determines the type of information required by the company in order to process a dispute. The analyst then uses Adaptive Case Management tools to quickly design and create a solution that will enable the bank's staff to capture all information required for the case and include additional records and documents. As in the first example, ACM significantly reduces the risk involved in working with dynamic and optimized business processes.

3.3. Banking sector: customer case management

Bank institution treats each customer as a unique business case and needed a system that would be able to support that philosophy. Existing technology did not provide any means to monitor the progress of existing client cases or corresponding business processes and did not promote the reuse of applications to increase time to value. Attracting new clients was a key objective of the bank and due to economic constraints, needed to be accomplished with existing staff. Improved customer interactions were an important aspect to meet the goal of growth, but existing systems did not foster timely or substantial customer service. Spar Nord needed a system to maximize effectiveness, improve competitiveness, overall performance and customer satisfaction.

The challenge

Bank recognized that an adaptive case management strategy would best meet its needs moving forward. The IBM team created a unified enterprise-wide case infrastructure built on IBM Case Manager V5.1 software. The service-oriented architecture approach will automate existing paper flow between business cases and centrally integrate systems between the front and back offices for better effectiveness.

The Solution

Bank has gained a new solution that acts as an enterprise-wide solution to standardize processes and maximize effectiveness. Expanding client base by adding 10,000 new customers utilizing only already existing staff is now possible and personalized customer interactions are expected to improve 45 to 55 percent. The Case Manager software helps provide a 360 degree view of all data - customer, accounts, line of business case systems and more - and automates the existing paper flow. The Bank can now truly treat each client as a unique business case –

monitoring the progress of each case from initial application to closed loan. The Bank has gained an integrated system for enterprise-wide improvements, boosting customer satisfaction and streamlining processes between the front and back office.

3.4. Life and Health insurance: disability claims system

Large Canadian Insurer recognized the need to update several systems associated with disability claim work processes to remain highly competitive in the marketplace. In order to meet the growing demands of customers and prospects. The company realized it needed to provide exceptional customer service while increasing service speed and productivity to increase market share.

The challenge

The Insurer recognized a unique mix of domain knowledge and specialized expertise were required to achieve the desired process changes and successfully transforming mission-critical processes. Using content and process automation technologies transformed operations with the least disruption of current operations. Subsequent phases will replace current unsupported technologies with a case management and rules-based, out-of-the-box solution.

Customer decided to strategically focus its efforts on integrating an all-inclusive new process and content solution to its existing line of business applications. The ACM software takes the scanned data, sets up incoming claims using workflows and arranges next steps. The Case Manager software acts as a highly functioning case management system, organizing and collecting all pertinent data that helps customer work more efficiently across all processes.

The ACM platform, integrates all the underlying software, acts as a solution accelerator and provides the user interfaces, allowing the company to implement and launch products quickly, while making the system easier for knowledge workers to manage and reconfigure.

Phase two will replace some of the client’s unsupported line of business systems with the more advanced e-Disability Claims functionality of the ACM solution.

The Solution

By implementing both ECM and ACM software, the customer achieved many benefits. The ability to scan, index and use electronic data and case structures has transformed processes. The company has gained the ability to scan in excess of 40,000 claims per year. Now all client collaboration is electronic, with information becoming more timely and cost effective. Users are more efficient and company expects, in subsequent phases, to realize productivity improvements of 30 percent. Real time monitoring allows management to control workload more effectively. Furthermore, extensive reports allow for better time management and workload

distribution, while electronic collaboration eliminates geography as a barrier. Finally, courier use has been eliminated, saving the company money and time.

Moving to an automated solution has helped the customer remain competitive and retain customers. Using ACM packaged software allowed the solution to be implemented and launched quickly, helped reduce disruption to daily operations and provided better solution agility to the team.

4. Conclusion

The traditional, static approach to process management works well in conjunction with BPM IT systems when process optimization is needed.

However, it entails the risk of serious issues in the event of unexpected adaptive changes.

The problem stems from the requirement for the process leader to make the decisions (which delays further action) and the inability to link the company's core business with knowledge management in a systemic, institutionalized manner via the process support system. At the current rate, boardrooms, boards of directors, management teams and process leaders are finding it difficult to keep up with adaptive changes.

An enterprise managed according to the ACM concept inextricably combines day-to-day ability to create and validate innovations on a wide basis with its core business, thus mitigating the risks and challenges associated with business process optimization. By allowing process operators to change their processes dynamically, the entire enterprise management system becomes open to creative initiatives from a broad community of workers. At the same time, there is no risk of chaos that would result from uncontrolled changes to operational principles. Additionally, with the ability to trace the effect of changes, it is possible to enhance the organization's collective knowledge base by adding information as to which practices and solutions deliver the best and the worst results. This means real, day-to-day business process improvement and adaptation on the basis of knowledge possessed by a broad community of workers and validated by the customer.

The main benefit of implementing a dynamic business process management model is that it brings back to large enterprises the speed and agility needed to operate and compete in an evolving market environment. Risk management becomes, so to speak, an integral part of all processes within the organization. If incorporated properly in all processes, it helps reduce the uncertainty inherent in these processes and optimize risk, thus delivering tangible benefits.

By truly empowering process operators to define and take responsibility for their work without the risk of losing control of ongoing processes, dynamic BPM enables large enterprises to manage knowledge in their day-to-day operations based on:

- creative, active experimentation that relies on continuous minor changes introduced by a broad group of process operators, leading to gradual collection and distribution of knowledge; and
- day-to-day validation of the existing knowledge base and elimination of obsolete knowledge that no longer matches customer requirements or competitive challenges.

Today, neither customers nor products can be treated as anonymous and repeatable. As a result, it becomes necessary to deliver a product tailored to the needs of a specific customer not only in areas of construction or consulting, but also (increasingly) in areas where volume production was previously the order of the day, such as financial services, automotive industry, or travel. This means that companies must adapt their operational principles every day, and update their understanding of individual customers' current and possible needs. Dynamic business process management expands on classic process management and attempts to bring it closer to the concept of a learning organization.

One of the core assumptions for ACM is the belief that the organization being managed should constantly expand and process its existing knowledge of the mechanisms present in the business environment [5] in which it operates, and that this management model is not simply more effective: it is necessary in order to respond to the staggering pace at which today's markets and their expectations evolve. It is often said that the goal of ACM is to establish a learning organization. Improvements to a company's internal processes are made in several dimensions, and this applies to both managers and employees.

It has to be emphasized that opportunities for managing business processes dynamically exist regardless of the type of the company's manufacturing or service operations, and that the efficiency of implementation depends on the professional level of the company's employees and its actual knowledge management efficiency, including the involvement of all employees in the development of new solutions. This paper addresses the question of how to approach the evaluation of business optimization after implementing an ACM system. To that end, it presents a methodology for evaluating the efficiency of a static BPM implementation.

ACM expands the typical business process management approach to include frequently changing or completely unpredictable processes. The economic situation, particularly during recession, shows that the traditional approach to business process management is not optimal.

Initially, attempts were made to use the BPM and Agile methodologies to create and implement business processes that could be changed over time. However, neither the time required to make the changes nor the cost of such operations were satisfactory.

This paper uses practical examples from the insurance sector to demonstrate that the ACM approach reduces the risk involved in supporting dynamic business processes.

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