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BUDGET PLANNING USING BUSINESS PROCESS MODELING TECHNIQUES

Abstract. This paper's purpose is to define analysis and Business Process Modeling techniques which are the main components of Business Process Design, like reengineering, software development, manage quality and continuous improvement of processes. The article presents the process of analysis and methods of planning a business process using business process modeling notation (BPMN) diagrams, the C # programming language, writing concepts and terms of reference for creating a process in an electronic document management workflow especially on the Budget planning process in SDU.

Keywords: Business process, Business process modeling notation (BPMN), Budget planning, Document management workflow.

Аннотация. Целью данной статьи является определение методов анализа и моделирования бизнес-процессов, которые являются основными компонентами проектирования бизнес-процессов, таких как реинжиниринг, разработка программного обеспечения, управление качеством и постоянное улучшение процессов. В статье показан процесс анализа и методы в планирования бизнес процесса бюджета в СДУ с использованием Business Process Modeling Notation (BPMN) диаграмм, языка программирования C#, написание концепций и технических заданий для создания процесса в системе электронного документооборота, а именно планирование бюджета в СДУ.

Ключевые слова: Бизнес процесс, Business process modeling notation (BPMN), планирование бюджета, система электронного документооборота.

Аңдатпа. Мақаланың басты мақсаты - бизнес-процестерді жобалаудың негізгі компоненттері болып табылатын реинжиниринг, бағдарламалық қамтамасыздандыру, сапа менеджменті және үздіксіз процесті жетілдіру сияқты бизнес-процестерді талдау және модельдеу әдістерін анықтау. Мақалада бизнес-процесті модельдеу (BPMN) сызбалары, C# бағдарламалау тілін, электронды құжат айналымында процесс құру үшін тұжырымдамалар мен техникалық тапсырмаларды жазу арқылы бизнес-процесті талдау және жоспарлау әдістері ұсынылған. Сондай-ақ СДУ-дегі бюджет жоспарлауының негізінде көрсетілген.

Түйін сөздер: Бизнес процесс, Business process modeling notation (BPMN), бюджеттік жоспарлау, электроды құжатайналымы.

Introduction

Business process modeling is the fundamentals of the working process of any organization, when the model applies effectively it will help optimize the whole business process and improve workflow. Many business process modeling methods and their associated tools have been used to capture the characteristics of business processes. However, most methods view business processes from different perspectives and have different features and capabilities. ^[1] BPMN used four types of diagrams, which are Process Diagram, Collaboration Diagram, Choreography Diagram and Conversation Diagram. Most used diagrams are Process Diagram and Collaboration Diagram. In this work will be presented Business process model analysis on the Budget planning process.

Aims and objectives of research

The aim of the work is to find which technique can improve the budget planning process. Budgeting basic part of the organization's infrastructure. *Budget analysis:* involves examining and explaining the components of budget expenditure and revenue. The use of budget indicators (ratios) can help to improve understanding of issues such as the level of implementation of expenditure and revenue budgets or the structure of the budget. ^[2] For developing business process in eBA document management system work consists of six steps. Which is, analyze and research what is the budget planning and its allocation, define stakeholders which will act on this process. Next, organize meetings with stakeholders and create "protocol" and rules and regulations, creating BPMN on process. After taking the results of analysis and drawing BPMN of the process creating workflow on document management system, where created form and flow of the process by using C# programming language and SQL.

Background of Literature Review

This section represents the background of the paper and how BPMN is used in other papers. BPMN specification for representing activities of the company in a graphical way. One of the research which inspired me to write this article is "A framework to semantify BPMN models using DEMO business transaction pattern". The paper proposes a framework that maps the DEMO complete pattern onto BPMN offering a semantified BPMN pattern to model business processes. The pattern encompasses the ability to express both the communication and the production acts, as well as, the ability to systematically prescribe revocations. Moreover, the pattern can be combined in a network offering the ability to design and implement within a controlled managed complexity environment. ^[3]

Another work is “A Classification of BPMN Collaborations based on Safeness and Soundness Notions” where authors define some important correctness properties, namely well-structuredness, safeness, and soundness, both at the process and collaboration level of BPMN models. We demonstrate the relationships between the studied properties, with the aim of classifying BPMN collaborations according to the properties they satisfy. [4] Classification results of the work is the BPMN collaboration consequently by well-structures, safeness and soundness.

- All well-structured collaborations are safe, but the reverse does not hold;
- There are well-structured collaborations that are neither sound nor message-relaxed sound;
- There are sound and message-relaxed sound collaborations that are not safe.

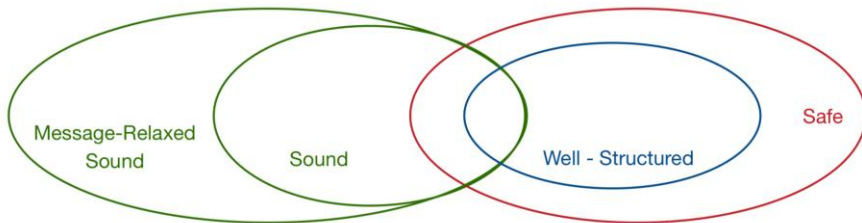


Figure 1. Classification of BPMN collaborations.

In Euler diagrams that can be seen that authors can prove synthesis of BPMN collaborations.

Methods and Results

Work uses empirical, descriptive and experimental methods based on qualitative data. As already mentioned BPMN has four types of diagrams which are Process Diagram, Collaboration Diagram, Choreography Diagram and Conversation Diagram.

- Process diagram describes the logic of the business process in workflow form, and it is the most used and basic notation of BPMN.
- Collaboration diagrams simulate data exchange and management impacts between two or more business processes defined in pools. It has two types of realization, which are internal and external. Internal for business processes which work within one organization, except external, it works across two or more organizations business processes.
- Choreography diagram is a sequence of participants' interactions while performing BPMN business processes.
- Conversation diagram is a graphical element representing a chain of logically interrelated message exchanges.

Analysis on process contains researching correct budget allocation, defining format of filling tables, calculations on each table and creation rules and

regulations on Business Process. After the analysis on the Budget planning which contains meetings with stakeholders and research on BPMN models, the result was the process map for the Budget planning which shown in Figure 2.

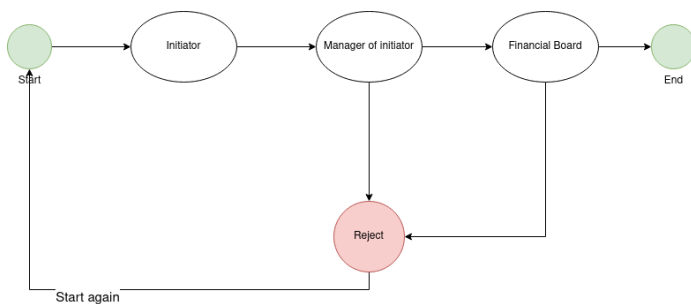


Figure 2. Process diagram for Budget planning business process

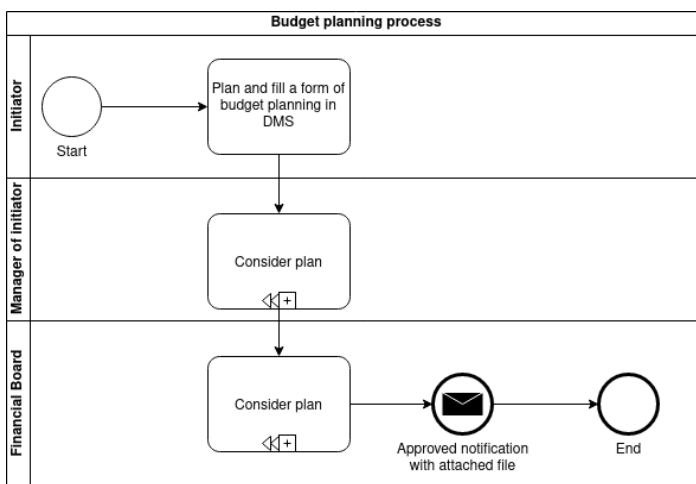


Figure 3. Collaboration diagram for Budget planning

These diagrams help to realize the Budgeting business process on Document Management Systems. Process can be seen as easy, but it has sub-processes and relations with 9 accounting business processes, like monthly payments, goods and services payments, business trips and scholarships for assistant students.

Firstly, in the system I created a form of the business process by using C# programming language and SQL. Figure 4 represents the final version of form with all required fields, relations and calculations.

Бюджет жоспары

Жалпы шығындар														
Коды	Шығын түрі	Атауы	Қосымша өкілетті	Ұйымның атауы	Мерзімі	Сыма	Бағасы	Жалпы сомасы	Өңдеу					
1	Add													
Барлығы: 0														
Қосымша қызмет төлемдері														
Коды	Атауы	Аты-жөні	Жалпы	Қолма-қол	ОТД	ИДН	ОСТ	ОСМС	Ай сайы	Жалпы (жалпы)	Өңдеу			
1	Add													
Барлығы: 0														
Іс-саяси														
Коды	Лауазымы	Келетін күні	Қурауы	Қайда	Мәлімет	Түрліктің АЕК саны	Қолма-қол бағасының саны	АЕК	Түрліктің шығын / қолма-қол	Қолма-қол шығын / қолма-қол	Жалпы шығын / қолма-қол	Адам саны	Жалпы сомасы	Өңдеу
1	Add													
Барлығы: 0														
Студенттің ішкі қызметі														
Оқу бағдарламасы	Мерзімі	Ай сайы	Студент саны	Бір студентке қосымша шығын	ОСТ	Қолма-қол	Жалпы сомасы	Өңдеу						
1	Add													
Барлығы: 0														
Қызметкерлерді оқыту шығындары														
Бағдарламаны атауы	Мерзімі	Қосымша р саны	Оқыту бағасы	Жалпы сомасы	Өңдеу									
1	Add													

Figure 4. Form of the Budget planning

Workflow of the Business Process developed by Process Diagram requirements. In flow added send email with attaching the form of the Plan and functionality for considering the Business Process. Obviously, workflow definition requires an easy and readable language with a clear execution semantics. [5]

Discussion

In this article, work which has been done affects the whole organization's planning process. In this case appears several questions: "How Budgeting Business Process can improve performance of an organization?", "How does it affect the transparency of a work?", "What do we need to optimize the process which we have?"

Conclusion

This study presents a realistic Budget Planning Process using Business Process Modeling techniques in SDU. It represents the formation and filling, and starting workflow across the organization's departments. Result of the work is successfully functioning business processes on eBA Document Management System which helps to improve transparency of the working process and planning the organization's work.

References

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