Comparative study between workflow tools Case study: Arabdox workflow and Bizagi express

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ABSTRACT: *This paper aims to study the comparison in the field of workflow systems between arabdox workflow and bizagi express for designing, features of each tool in terms of the availability of software for users and ease of use, support the protection and confidentiality of individuals, institutions and organizations,, raise the work efficiency and control procedures for operations in the organization and help them for transmission to e-government. Our case study is pension file processes in the National Pensions Fund (NPF) which pass through many workstations and designed forms with arabdox process designer and bizagi modeler. These files were previously traded on paper and all the procedures done manually, but using modern tools and techniques in this paper have been to the shift for electronic forms easy to use and high security controls.*

Keywords: Re-engineering; Workflow; Arabdox; Bizagi; BPM; BPMS.

I.   INTRODUCTION

Companies and organizations face every day with new requirements from customers, stakeholders, markets, employees, and society all together. Today successful organizations simply differ from the companies that just survive, by constantly searching for new and better ways of working and by reinventing and transforming their processes periodically. As a response to this challenge, bizagi offers organizations complete platform for process automation designed to support the corporate transformation [8] [12].

Bizagi reduces the time to market of new ideas and business strategies, also facilitates a continuous improvement of processes , here we will show you the features that make our BPM solution bizagi the only solution that will allow you and your organization to model, automate, execute, and improve your business processes using a graphic background, with the least amount of programming, allowing you to accomplish productivity, efficiency, and a profitable growth which will be sustainable in the long run [8]. BizAgi is a Business Process Management solution that supports the management in process-oriented organizations by allowing the visualization, control, and improvement of all the processes in real time. Its main application is the management, control, tracking and analysis of procedures such as processing of insurance claims, approvals of credit requests, and handling of complaints and reclamations [2]. BizAgi offers immediate results. The processes are modeled and implemented in an agile way, no matter its complexity, but they conserve sufficient flexibility, so that they can be easily modified, according to the changing requirements of the business [2] [6]. Arabdox workflow system helps organizations automate a range of business processes and tasks. It electronically routes the right information to the right people at the right time. With the help of arabdox workflow software, users are notified of pending work, and help manager's route approvals through the system quickly [3] [4].

The benefits of automatic business process management are facilitating business process efficiency, increasing business process quality. And reducing operating costs Business Process Management or BPM is the practice of improving the efficiency and effectiveness of any organization by automating the organization's business processes [3] [13].

II.   ARABDOX DESIGN AND WORK

1. The process begins by adding your users to the Arabdox Workflow System.
2. Then you create a chart for your organization as a whole and a chart for each department. These charts will illustrate the real job hierarchy in your organization.
3. In the Process Designer, you can graphically design the work processes in your organization and define the steps they go through.
4. Now it's time to install the designed processes on the server to be ready for work.
5. Finally, initiate the process to begin the workflow cycle where the process is routed to the first user in the queue [3]. See fig (1).

Fig1: Shows all steps of the process in arabdox workflow.

One of the main components of arabdox workflow is the Process Designer. In this component, the organization can design the layout of each business process separately, define its steps, and specify the recipients of such steps on the basis of their job titles. Each process is designed in the form of a process map which is a graphical representation of how a process progresses (or "flows") from one step to another and what happens at each step. Arabdox implements a business workflow by breaking it down into simple steps and defining rules about when each step is invoked. Steps are tied together by "links". By linking the steps a user can define a process in the form of a flowchart which is called a "process map" [3].
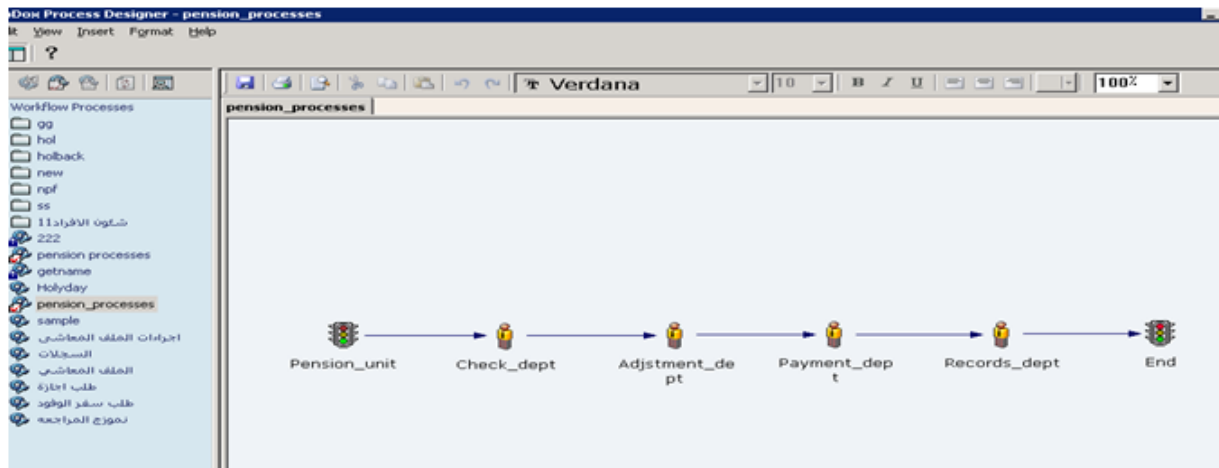

Fig2: Shows the file process which designed by Arabdox process designer.

III.   FORM DESIGNER

The Arabdox "Form Designer" is a powerful form designer with a graphical User Interface, which produces forms to be used in receiving data and variables from arabdox Web Moreover; it does not require any scripting or macros. Forms are made up of a group of items, such as text boxes, edit fields, radio buttons, check boxes and more. These items are connected with a group of variables or index fields through which the data is saved in arabdox database. Furthermore, the Form Designer allows the workflow designer to create executable forms that can work with popular databases at the back end. While designing a form, its appearance and logic can be immediately tested, physically seen on the screen with its controls by clicking the Preview icon. The "Form Designer" allows using multiple pages for each step of the workflow steps; the default page is page number 1 [3] [4].
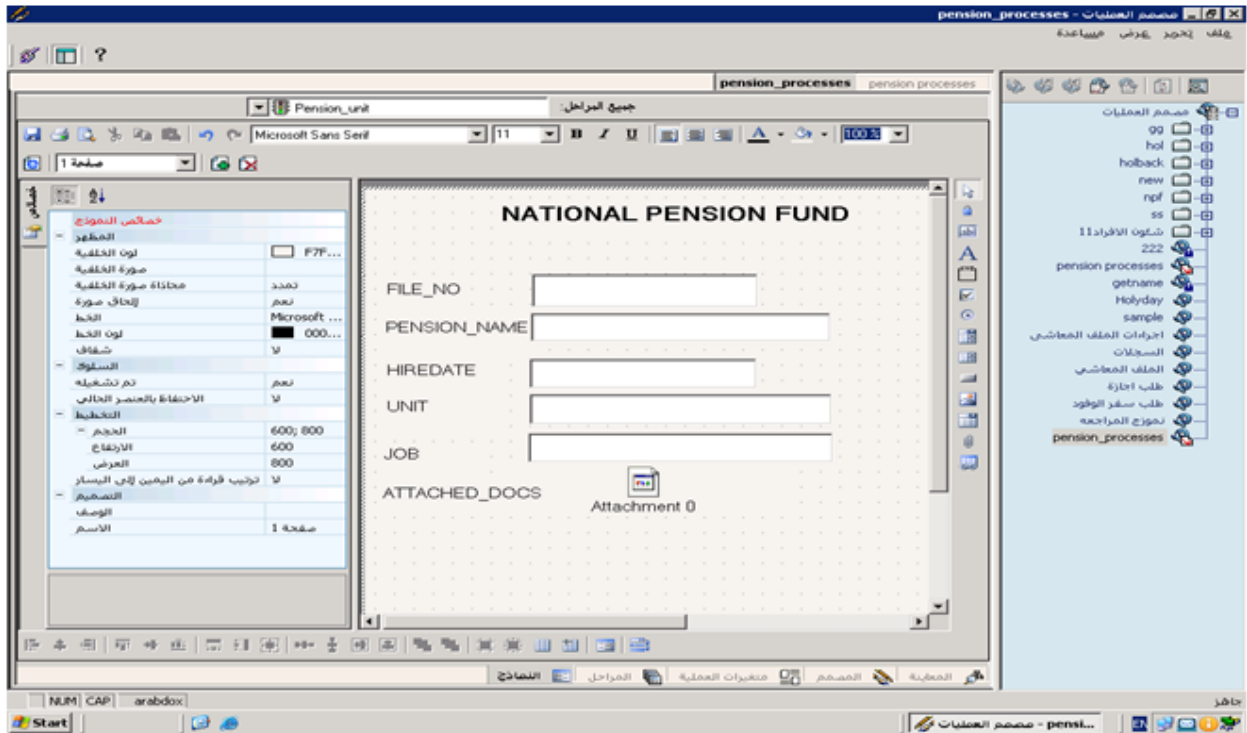
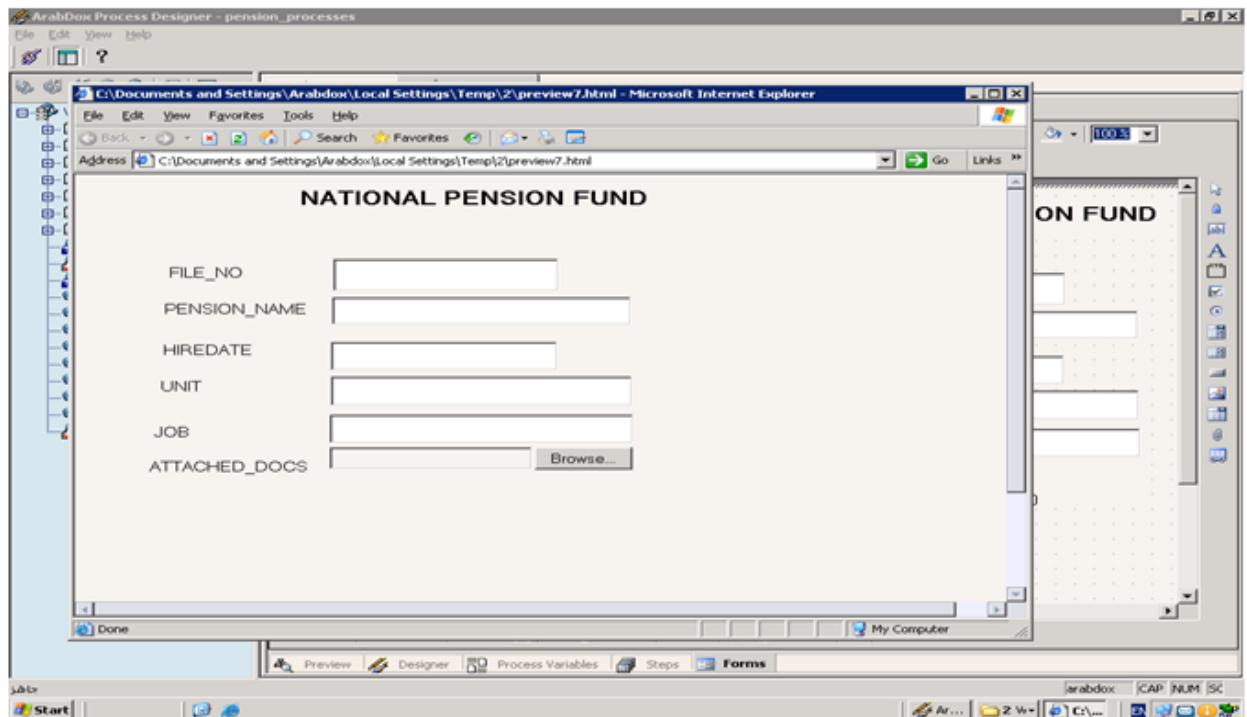Fig 3: Shows the Pension Information form designed by arabdox.

Fig 4: Shows the process at the stage where it can be any user has permission to access the process and processed and sent to another user throw web browser.

IV.   HOW DOES BIZAGI WORK

Bizagi BPM concept is about generating automatically a web application, which is based and activated by a process diagram without requiring any programming. In other words, for bizagi "the process is the application". In order to achieve it, our bizagi BPM Suite handles the complete life cycle of a business process: Model, Automate, Execute, and Improve. Each of these phases is managed by different components, which allow, by using a graphic and dynamic environment, the building of a process-based solution [2] [7] [8].

Fig 5: Shows Steps to build a solution in bizagi .

The first step to create bizagi solutions is to determine the processes. To do this, our bizagi BPM Suite has the bizagi Process Modeler. This component is an application that you're going to be able to download for free from the internet and use it in your own computer. The bizagi Process Modeler will allow you to diagram and document your processes in an agile and simple way. It will also present the business processes using a global accepted standard, which is better known as BPMN (Business Process Modeling Notation) [1] [2] [7] [8].

1. **Automate**

After designing the process, the next step when building a bizagi solution is to automate. To automate is to convert all the process activities into a technological application. bizagi Studio is the tool used to automate the processes that were defined in the bizagi Process Modeler without requiring any programming. bizagi offers a set of tools which graphically generates a model associated to a business process (flow diagram, business rules, user interface, etc.). This model is stored in a data base, and is interpreted and executed in production through a web application by bizagi's BPM server without the need of any code. The resulting web application after the process automation with bizagi has a very important characteristic: when the process is modified (any element of the model) the web application shows the change automatically [2] [7] [8].

2. **Execute**

The bizagi BPM Server is the engine that executes and controls the business processes built in bizagi Studio. This server is based in a collection of components that offer all the necessary functionalities for an effective business process management in the organization (work portal, BAM, business rules, integration engine, etc.).The bizagi BPM server based on the model previously built, watches for the correctness and adequacy of the execution in the different tasks and activities that intervene in the business process; by controlling and verifying that the tasks are done in the correct moment, by the correct person or resource, and according to company's guidelines, objectives, and other fundamental rules [2] [7] [8].

3. **Improve**

Bizagi's BPM Server has a complete set of performance reports and indicators about the processes which will allow you to analyze your business, identify bottle necks and their causes, and identify improvement opportunities in your processes. Based on your findings, processes and policies may be adjusted in real time using the web application. Improvements can also be done by using bizagi Studio to generate a new version of the process. This new version of the process can be put into production without requiring any programming, in a short period of time, by just modifying the business model the application will adapt automatically, making it easier to do continuous improvement and to increase productivity in your organization. Company directors and managers are trying to increase their competitive advantage by improving and modifying their core business processes. Nevertheless, such continuous improvement is limited by the custom development projects that take ages to implement [2] [7] [8].

Business Process Management (BPM) is a corporate management philosophy. Its main objective, based on the theory of processes, is to provide company directors with the right information elements for the proper allocation of the organization's resources. This will increase their efficiency and profitability, by means of the systematic management of business processes that must be continuously modeled, automated, integrated,

monitored and optimized. Management must be carried out in a quick, flexible manner to provide the organization with the business agility required by today's competitive environment , BPM is defined as " supporting business processes using methods, techniques and software to design, enact, control and analyze operational processes involving humans, organizations, applications, documents and other sources of information." Software tools supporting the management of such operational processes became known as Business Process Management systems (BPMS). A Bizagi is the leading (BPMS), which automates your processes faster and more flexibly. With bizagi most of the common and reoccurring requirements in process automation have been pre-built. That's why bizagi deliver's faster [9] [12] [14].

Furthermore, bizagi empowers business personnel to automate and modify complex, dynamic business processes faster and with more flexibility than any other solution, thus supporting the continuous improvement of the organization's critical processes. A business process is a structured set of tasks that are executed, consecutively or at the same time, by several individuals or applications in order to achieve a predefined objective. However, a business process goes beyond this brief and simple definition. A business process consists of company guidelines or policies, exceptions, information requirements and other types of elements that can change constantly. Bizagi ensures the correct, efficient and proper execution of the different tasks or activities involved in the business process; by controlling and verifying that they are performed at the right time and by the right people or resources, in accordance with the company's guidelines and objectives. Bizagi extracts the information related with the performance of the processes automatically and presents it to the right personnel in the organization, so that companies can continuously improve and enhance the processes in order to make them more efficient. Bizagi supports this process of continuous improvement by offering an incomparable level of flexibility to modify any of the elements involved in the business process in a simple, intuitive and coherent way [7] [14].

V.   BIZAGI FEATURES AND BENEFITS

Bizsgi's superior expressive power supports a larger amount of complex process patterns and dynamic events, which guarantee that the client's processes can be modeled and automated with our solution. If a BPMS cannot support the process patterns in a graphical way, programming will be required during the implementation phase of the solution, thus reducing the agility in process automation and modification [14].

Bizagi - Standardization. Organizations and the BPM market and technology have been inclined to specify certain standards to be considered by users and BPM systems when defining and implementing process automation. Bizagi promotes the use of standards such as BPMN (Business Process Modeling Notation), integration by means of the SOA Layer and the Path concept, thus providing unified languages that are easy to use and understand. In the case of BPMN, Bizagi not only offers the notation for diagramming in accordance with the shapes specified by BPMN, but also the management of long-lasting transactions, which can be excluded or compensated, allowing the more natural routing of the process when transactions do not conclude successfully [14].

Bizagi is a solution for the process owner. Bizagi has been recognized by leading analysts as the most business oriented BPMS in the market. This scheme enables the process owner to independently define and model the process (or the required changes) and increases the flexibility and agility in the automation and improvement of the business processes. The owners of the process have full control over the policies or rules defined by the organization. These define decisions according to the business and market conditions during the execution of the processes, which are created in a simple language that is easy to understand by any user [14].

Bizagi is a modern, compatible and high performance solution. Bizagi has been developed following modern architectures guidelines (J2EE and .NET), enabling the client to benefit from leading edge developments (such as Web Services) and abiding to the organization's internal technological standards [14].

Bizagi - Designed for enterprise wide BPM initiatives. Bizagi not only offers the reusability of all the elements involved in the process (shared data model, forms, business rules etc.) but also their agile administration in complex projects that involve an important number of business analysts and technical personnel in the automation of many processes. The following are the descriptions of some of the characteristics and benefits that make Bizagi the most agile, powerful BPM solution in the market:

Organizations that have implemented Bizagi perceived the following benefits:

- Cost Reduction (with actual cases achieving savings of up to 50%).
- Improved customer service (consistent reduction in cycle and waiting times up to 80%), which lead to clear increases in market share.
- Better quality (with real life projects experiencing reduction of error rates of 90%).
- Increased Agility (for example, with three new versions of an improved core banking process released within a year).
- Increased Governance, Visibility and Control.
- Reduction in operational risk.

- Extension of the value chain to new partners.
- Greater resource mobility and flexibility.
- Better, more proactive decision making.
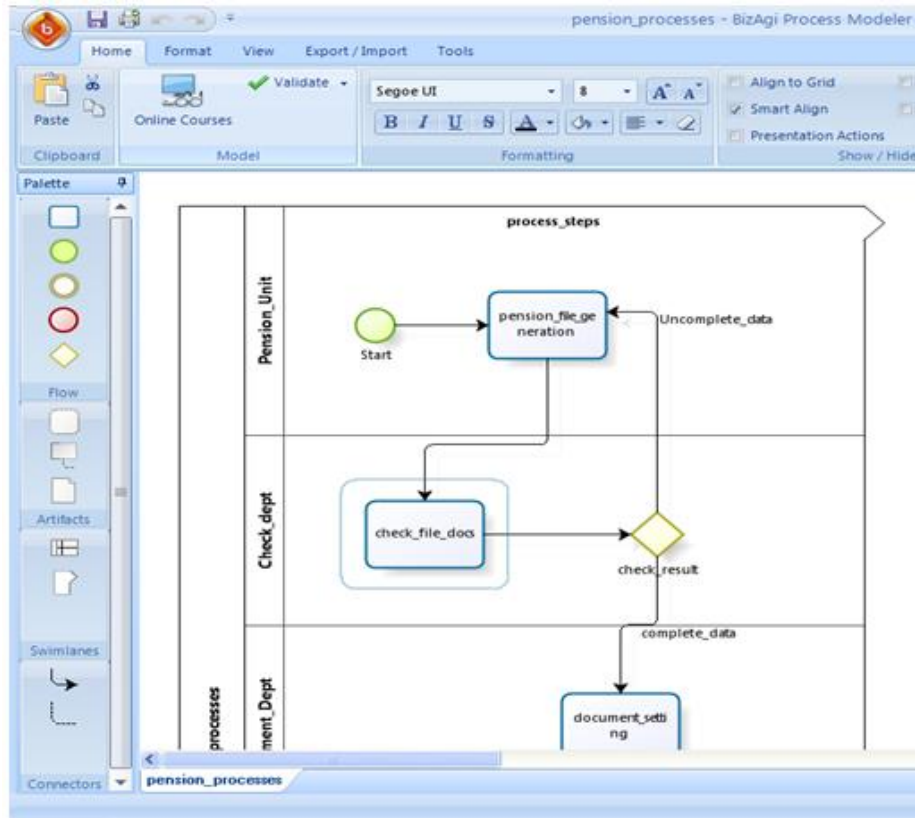- Business and IT alignment [14].

Fig (6): Shows the Pension file Process created by bizagi express.

Fig 7: Shows the Pension information forms which created by bizagi express and run in web browser.

VI.   ARABDOX FEATURES AND BENEFITS

1. No Programming or Scripting for Core Features

Ease of application development and deployment is a key requirement of workflow automation. The ability to develop sophisticated workflow processes without programming in order to cater to the demanding needs of modern organizations is an essential feature of workflow automation. Core workflow features must be provided out-of-the-box. Otherwise, the Total Cost of Ownership becomes exorbitant. Arabdox allows users to design sophisticated workflow processes without any programming, scripting, or macros. This capability makes it easy and cost-effective to deploy and maintain workflow applications [3].

2. Transaction Processing

Workflow automation is about secure, reliable, and high volume transaction processing. In transaction-oriented workflow managers, the transaction determines what actions must be taken next. The workflow engine then ensures that the information necessary for subsequent tasks is delivered to the right individuals or applications. It also needs to be capable of monitoring the task completion state precisely at all times. User actually performs individual tasks using powerful electronic forms [3].

3. User Domain Security

A workflow solution must authenticate users who will participate in workflow processes. However, user authentication must be based upon the authentication system already in use by the customer. The workflow solution must not require the use of a separate proprietary authentication scheme. Arabdox uses the existing domain security for login and authentication. Access to the arabdox browser client is controlled by a user name and password that the user must enter. This data is verified against the user Domain name and password. Arabdox authenticates users and controls access. By using the Domain security, arabdox eliminates the need for a separate workflow password. Arabdox also provides a simple means for the user to deploy a different proprietary access control scheme if necessary. [3].

4. Graphical Workflow Maps

The ability to graphically design workflow maps for business processes is one of the basic requirements of modern workflow automation solutions. A workflow map represents a business process in a flow chart fashion with clear indications of the dependencies, conditions, and sequences in which tasks must be performed from initiation to completion. Arabdox allows you to graphically design workflow maps. The workflow map specifies the roles, rules, and routings that are essential for the automation of a business process [3] [4] [11].

5. Database Security

Since workflow involves a large number of users as well as databases, it is very important that access to the databases be controlled and secure. However, access must not require every user to be aware of the login name and passwords of the databases with which they will be working. In as much as possible, they should not even be aware that they are working with databases. When connecting to databases, Arabdox provides a means of supplying a user name and password to gain access to the database without every user having to know them. Database access names and passwords need to be specified only once in the Arabdox Designer [3].

Table 1. Compare features tools

Feature	Bizagi	Arabdox
Process Modeling	- Process Modeler - BPMN	-Process Designer -Process Toolbox
Business rule	A simple graphical environment which enables business analysts to define and manage business rules and policies.	Events give the process designer the ability to specify condition to execute actions

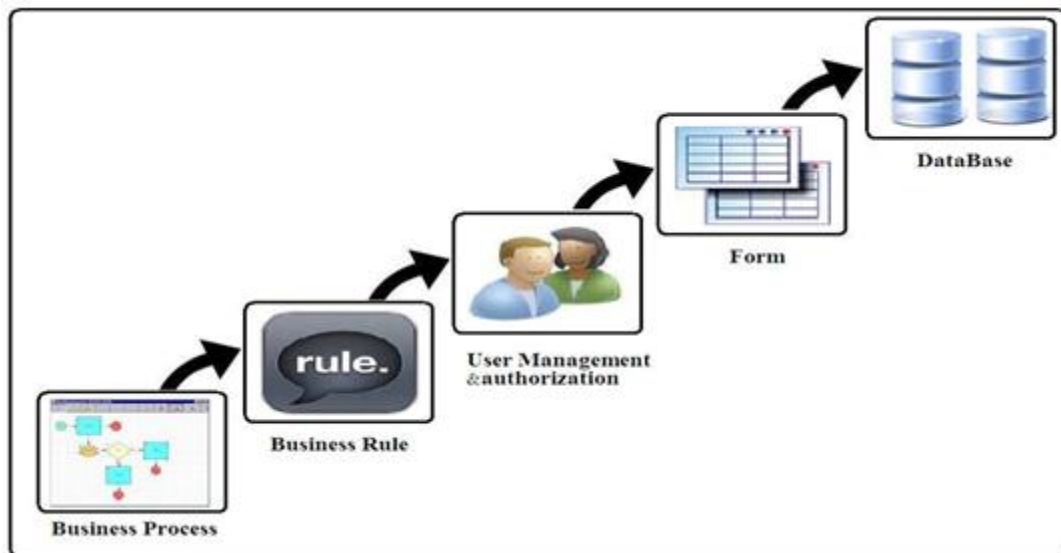| Feature	Bizagi	Arabdox
User and authorization management	User can define hierarchical structure: area, location, position, role, skill, user properties, user groups, and holiday schema.	User described as system administrator this user is the system manger of your company's or organization's domain.
Form	Creating forms and mapping form fields directly from data model.	Form is made up of a number of objects called controls that have properties, attributes, can perform specific function. A domain user can be set in the administration to allow anonymous access from the web login page
Database	Database is created in the second stage known as Data Model bizagi uses Microsoft SQL Server database.	Database agent is an intelligent that will allow you to connect to an external database an execute certain queries based on the process variables.

Fig (8): Comparison Framework

VII. RESULT DISCUSSION

This paper compared two Workflow Management System Bizagi (academic version it support all features but only for ten users) and Arabdox (closed source). Comparison was focused on the process modeling, business rule, user and authorization management, form creation and database creation and management see fig (10).

Bizagi Process Modeler allows you to draw business process of the system and export and import the process in many formats includes: XPDL, Visio, and export PDF, Word, Image. Arabdox is ease of use than Bizagi in process modeling, but Bizagi is better in business process modeling description because it uses BPMN which it's standard language.

Bizagi is better than Arabdox in business rule definition in various types of expression and conditions, and offers a simple graphical environment which enables business analysts to define and manage business rules and policies.

Bizagi is preferred because it provides many users categories in hierarchical structure. Arabdox users must be created in operating system after that added in Arabdox process designer as users, so that is more difficult steps .

Arabdox is better than Bizagi in forms creation and management because it uses toolbox that makes design very flexible.

In Bizagi the database is created in the second stage known as Data Model baizagi uses Microsoft SQL Server database. Bizagi offer 3 types of tables (entities): Master entities, Parameter entities, and System entities. Arabdox database agent is an intelligent that will allow you to connect to an external database executes certain queries based on the process variables. There for Bizagi is better in database connection and creation.

VIII.   CONCLUSION

In this paper, I have listed the most important and essential features of workflow automation offered by arabdox and bizagi express. Arabdox System specially designed to process archiving documents in addition to the work flow, a system monopoly to Sakhr is an excellent system in terms of safety, permissions, forms design and characterization of operations but difficult for ordinary people having only large companies and is available on the Internet.

The bizagi express system is more flexible in terms of characterization processes, design models and the creation of users and give powers, which is specially designed for operations and most of the bizagi programs there are free on the Internet and can use the software for the system demo up to ten users, Based on my personal experience to use these tools in workflow systems the bizagi express system is better and satisfactory performance during development, as it was quite easy to develop the case study.

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