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**SAPIENZA**  
UNIVERSITÀ DI ROMA

**Analysis and Optimization of Business  
Processes (Tutorial Laboratory Workshop)**

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(supervision of Massimo  
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# ANALYSIS AND OPTIMIZATION OF BUSINESS PROCESSES

## (TUTORIAL LABORATORY WORKSHOP)

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**Abstract.** *This short book presents 9 laboratory work on the topic of business process modelling, which is a key method in modern information systems. It can be used as a teaching support in practical lessons and labs of courses on Business Process Management*

**Keywords.** Business Process Management, ARIS, Bizagi, processes, organizational charts

## FOREWORD

Business Process Management is a key technology of modern information systems, and therefore teaching methods and tools for analysis and optimization of business processes is crucial for many University courses. In the context of the collaboration between the Sapienza Università di Roma, Italy and North-Caucasus Federal University (NCFU), Russia Federation, dr. Marina Romanenko visited my group in September 2015 in order to start a collaboration on teaching and research in BPM. This tutorial is a first outcome of such a fruitful collaboration, and it is a valid teaching support for practical lessons on BPM, to be used in courses at Sapienza and NCFU, and other possible Universities.

I would like to thank dr. Francesco Leotta (Sapienza Università di Roma) for his careful revision of the whole tutorial, and Prof. Оксана Мезенцева (Oksana Mezentseva, NCFU) for her continuous support in the collaboration among our Universities.

Massimo Mecella

Sapienza Università di Roma, Italy

September 2015

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## Laboratory work №1: Building organizational structures using ARIS Organizational Chart

**Objective:** to learn to use the ARIS Organizational Chart notation for modelling the organizational structure of an organization.

**Organizational form practice:** problem solving tasks, case studies.

**Questions for discussion:** organizational structure; organizational model structures; the use of ARIS Organizational Chart for showing models of the organizational structure.

**Performance of the given work allows to generate the following competencies:** the ability to find a compromise between different requirements (cost, quality, deadlines), with long-range and short-range planning, finding optimal solutions (PC – 6).

### The theory

An organigram (sometimes called an organogram or an organizational chart) is a graphical representation of the organizational structure of the enterprise or organization. It clearly shows the entire organizational structure and the interactions between individual organizational units, jobs and specific people in the organization, especially managers.

Links in the organigram represent reporting lines between organizational units, management levels and scope of responsibilities.

Organigrams are used by organizations to document their organizational structure, both outwards and inwards for communication of mutual relations. An organigram shows the actual state of organizational structure usually in the form

of a diagram or model with a simple tree structure. The level of complexity of the organizational scheme depends on the complexity of the organizational structure itself. For example, for a matrix organizational structure the scheme is complicated and does not always have a tree structure, as in the simplest case of linear organizational structure. An organigram allows to easily infer of management style and type of organizational structure prevails in the organization.

Modelling the organizational structure provides a description of the static relationship between various structural elements, i.e., participants in the business process responsible for carrying out functions in the enterprise. In the ARIS notation, the structural elements and the types of connections are used to describe hierarchical organizational structure of the enterprise. Generally, the model of the organizational structure consists of the following structural elements:

- Organizational units, i.e., the element of the organizational structure (structural unit), which are responsible for certain tasks upon achievement of certain company goals.
- Positions, i.e., the smallest organizational element in the enterprise. A specific position implies certain duties and administrative powers.
- The identities of specific employees of a business that has a unique personal codes.
- The group represents several employees who work together on a particular task in a certain period of time.

When constructing a model of the organizational structure the structural elements are connected by using different types of relationships, for example:

- technical super class (is technical superior to);



- administrative superclass for (is disciplinary superior to);
- responsible for (is responsible for);
- technically superior (is technical superior to);
- administrative superior (is disciplinary superior to);
- organizational controls (is Organization Manager for), etc.

A simple organizational chart may look as follows:

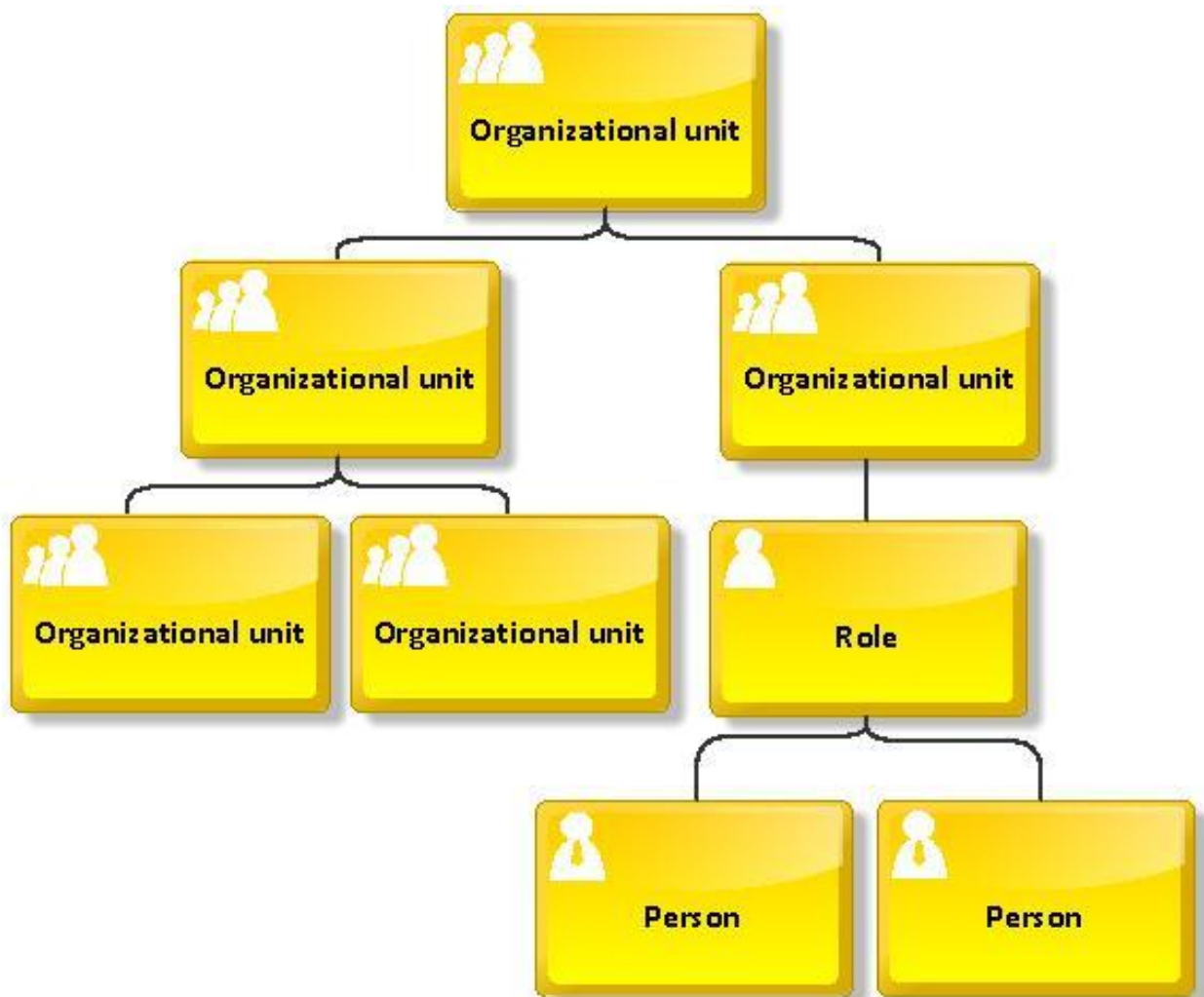


Figure 1.1 – Example of an organizational chart

An organizational chart represents important roles of the organization, visible for all and clearly arranged. The management and the employees use the chart as a reference for internal and external communication.

Organizational chart symbols are the following:



**Organizational unit:** Unit in an organizational hierarchy, e.g., department or location. It can be used to show which organizational units are superior to others and it can be assigned to roles and persons.



**Role:** Defines tasks, properties, and privileges of a person. It is independent of a specific person. A role can be assigned to multiple persons.



**Person:** Specific person who assumes a role and can be assigned to an organizational unit. A person usually represents an existing employee within the organization.



**Location:** A Location can be a factory, a building, or also an office or an individual workstation in a room. Location refers to a physical plac

## The equipment and materials

Performing laboratory work requires a personal computer with features that allows you to install the Windows XP operating system, integrated with the Microsoft Office Suite, Aris Express.

## The safety instructions

Independently produce: installation and removal of software, repair of personal computer. To comply with the rules of technical safety when working with electrical equipment.

## The method of execution of work

To build the organizational model of the enterprise, you must run the software product ARIS Express. In the opened window you should select the type of model Organization chart (see Figure 1.2).



Figure 1.2 – Main window ARIS Express

Next, you need to start building the organizational structure of the enterprise using the toolbox shown in Figure 1.3.



Figure 1.3 – Region Fragments ARIS Express

An example of a simplified organisational chart of the enterprise is given in Figure 1.4.

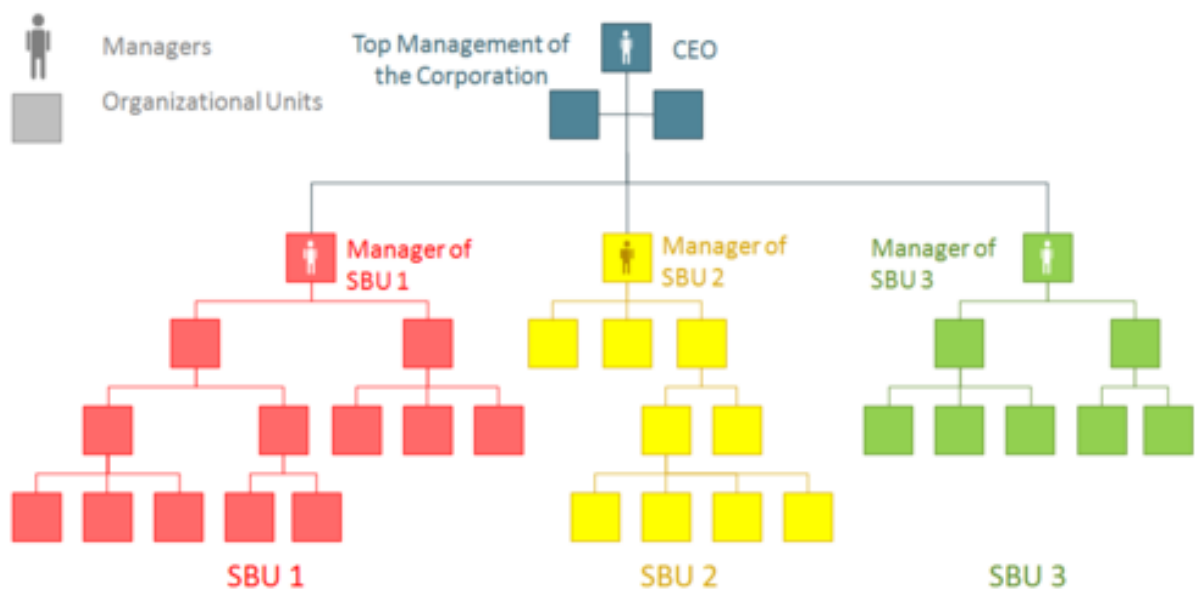


Figure 1.4 – Organizational structure of the enterprise built with ARIS Express

ARIS Express allows you to create charts of the organizational structure of the enterprise with the use of the layout presented in Figure 1.5. The properties of each object must be filled with the required information (see Figure 1.6).

After building the organizational model of the enterprise there it is possible to export it in the PDF and RTF file formats (see Figures 1.7 – 1.12).

When optimizing the business processes of the enterprise it is advisable to start with its organizational structure.

Using ARIS software product for modeling business processes will allow for their classification and to keep current. The ARIS system can also be used as a single information space for the analysis and optimization of business processes of the enterprise. With its help it is possible to carry out the design of corporate information systems, value analysis, simulation, etc.

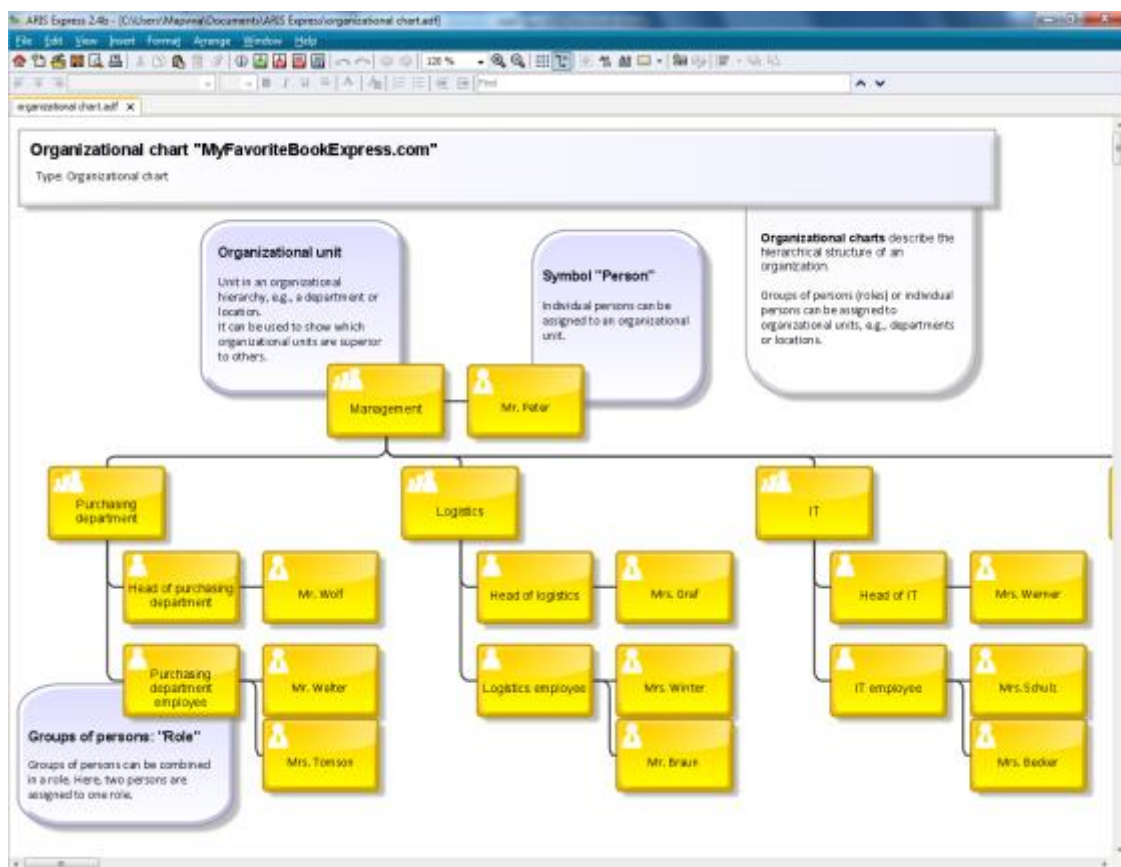


Figure 1.5 – Layout of the organizational structure of the enterprise ARIS Express

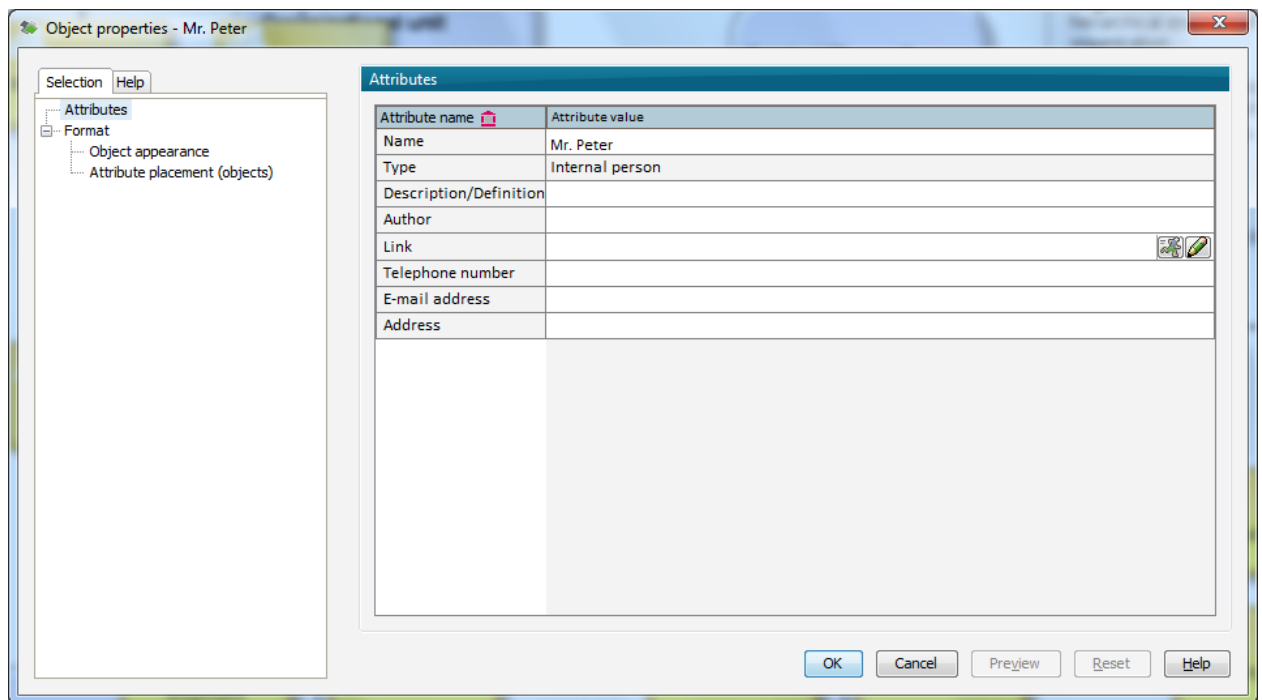


Figure 1.6 – The object's properties

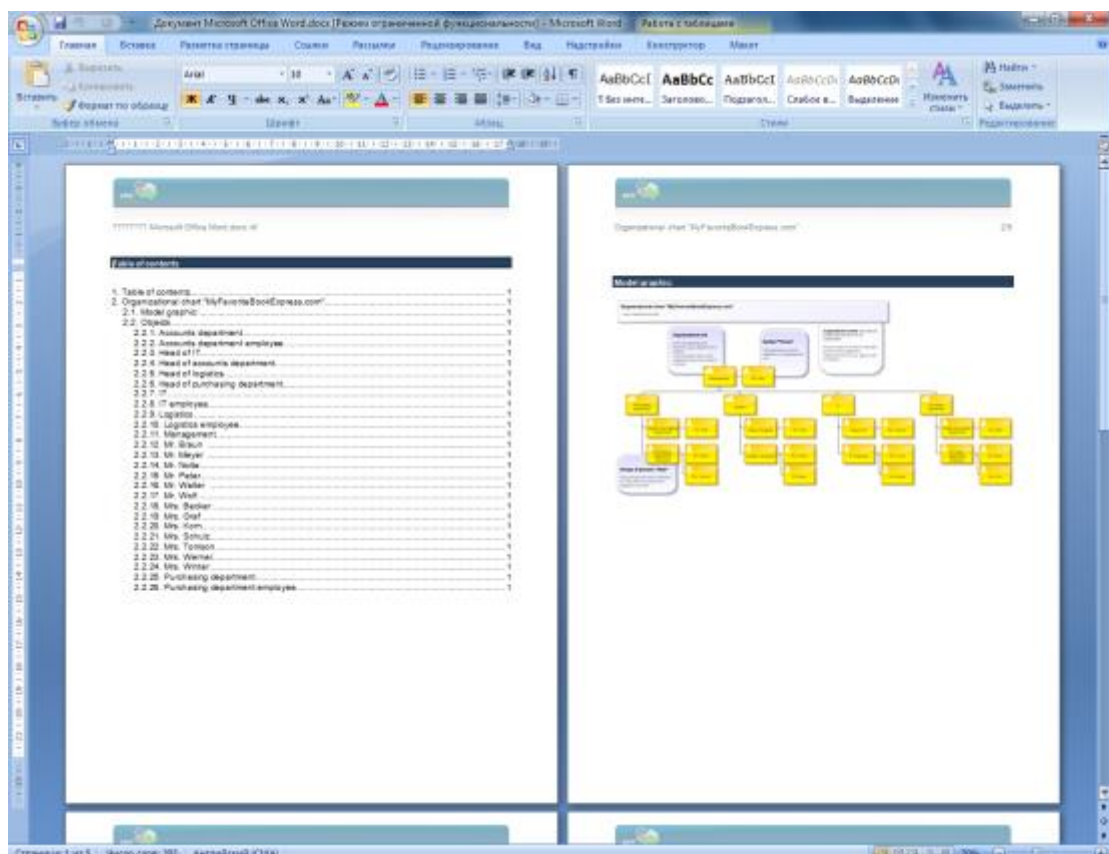


Figure 1.7 – Organizational chart after publication in the RTF document.

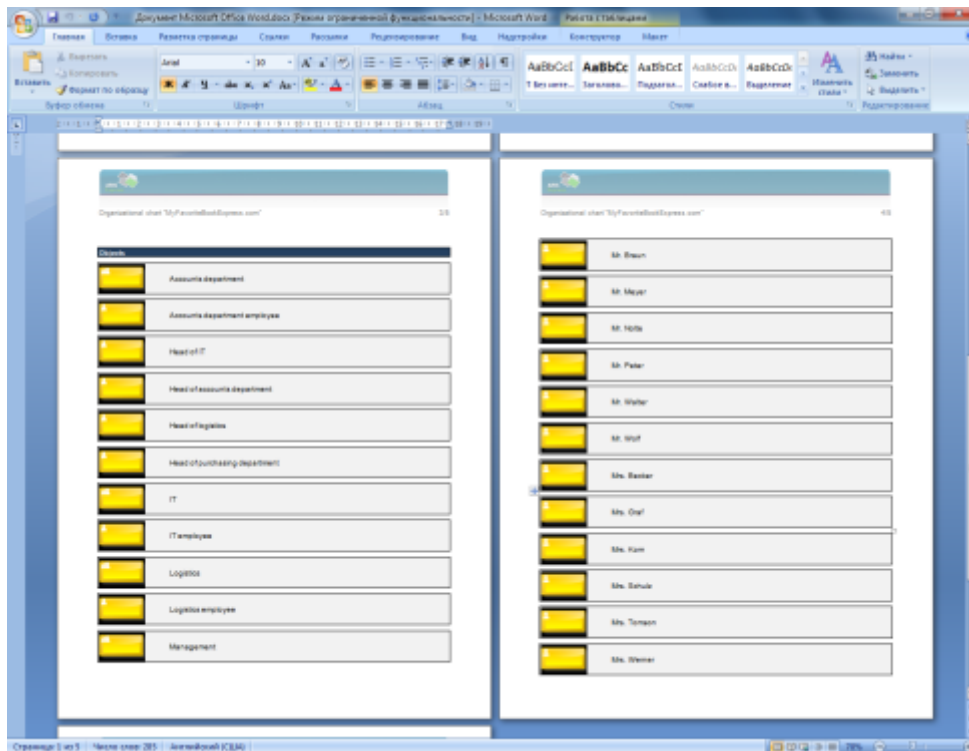


Figure 1.8 – Organizational chart after publication of the RTF document.

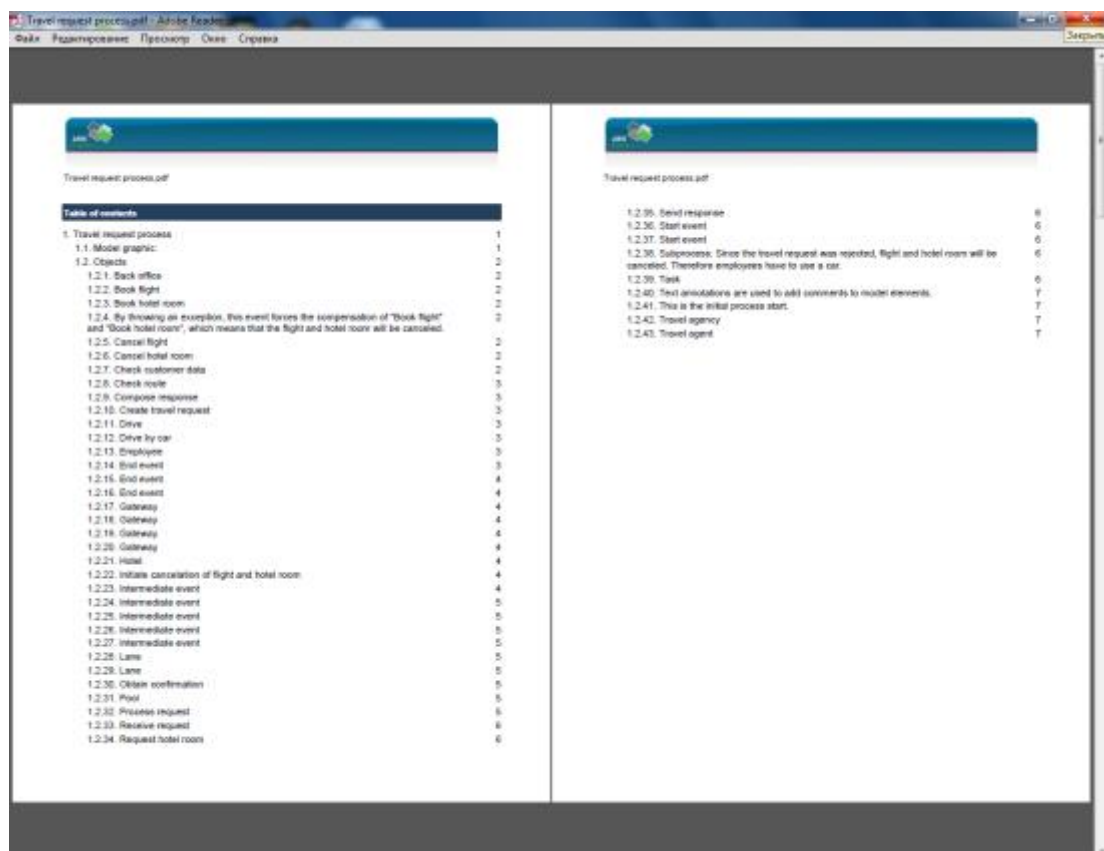


Figure 1.9 – Chart after publication in the PDF file format

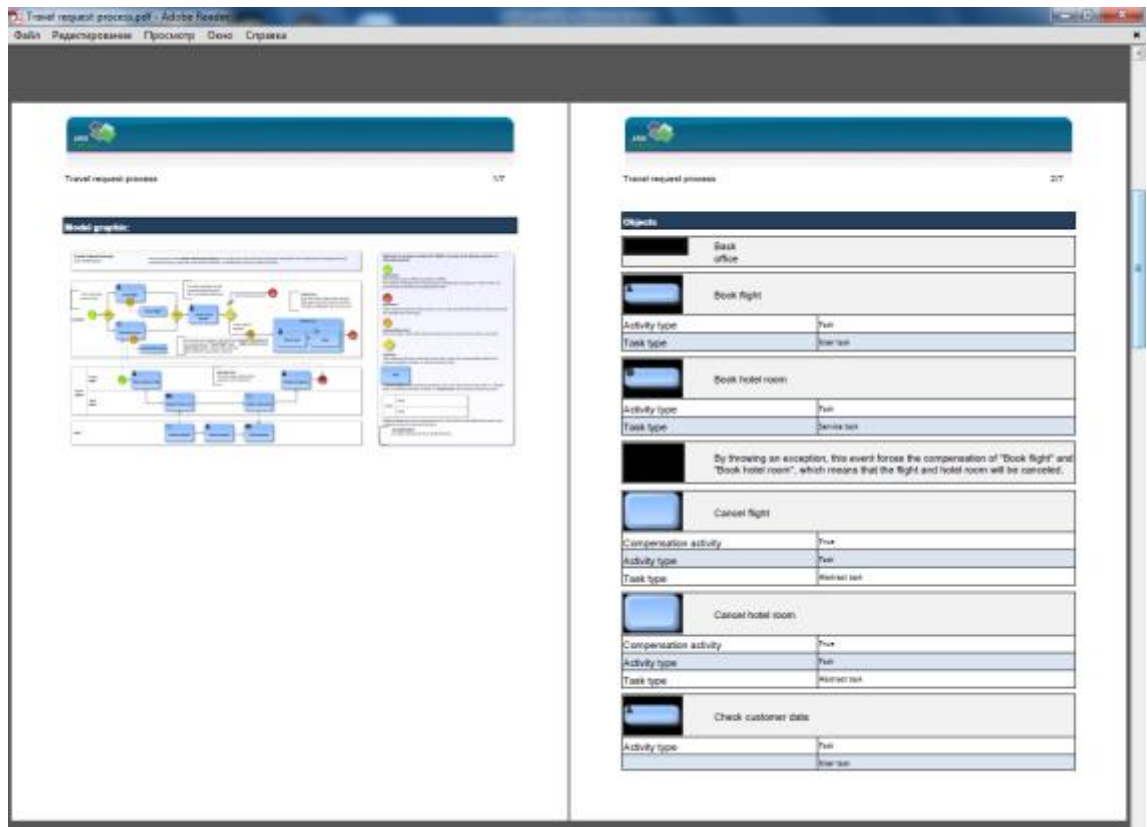


Figure 1.10 – Chart after publication in the format file .pdf

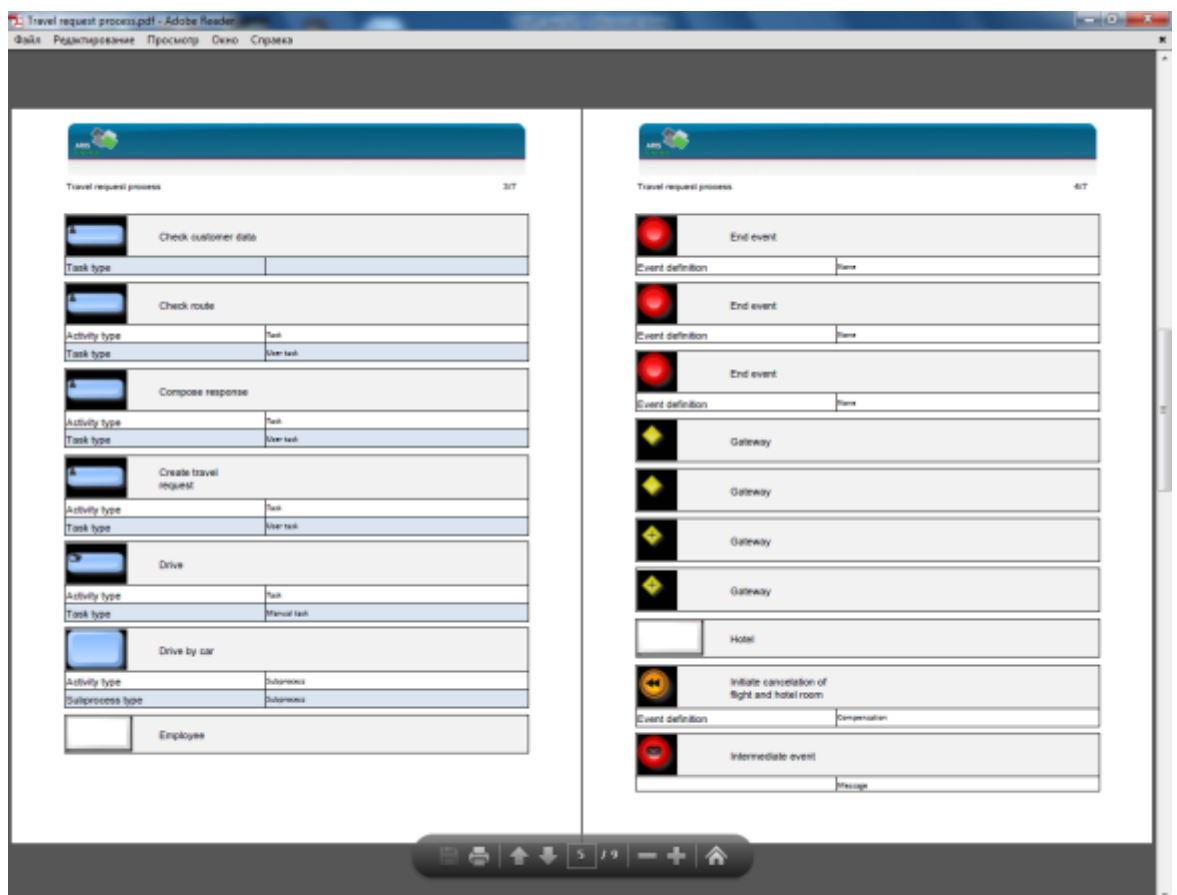


Figure 1.11 – Chart after publication in the PDF file format



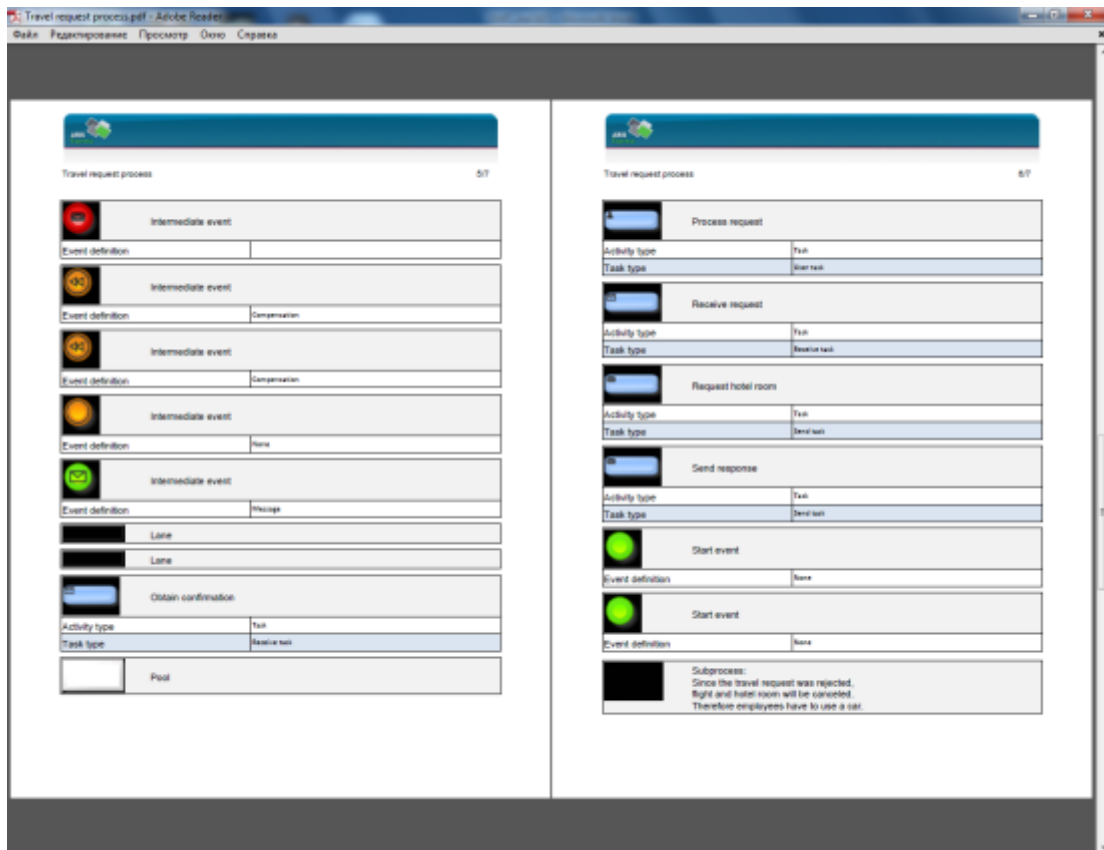


Figure 1.12 – Chart after publication in the PDF file format

## Tasks

**Exercise 1.** Build the organizational structure of an Institute. Select the Department, managers and employees. Associate with those workstations. Specify lookup information about the location of units. Form documentation.

**Exercise 2.** Build the organizational structure of a Shop. Select the departments, managers and employees. Specify lookup information about the location of units. Form documentation.

**Exercise 3.** Build the organizational structure of a Law firm. Select the departments, managers and employees. Specify lookup information about the location of units. Form documentation.

**Exercise 4.** Build the organizational structure of a Bank. Select the departments, managers and employees. Specify lookup information about the location of units. Form documentation.

**Exercise 5.** Build the organizational structure of a Clinic. Select the departments, managers and employees. Specify lookup information about the location of units. Form documentation.

### The structure of the report

1. Prepare a report that fully describe the execution of tasks.
2. The lab report should contain:
  - a. The title of the work;
  - b. The purpose of the laboratory work;
  - c. The wording of the task and the technology of its implementation;
  - d. Answers to test questions.

### Questions

1. Which structural elements are used to build an organizational chart?
2. What types of relationships are used to build an organizational chart?
3. What organizational chart symbols do you know?

### Literature

1. EliferoV V. G. the Business processes: Regulation and management: Textbook / V. G. EliferoV. - M.: SIC INFRA-M 2013. – 319 p
2. Repin, V. V. Business processes. Modeling, implementation, management / V. V. Repin. - Moscow: Mann, Ivanov and Ferber, 2013. – 512 p
3. E-resource: [http://vernikov.ru/media/K2/item\\_attachments/aris\\_methods.pdf](http://vernikov.ru/media/K2/item_attachments/aris_methods.pdf)

## Laboratory work №2: Building a model of the ARIS Product Tree

**Objective:** to learn how to use the ARIS Product Tree notation to create models of food products.

**Organizational form practice:** problem solving tasks, case studies

**Questions for discussion:** model of food products; the use of ARIS Product Tree notation to create models of food products.

**Performance of the given work allows to generate the following competencies:** ability to analyze the results of the experiments, to make the choice of optimal solutions, developing and writing reviews, reports and scientific publications (PK – 12)

### The theory

In order to conduct the traditional kind of analysis for the development of a system, it is necessary to determine its requirements. This allows to describe the strategy of their implementation and to write a specification of the business processes to be supported.

The ARIS modeling solution, when conducting reengineering of business processes of the organization, can effectively implement this process, due to the wide range of provided capabilities.

At the beginning, the survey collects information about the studied objects, and then built a model of the system that reflects the existing processes running in the enterprise. Then the obtained models are analyzed and recommendations are produced aiming at the optimization of the processes. Finally, the business

processes are updated taking into account the recommendations and the implementation phase can start.

With the help of ARIS, the opportunity exists to ensure the integrity of the developed information system. ARIS supports a Tree model based on a three level description:

- On the first level there is a description of the requirements.
- At the second level identifies the main ways of implementing the requirements formulated in the first phase.
- On the third level there is a physical description of hardware and software for the implementation of the formulated requirements.

In this report we will focus on the part of the modeling that focuses on the product. Our Business Process utilizes some raw materials to generate certain product (Primary and Secondary By-product). The By-products may also be input for another downstream process which in turn further creates more by-products and so on and so forth. What we eventually get from an End-to-end viewpoint is a hierarchy of products and sub-products and an evolution of the product from Raw Material to Finished products with multiple by-products along the way. ARIS Product Tree notation is shown in Figure 2.1.

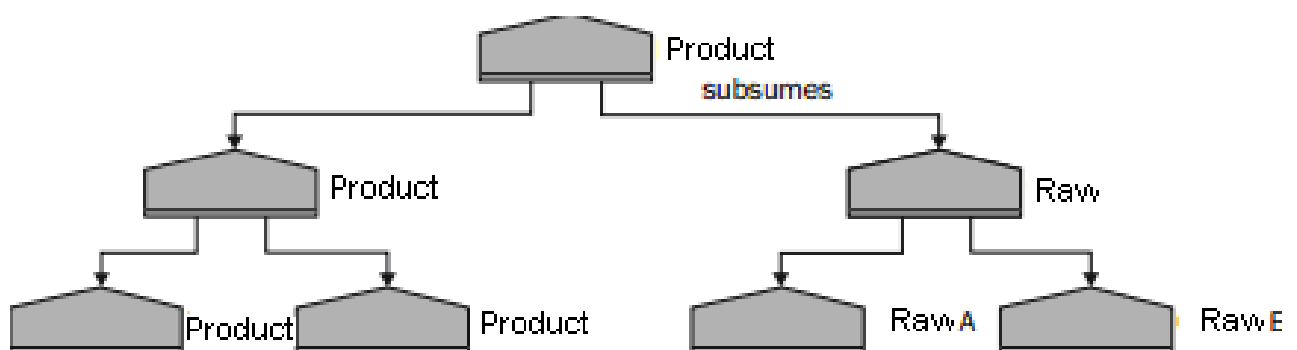


Figure 2.1 – Notation ARIS Product Tree

## The equipment and materials

To perform laboratory work requires a personal computer with features that allows you to install the Windows XP operating system, integrated with the Microsoft Office Suite, Aris Express.

## The safety instructions

Independently produce: installation and removal of software, repair of personal computer. To comply with the rules of technical safety when working with electrical equipment.

## The method of execution of work

To build a wood products enterprise, you must run the software product ARIS Express. In the opened window figure 2.2 sleduyusthie the tree model of company products, using the toolbar.



Figure 2.2 – the Main program window ARIS Express

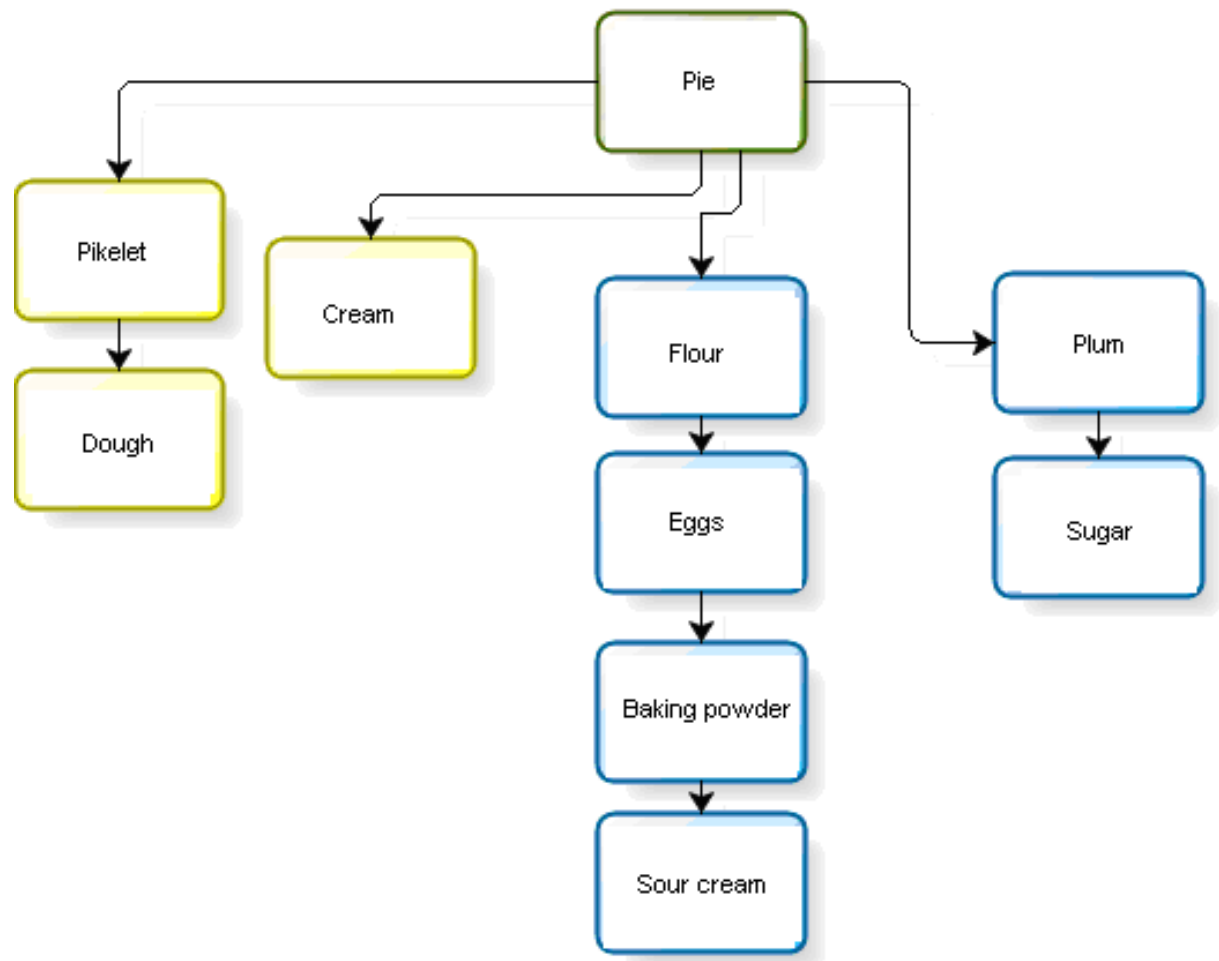


Figure 2.3 diagram of a food products company in ARIS

## Tasks

**Exercise 1.** Build the product tree for the Institute.

**Exercise 2.** Build the product tree for the Shop.

**Exercise 3.** Build the product tree for the Law firms.

**Exercise 4.** Build the product tree for the Bank.

**Exercise 5.** Build the product tree for the Clinic.

## The structure of the report

1. Prepare a report that fully describe the execution of tasks.
2. The lab report should contain:

- a. The title of the work;
- b. The purpose of the laboratory work;
- c. The wording of the task and the technology of its implementation;
- d. Answers to test questions.

## Questions

- 1. What is the name of a notation program ARIS to create models of food products.
- 2. Give concept model.

## Literature

- 1. EliferoV V. G. the Business processes: Regulation and management: Textbook / V. G. EliferoV. - M.: SIC INFRA-M 2013. – 319 p
- 2. Repin, V. V. Business processes. Modeling, implementation, management / V. V. Repin. - Moscow: Mann, Ivanov and Ferber, 2013. – 512 p
- 3. E-resource: [http://vernikov.ru/media/K2/item\\_attachments/aris\\_methods.pdf](http://vernikov.ru/media/K2/item_attachments/aris_methods.pdf)

## Laboratory work №3: Building a model of the ARIS Function Tree

**Objective:** to learn how to use ARIS Function Tree notation to create models feature tree.

**Organizational form practice:** problem solving tasks, case studies

**Questions for discussion:** model tree functions; the application of ARIS Function Tree notation to create models feature tree.

**Performance of the given work allows to generate the following competencies:** to develop methods solving non-standard problems and new solutions to traditional problems (PC – 15)

### The theory

When building models ARIS Function Tree, you must fulfill the following conditions:

- each function is initiated and completed;
- each function should include only one arrow that shows the beginning of its execution;
- each function should only have one outbound arrow, which indicates the end of function execution.

The description of the functions can be done at different levels of detail. At the top level we describe the most complicated function. A basic function is instead a function that is no longer possible to divide into its constituent elements to analyze the business process. Figure 3.1 shows a function tree.



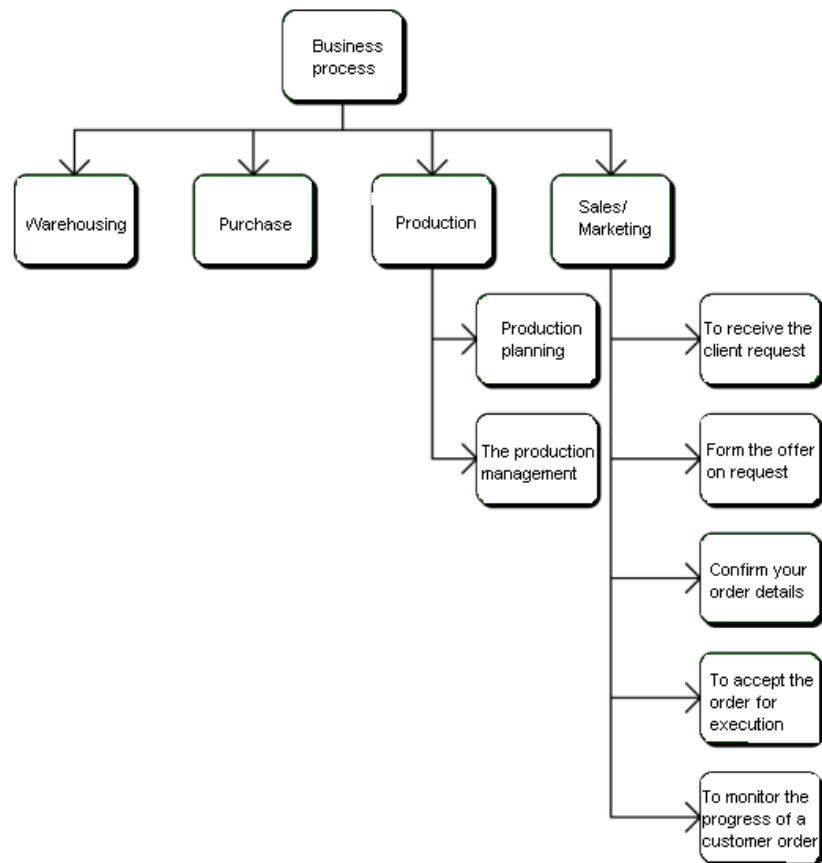


Figure 3.1. – An example of function tree

The Association functions in the model can be chosen according to various criteria:

- object-oriented;
- dedicated to the process-oriented;
- operationally oriented.

Figures 3.2 – 3.4 show example of the above mentioned kinds of function model.

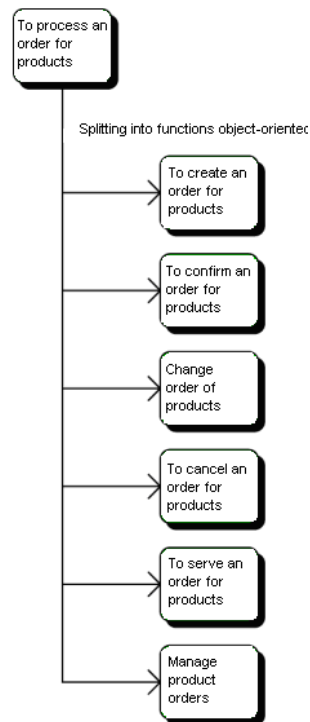


Figure 3.2 – Object-oriented function tree

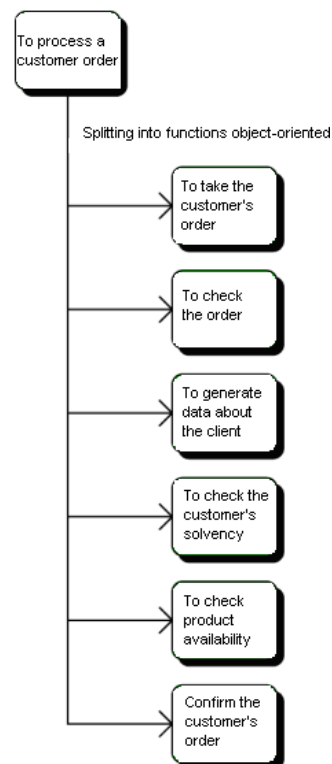


Figure 3.3 is dedicated to the process-oriented function tree

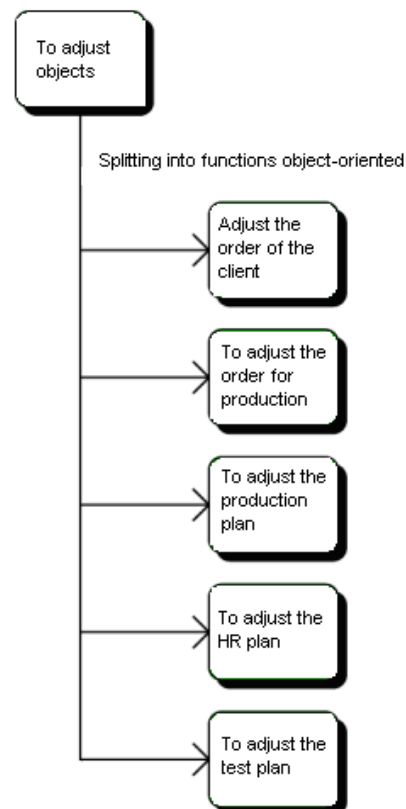


Figure 3.4 – Operationally-oriented function tree

### The equipment and materials

To perform laboratory work requires a personal computer with features that allows you to install the Windows XP operating system, integrated with the Microsoft Office Suite, Aris Express.

### The safety instructions

Independently produce: installation and removal of software, repair of personal computer. To comply with the rules of technical safety when working with electrical equipment.

### Tasks

**Exercise 1.** To construct a tree of functions for the Institute. To allocate object-oriented functional tree, dedicated to the process-oriented functional tree, operationally-oriented functional tree.

**Exercise 2.** To construct a tree of functions for the Shop. To allocate object-oriented functional tree, dedicated to the process-oriented functional tree, operationally-oriented functional tree.

**Exercise 3.** To construct a tree of functions for the Law firms. To allocate object-oriented functional tree, dedicated to the process-oriented functional tree, operationally-oriented functional tree.

**Exercise 4.** To construct a tree of functions for the Bank. To allocate object-oriented functional tree, dedicated to the process-oriented functional tree, operationally-oriented functional tree

**Exercise 5.** To construct a tree of functions for the Clinic. To allocate object-oriented functional tree, dedicated to the process-oriented functional tree, operationally-oriented functional tree

### The structure of the report

1. Prepare a report that fully describe the execution of tasks.
2. The lab report should contain:
  - a. The title of the work;
  - b. The purpose of the laboratory work;
  - c. The wording of the task and the technology of its implementation;
  - d. Answers to test questions.

### Questions

1. List the criteria for the consolidation of functions in the feature tree.

2. Which type of model is used to build a tree of functions in ARIS Express.
3. Which parts are typically used for building Function Tree?

### Literature

1. Elifеров V. G. the Business processes: Regulation and management: Textbook / V. G. Elifеров. - M.: SIC INFRA-M 2013. – 319 p
2. Repin, V. V. Business processes. Modeling, implementation, management / V. V. Repin. - Moscow: Mann, Ivanov and Ferber, 2013. – 512 p
3. E-resource: [http://vernikov.ru/media/K2/item\\_attachments/aris\\_methods.pdf](http://vernikov.ru/media/K2/item_attachments/aris_methods.pdf)

## Laboratory work №4: Building a model of material flow organization

**Objective:** to Learn how to create a model for material flows of the organization.

**Organizational form practice:** problem solving tasks, case studies

**Questions for discussion:** model of material flows of the organization; creating a model of material flows in the organization.

**Performance of the given work allows to generate the following competencies:** to Perform the training and education of staff (PC – 17).

### The theory

Building a model of material flow organization is an important task and is intended to establish the necessary links between the different stages the creation and movement of material values of the organization to achieve the main goal: timely and complete delivery of products.

Using the tree model of material flows of an enterprise can be classified. Figure 4.1 shows the tree model of material flows. Considered material flows:

- raw materials;
- semi-finished products;
- finished products.

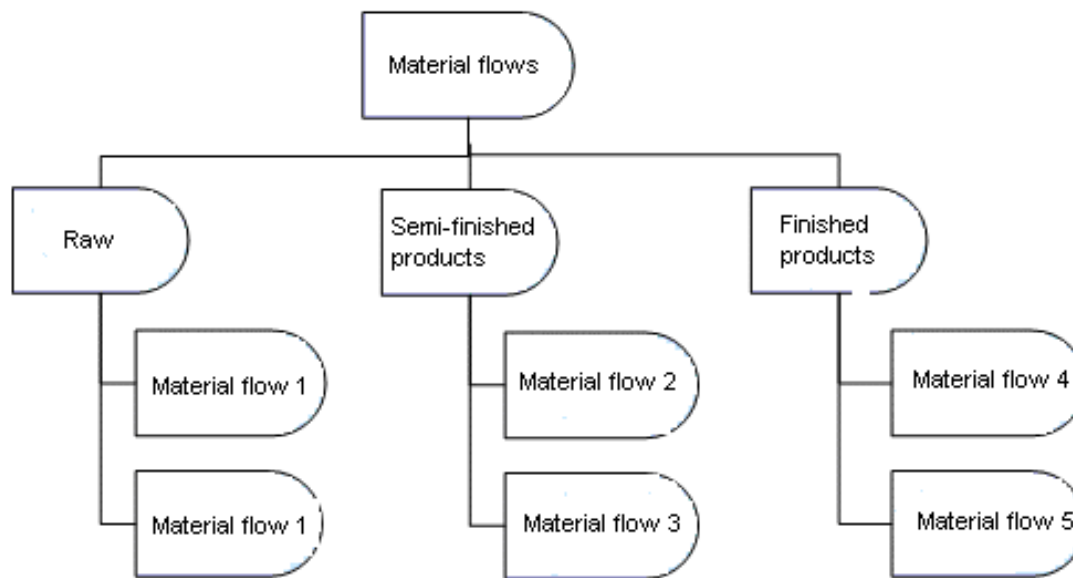


Figure 4.1 Model of the tree of material flows

### The equipment and materials

To perform laboratory work requires a personal computer with features that allows you to install the Windows XP operating system, integrated with the Microsoft Office Suite, Aris Express.

### The safety instructions

Independently produce: installation and removal of software, repair of personal computer. To comply with the rules of technical safety when working with electrical equipment.

### The method of execution of work

To build the model of material flows, the organization will need to run the software product ARIS Express. In the opened window figure 4.2 sleduyusthie model of material flow organization using the toolbar.

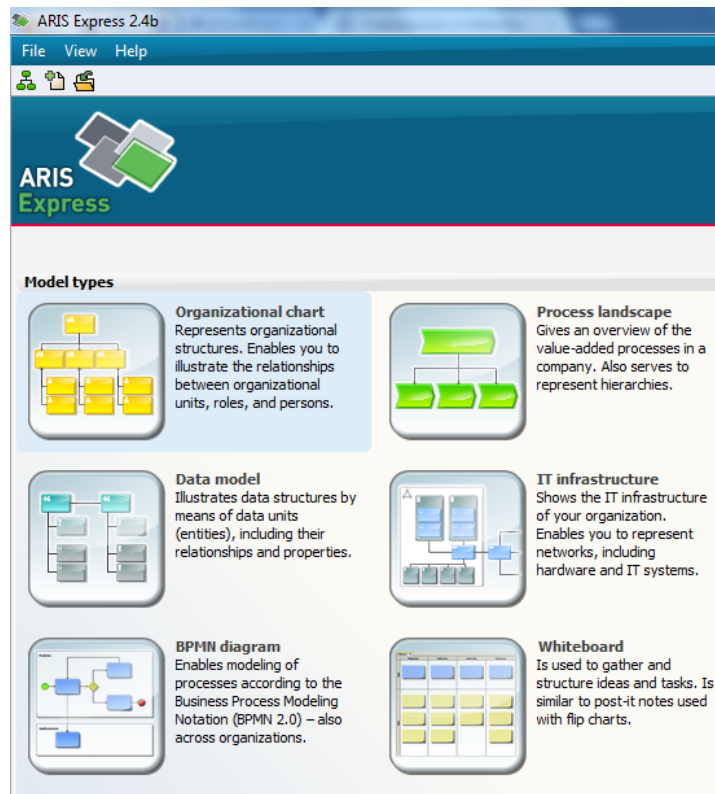


Figure 4.2 – The Main program window ARIS Express

In figures 4.3 – 4.7 shows an example of constructing a model of material flow organization in the ARIS environment.

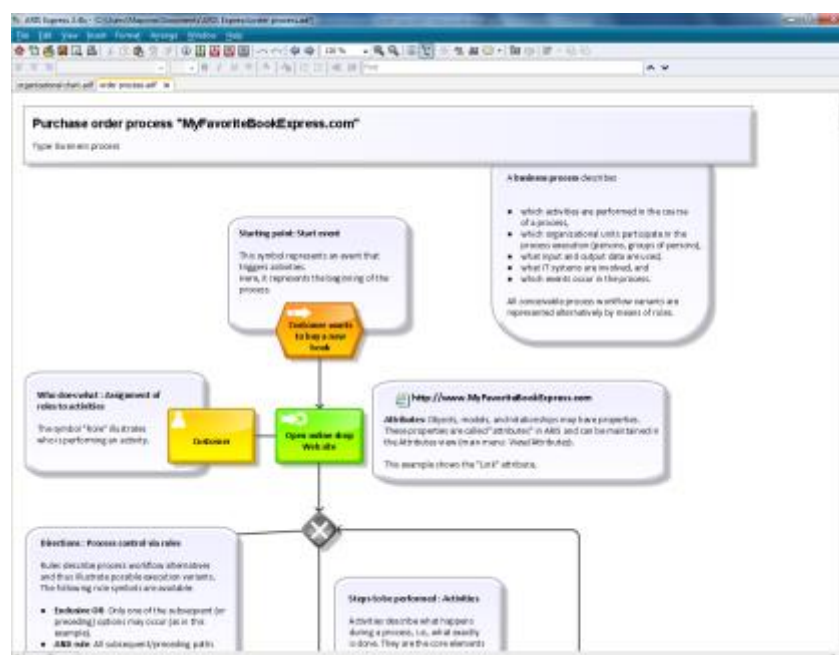


Figure 4.3 – The Business process material flow organization (demo example)



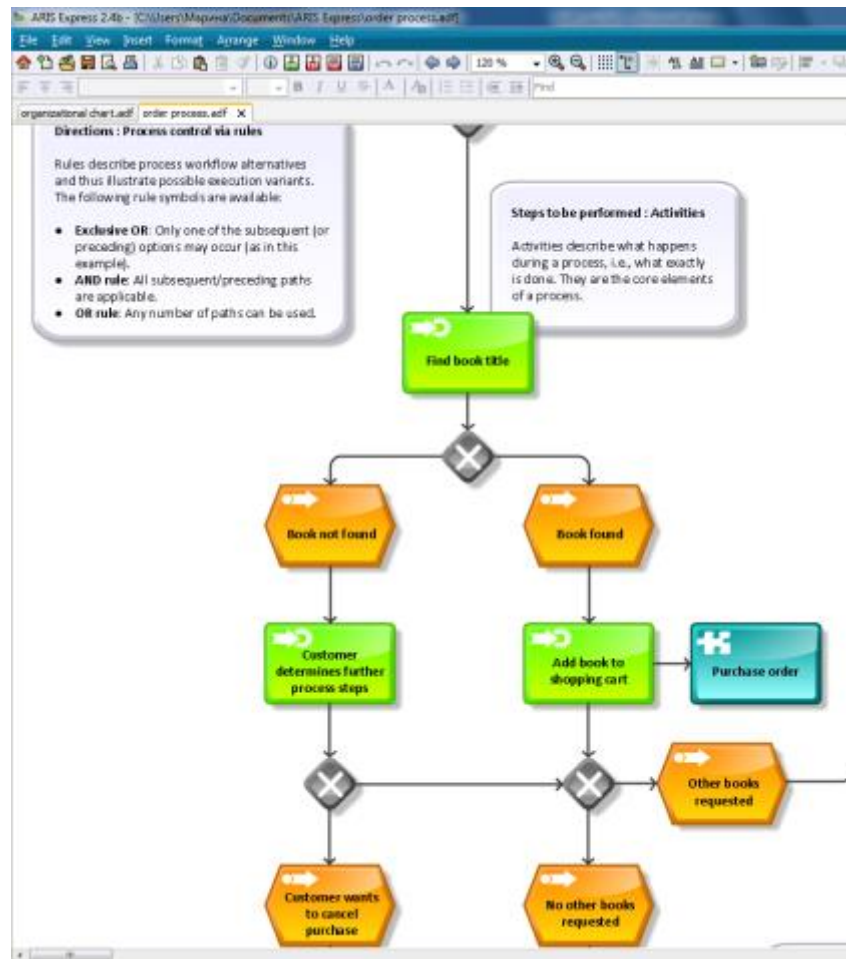


Figure 4.4 – The Business process material flow organization

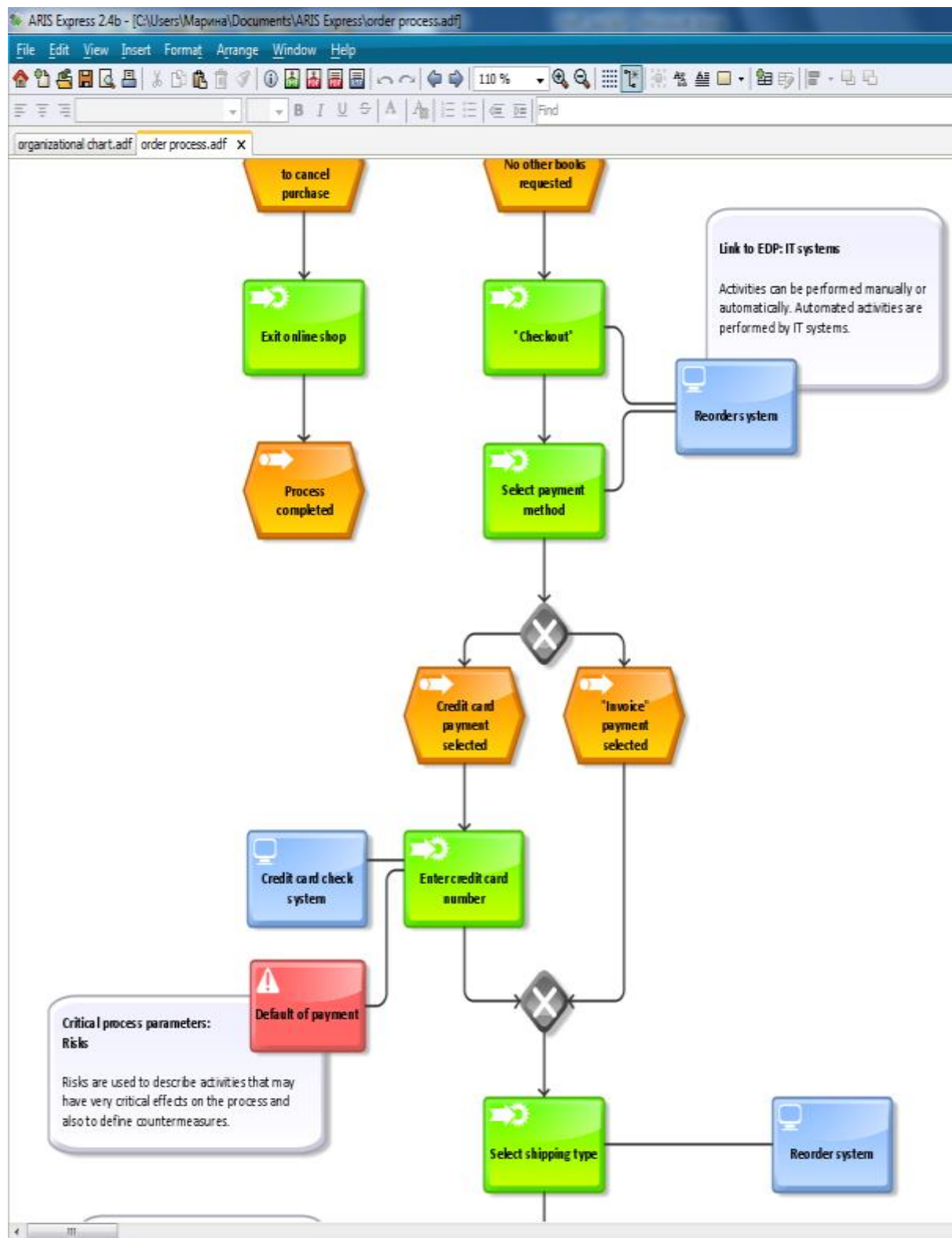


Figure 4.5 – Business-process material flow organization  
(demo example)

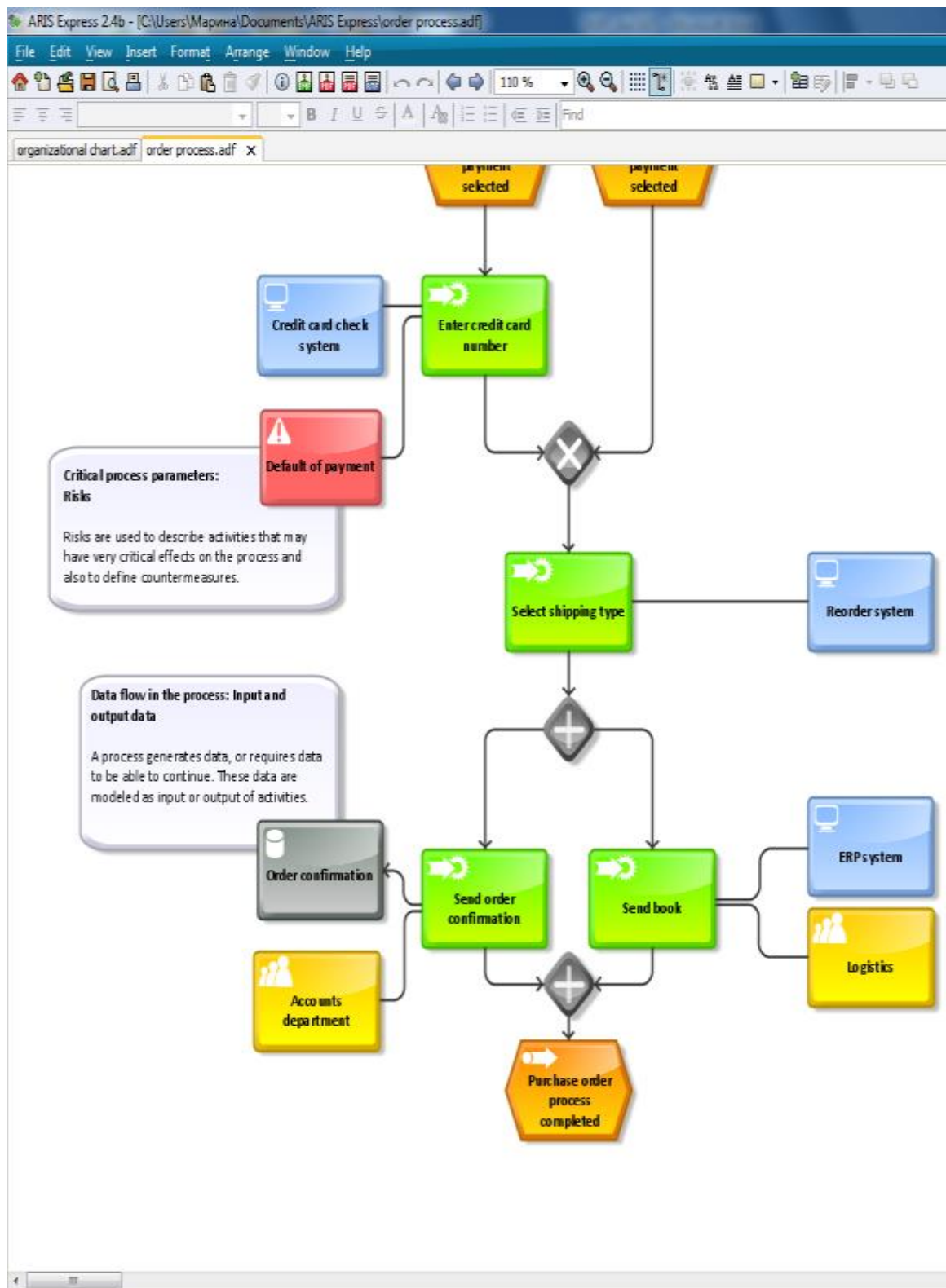


Figure 4.6 – The Business process material flow organization  
(demo example)

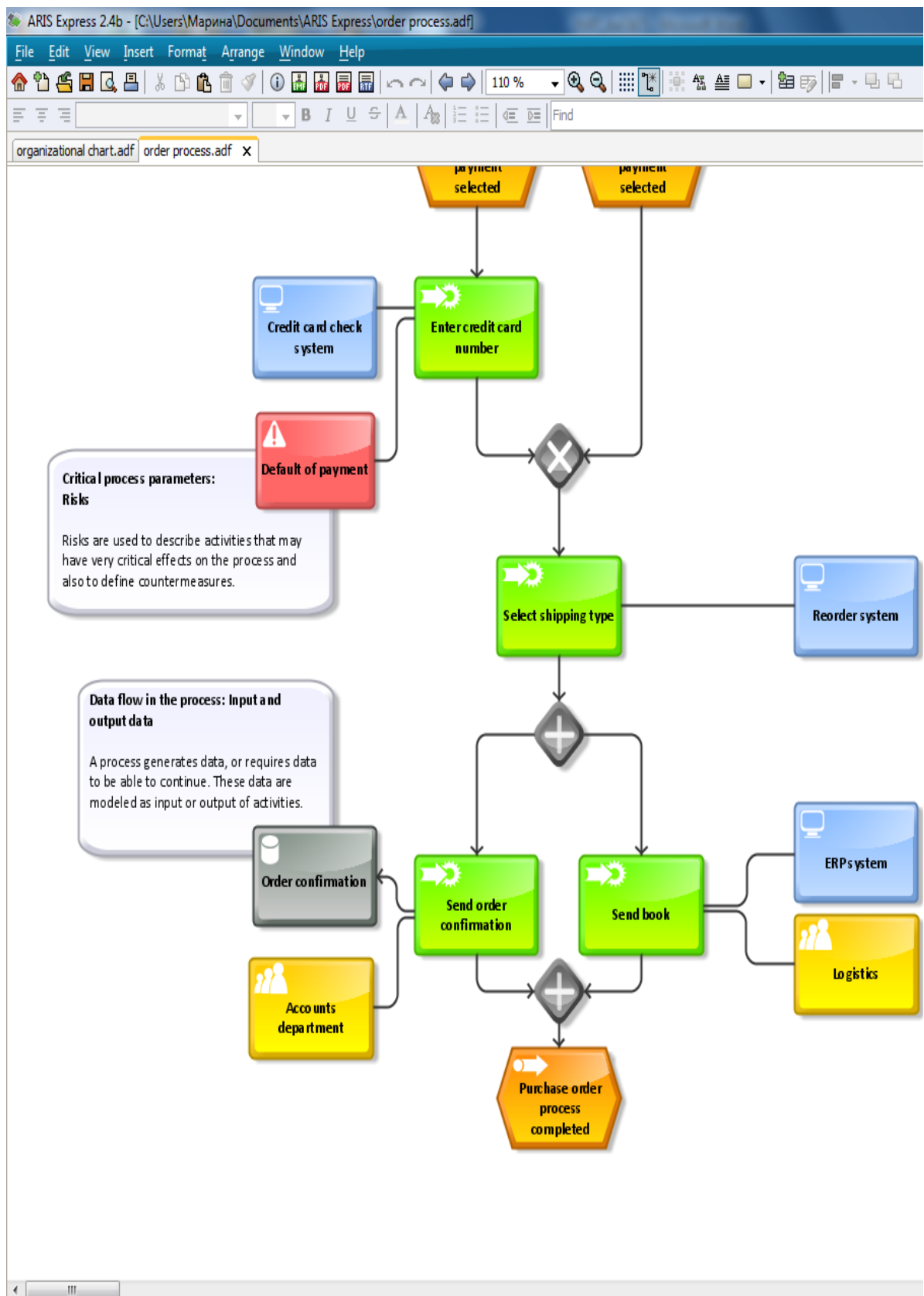


Figure 4.7 – The Business process material flow organization

(demo example)

## Tasks

**Exercise 1.** To construct a model for material flows of the Institute.

**Exercise 2.** To construct a model for material flows of the Shop.

**Exercise 3.** To construct a model for material flows of the Law firms

**Exercise 4.** To construct a model for material flows of the Bank.

**Exercise 5.** To construct a model for material flows of the Clinic.

## The structure of the report

1. Prepare a report that fully describe the execution of tasks.
2. The lab report should contain:
  - a. The title of the work;
  - b. The purpose of the laboratory work;
  - c. The wording of the task and the technology of its implementation;
  - d. Answers to test questions.

## Questions

1. What is included in the material flow model?
2. What notation is used to build the model of material flows?

## Literature

1. Eliferov V. G. the Business processes: Regulation and management: Textbook / V. G. Eliferov. - M.: SIC INFRA-M 2013. – 319 p
2. Repin, V. V. Business processes. Modeling, implementation, management / V. V. Repin. - Moscow: Mann, Ivanov and Ferber, 2013. – 512 p
3. E-resource: [http://vernikov.ru/media/K2/item\\_attachments/aris\\_methods.pdf](http://vernikov.ru/media/K2/item_attachments/aris_methods.pdf)

## Laboratory work №5: Building a model of the information flows of the organization

**Objective:** to learn how to use ARIS notation for creating models of information flows of the enterprise.

**Organizational form practice:** problem solving tasks, case studies

**Questions for discussion:** model information flows of the enterprise; the creation of a model of material flow organization using the ARIS notation .

**Performance of the given work allows to generate the following competencies:** ability to carry out author's supervision of the processes of design, implementation and maintenance information systems and technologies (PC – 4).

### The theory

Information model of activity of managers and directors of companies include the list of management tasks to be solved in the process of this activity, as well as the output and input information required to solve the corresponding problem. In addition, you have an indication of subordination and relative importance of tasks within the information model.

The relative importance of a task is determined by the objectives of the management. The subordination of the problems results in some of the inputs required by certain tasks to be produced by other (necessary) tasks.

Further details of the information models of activities of officials and authorities is done by building information models constituent management tasks. Management tasks are formulated as a set of information procedures and

the connections between them. They typically include poorly formalizable procedures that should be explored further with the aim of building their information models.

The method followed to model management tasks includes the following ordered steps:

1. The definition of the output. The output parameters are aggregated into groups. Each group contains parameters that are closely interrelated and jointly determined. Groups of parameters need to be merged into the documents that are produced in the process of governance. The sequence of determining the list of output data may be different: first, building a list of output documents, and then list their parameters (parameter groups), or viceversa.
2. The definition of the information procedures, which result in the selected group output parameters of the automation object. The model of information procedures includes output parameters (what should happen as a result of intellectual activity officials persons), the type of the problem being solved (the formation of many variants or choice) and the necessary input data to solve the problem.

The main challenge in creating a model of the informal information of the procedure consists in representing the decision necessary to get the original data. The final decision on the composition of the necessary source data will need infact a manager. The task of the researcher is asking officials the the original data necessary to conduct the informal procedure.

In addition to the results of the analysis of the management process, the analyst can offer the manager additional data that can be obtained by performing fully or poorly formalizable procedures, which may be useful when performing the informal procedure. If the manager agrees with the usefulness of the

proposed additional information for the management tasks, included poorly formalizable information procedure is initially considered non-accountable information procedures.

Building information model of poorly formalizable information procedures means providing and almost adequate replacement of this procedure with a set of fully formalized and informal information procedures. As poorly formalizable information procedure in the automation of activities of managers viewed as an alternative to existing informal procedures (most often — the procedure of constructing solutions for a given task).

Using the model of the "tree of information flows" can significantly increase the effectiveness of the organization. This model allows to systematize the information flows of the company and organize their effective use. Typically, information in the organization is stored on paper, orally or in electronic form. When designing the business processes of the company information about the flow of information is also described in the form of the internal structure of the business process. In order to optimize this stage and to provide this information in the most convenient way, it is necessary to describe the structure of information in the form of MS Word, but using the business process formalism to indicate compliance with the developed documents.

For maximum clarity chart information flows of the enterprise, it is advisable to chart the technical means used in the organization (see Figure 5.1).



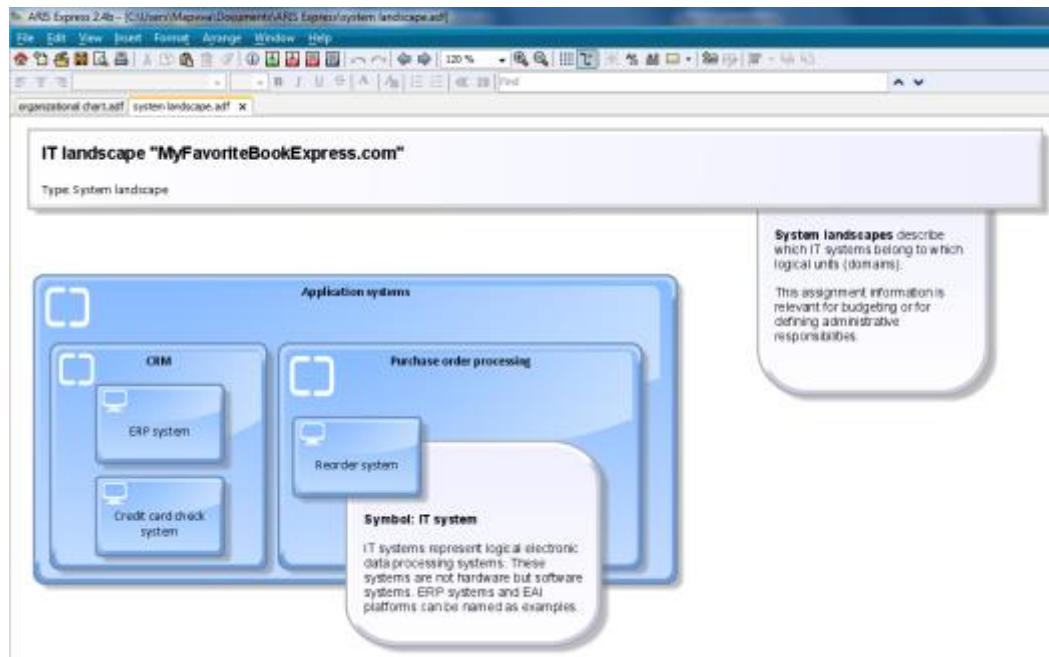


Figure 5.1 – Demo-example charts technical equipment of the enterprise

## The equipment and materials

To perform laboratory work requires a personal computer with features that allows you to install the Windows XP operating system, integrated with the Microsoft Office Suite, Aris Express.

## The safety instructions

Independently produce: installation and removal of software, repair of personal computer. To comply with the rules of technical safety when working with electrical equipment.

## The method of execution of work

For construction information flows of the enterprise, you must run the software product ARIS Express (figure 5.2). In the opened window you should build a model of material flow organization using the toolbar.



Figure 5.2 – the Main program window ARIS Express

The tree model of the information flows of the enterprise shown in the picture

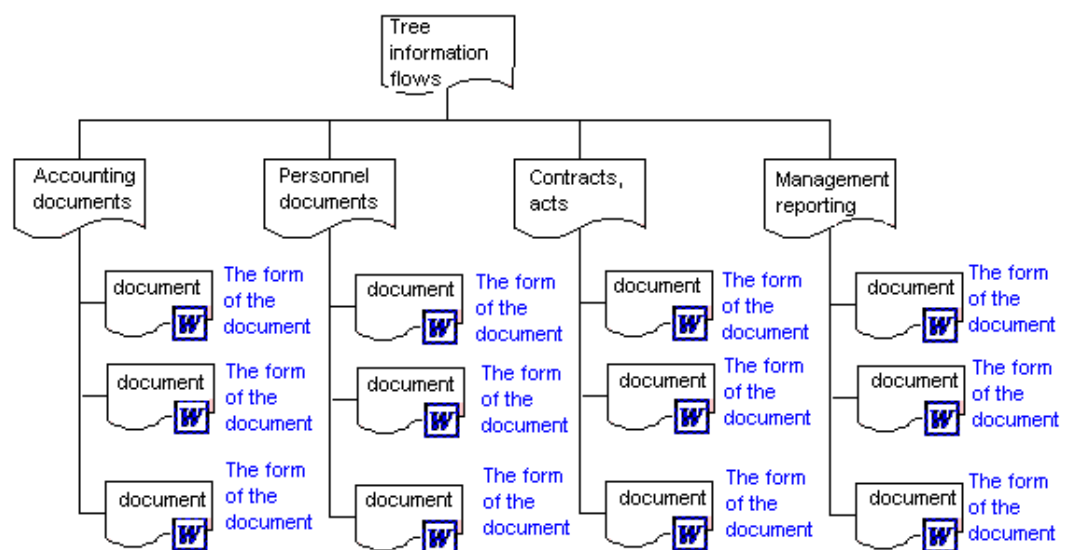


Figure 5.3 Model tree information flows

## Tasks

**Exercise 1.** To construct a model tree information flows for the Institute.

**Exercise 2.** To construct a model tree information flows for the Shop.

**Exercise 3.** To construct a model tree information flows for the Law firms

**Exercise 4.** To construct a model tree information flows for the Bank.

**Exercise 5.** To construct a model tree information flows for the Clinic.

## The structure of the report

1. Prepare a report that fully describe the execution of tasks.
2. The lab report should contain:
  - a. The title of the work;
  - b. The purpose of the laboratory work;
  - c. The wording of the task and the technology of its implementation;
  - d. Answers to test questions.

## Questions

1. Give the definition of the model of information flows of the enterprise.
2. Describe the method of building information models.
3. List the stages of building and optimizing models of information flows of the enterprise.

## Literature

1. Elifero V. G. the Business processes: Regulation and management: Textbook / V. G. Elifero. - M.: SIC INFRA-M 2013. – 319 p

2. Repin, V. V. Business processes. Modeling, implementation, management / V. V. Repin. - Moscow: Mann, Ivanov and Ferber, 2013. –512 p
3. E-resource:[http://vernikov.ru/media/K2/item\\_attachments/aris\\_methods.pdf](http://vernikov.ru/media/K2/item_attachments/aris_methods.pdf)

## Laboratory work № 6: The modelling business processes by BizAgi

**Objective:** To identify key business processes and to conduct their description.

**Organizational form practice:** problem solving tasks, case studies

**Questions for discussion:** the System of indicators of business processes, description of business processes, analysis of the company.

**Performance of the given work allows to generate the following competencies:** the ability to collect, analyze scientific and technical information, domestic and foreign experience in your subject (PC – 7).

### The theory

BPMN is a management theory that is based on two fundamental paradigms:

- The process view of the organization is the underlying theory that provides management with the adequate information for the correct allocation of resources.
- Management decisions are based on reliable real-time indicators that provide a comprehensive view of the actual situation and future trends.

Figure 6.1 presents the main elements used in BPMN.



## The method of execution of work

Process modeling is the first step in the automation of a Process. Bizagi Process Modeler is a business process modeling and documentation tool. The modeler enables you to visually diagram, model and document business processes in industry-standard BPMN (Business Process Model and Notation). BPMN is a worldwide accepted format for process modeling.

To create a Process click the New Process link from the first step of the Process wizard (figure 6.2).

Type the name of the Process- Loan Assessment Process and click Ok (figure 6.3).



Figure 6.2 – Model Process

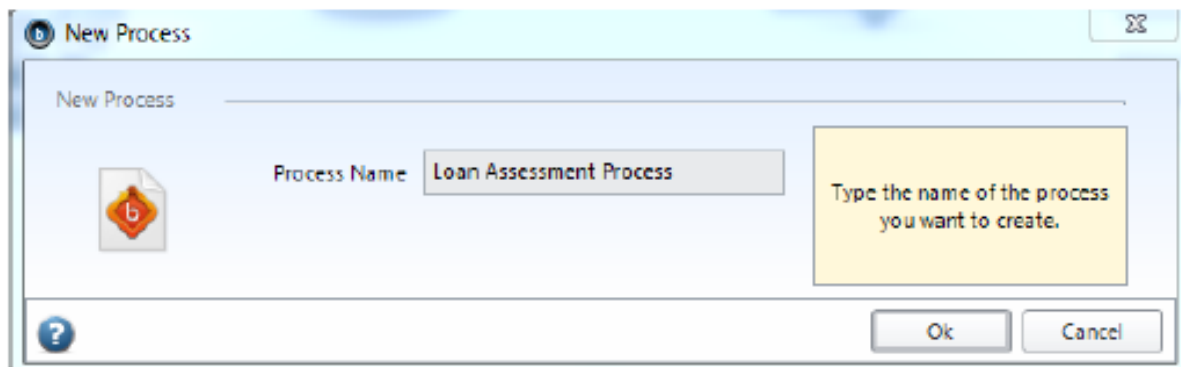


Figure 6.3 – New Process

The Process Modeler, included in the BizAg BPM Suite, will open.

A Pool consisting of one Lane will load upon startup. To name the Process, right-click on the Pool and select Edit Text. Type Loan Assessment Process (figure 6.4).

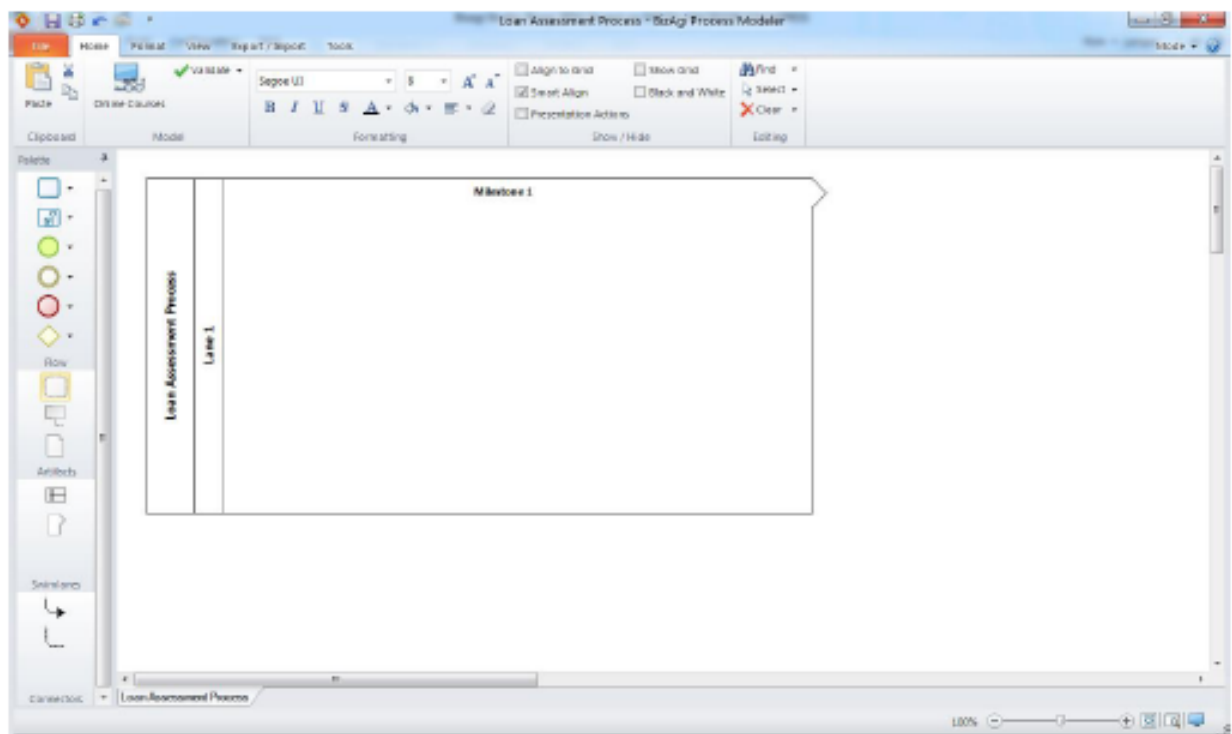


Figure 6.4 – Create diagram of process

Drag and drop 4 lanes to the pool (from swimlanes under palette) so that we have 5 lanes in total. These will be named as: Applicant, Loan Officer, Financial Officer, Property Appraiser and Insurance Sales Representative. To rename a lane,



right-click on the particular lane and select Edit Text. Type the required name. Or simply double-click on lane name and change the name (figure 6.5).

Next, we will divide our process model into 3 stages namely-Check, Assess and Approval. To do this, drag and drop a Milestone from the Palette (from swimlanes section). Rename the milestones by double clicking on default names (figure 6.6).

Note: You can adjust the height and width of pool, lanes and milestones by placing cursor on the lines and dragging these as desired.

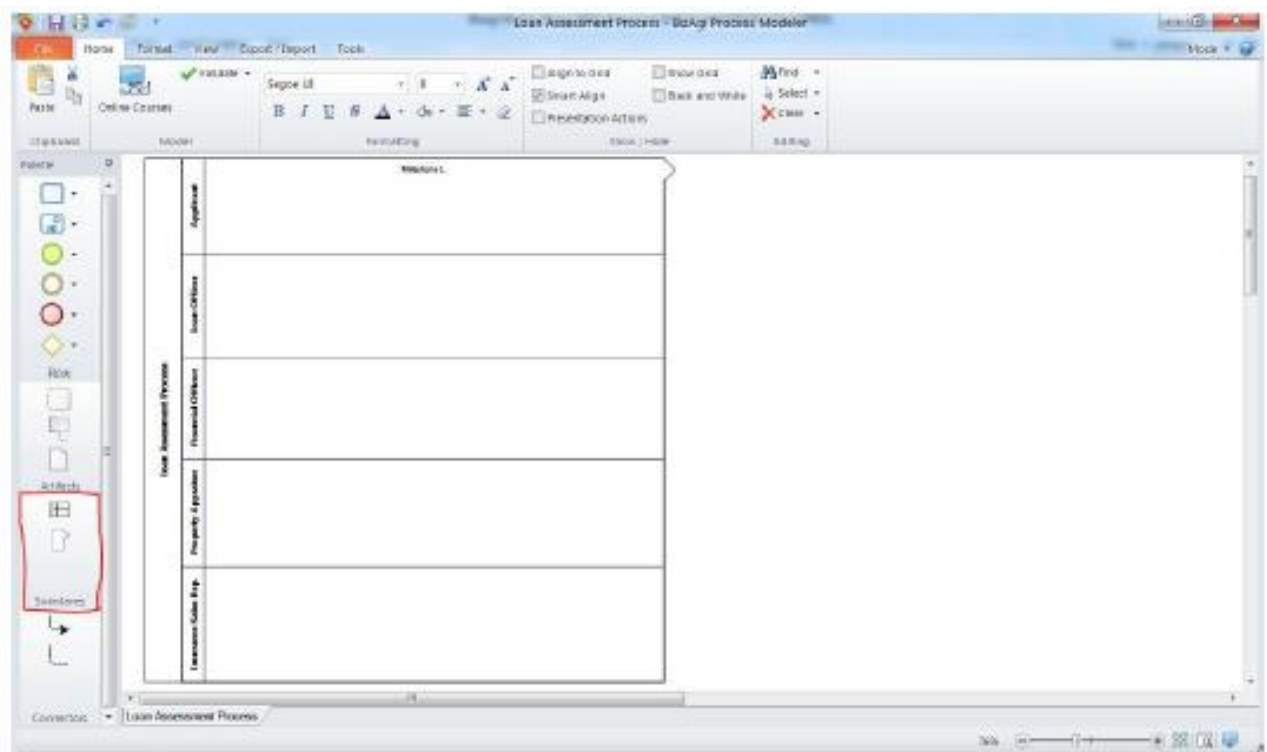


Figure 6.5 – Artifacts

Loan Assessment Process	Applicant	Check	Assess	Approval
	Loan Officer			
	Financial Officer			
	Property Appraiser			
	Business Sales Rep.			

Figure 6.6 – Artifacts

Now, we will add shapes to our Process. Select the Start Event from the Palette and drop it to the applicant lane of the Process diagram. The figures have a Pie Menu that allows the easy selection of shapes to be included in the diagram. It is displayed when positioning the mouse over a figure. The icons of the shapes that can be dragged and dropped are displayed when clicking on the figure (figure 6.7).

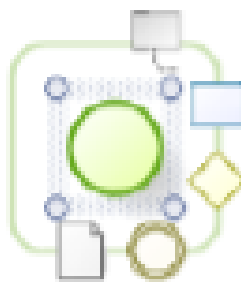


Figure 6.7 – Create elements

Select the Task from the Pie Menu and place it besides the Start shape.

Rename the new task to Enter Application Data. You may rename the shapes and transitions by double-clicking on them (figure 6.8).

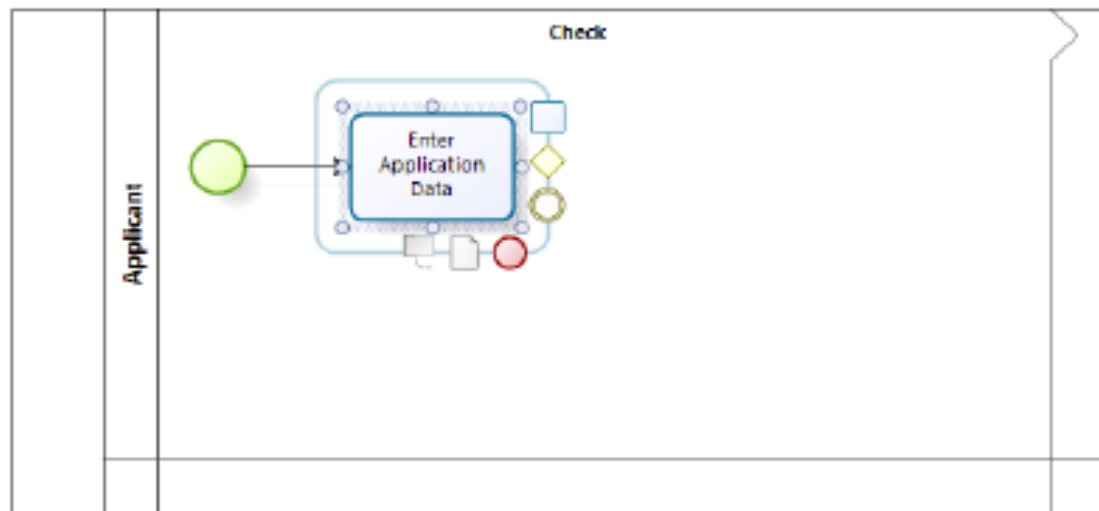


Figure 6.8 – Create elements

Create the following activities in each of the following swimlanes by dropping a Task from the palette and giving the appropriate name:

Role	Tasks
Applicant	Enter Application Data Complete Application Form
Loan Officer	Check Application Form Completeness Assess Eligibility Prepare and Send Acceptance Pack Reject Application Verify Repayment Agreement Take Final Decision
Financial Officer	Check Credit History Assess Loan Risk
Property Appraiser	Appraise Property
Insurance Sales rep	Prepare and Send Home Insurance Quote

The process diagram will look similar to the one below (figure 6.9):

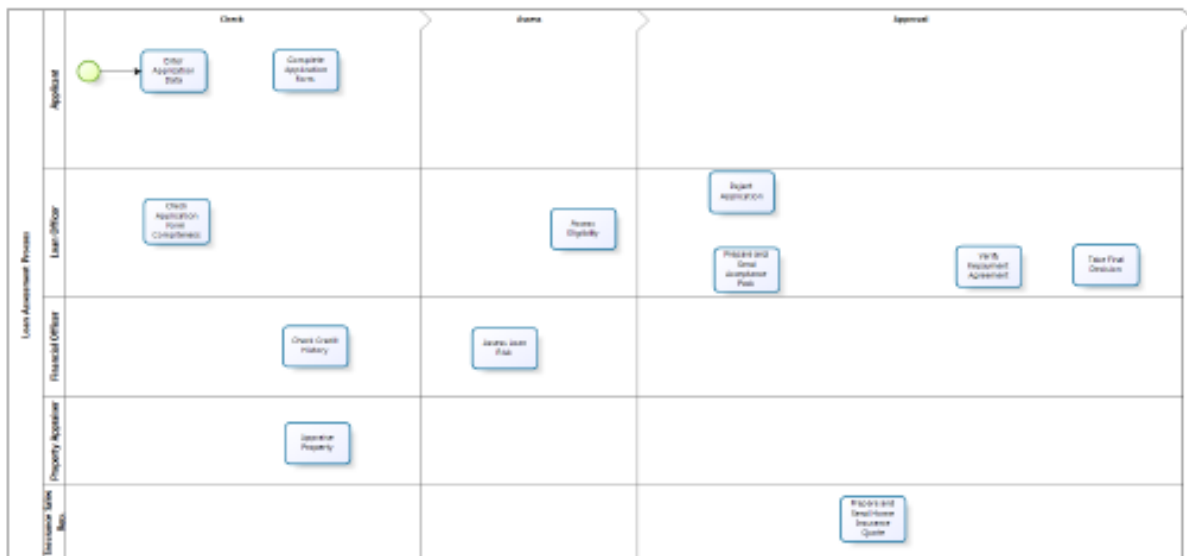


Figure 6.9 – Diagram of process

Now add the remaining shapes (events and gateways) and connect these using connectors. The process diagram should look like the one given below (figure 6.10):

Right-click on the Check Application Form Completeness task and transform it to a Script Task. Do the same for Assess Loan Risk task as well (figure 6.11).

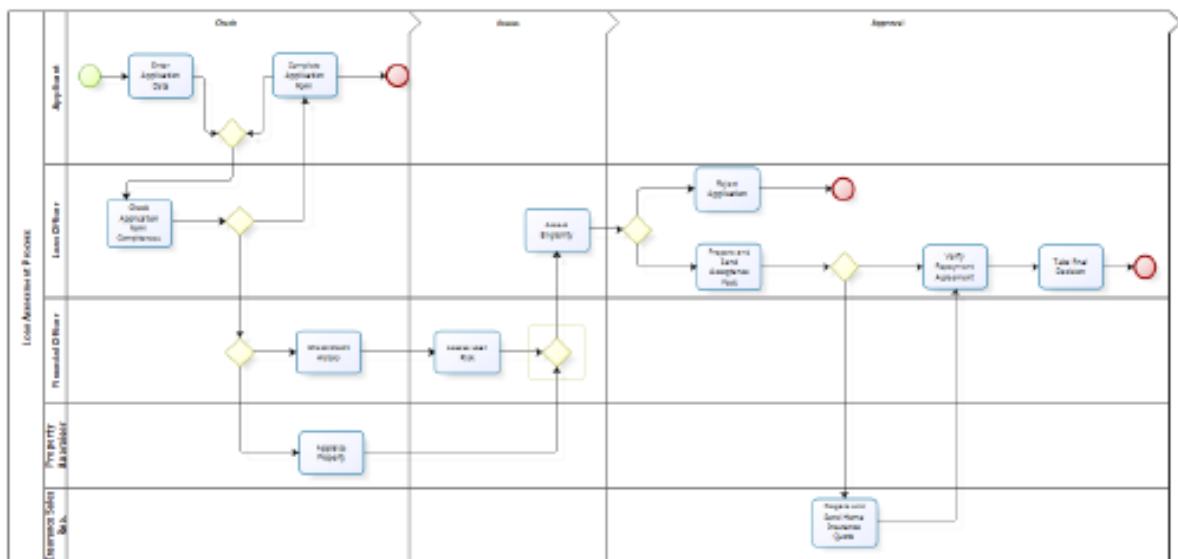


Figure 6.10 – Diagram of process

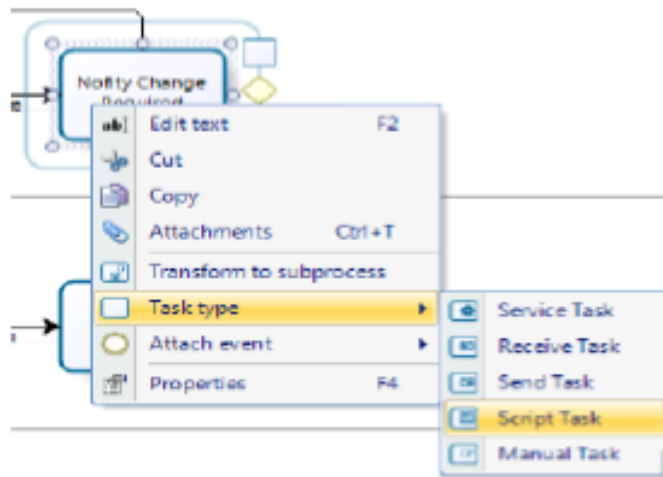


Figure 6.11 – Choose Task type

Similarly, change the Reject Application task type to Send Task.

Note:

1. Script Task: A Script Task is an automatic task in which a script is executed by the server. It has no human intervention and does not connect to any external service.
2. User Task: It is a typical “workflow” Task where a human performer performs the Task that has to be completed in a certain amount of time. (By default, a task is a User Task)
3. Send Task: A Send Task is a simple Task that is designed to send a Message. Once the Message has been sent, the Task is completed.

Similar to the task types, we can transform the gateways and events to a specific Gateway Type and Event Type respectively i.e. by right clicking on a gateway or an event and selecting the particular type from the list available.

Now, we need to add the timer event to the tasks- Complete Application Form and Verify Repayment Agreement.

To do this, right-click on the task and select Attach event and select Timer.

Add any remaining end events to the diagram and give them appropriate names. Now we have the complete process model (figure 6.12).

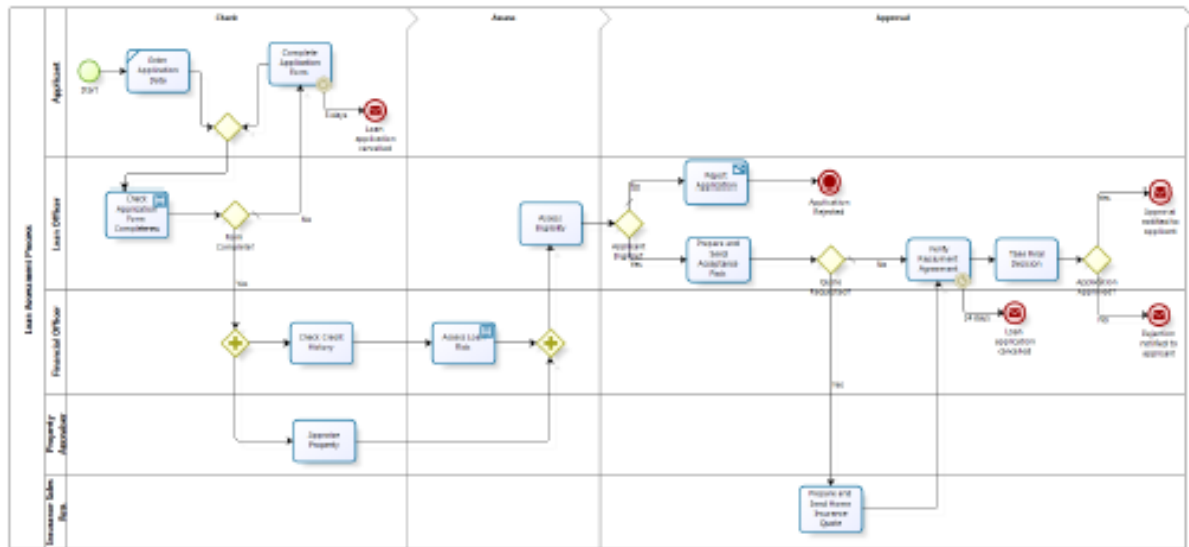


Figure 6.12 – Diagram of process

(Note: Please make corrections to the initial model to include an OR gateway and 2 end events after task Take Final Decision as seen in above image)

Validate the model to check for any possible errors. You can see the errors in the diagram by double clicking on description of error in diagram validation message box. Correct all the errors and save your process model (figure 6.13).

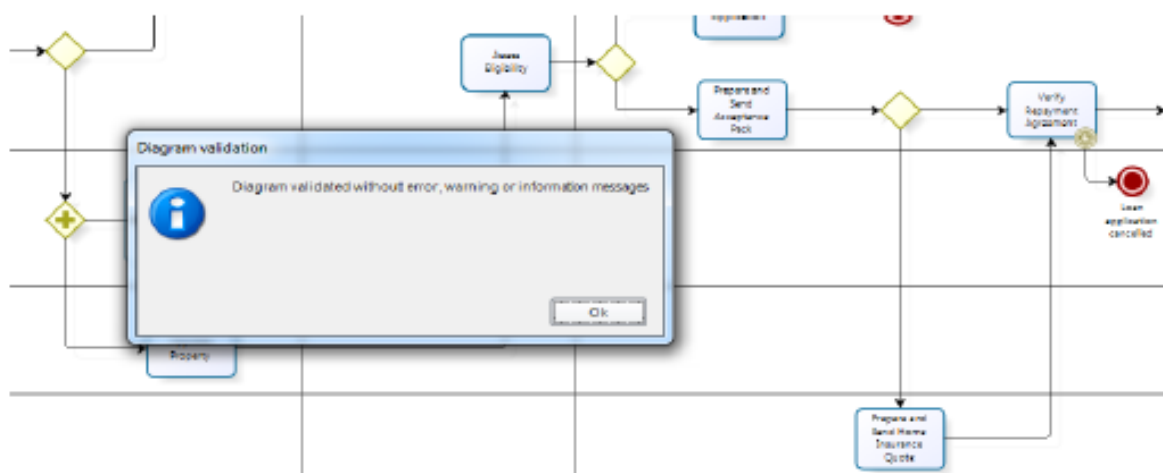


Figure 6.13 – Messages

Some parameters (properties) like the Duration and Help text must be updated in the Process Activities when the Process diagram is completed.

- Right-click on the Process name and select Properties.
- Enter the Description of the Process: This process controls the loan requests of the applicants.
- Scroll down to the bottom of the window and define the Duration. Give an estimated time (25 days), a lower limit (15) and an upper limit (34). These durations define the SLA of your Process.
- When you are done, close the Properties window by clicking the Cross icon (“x”) on the right (figure 6.14).

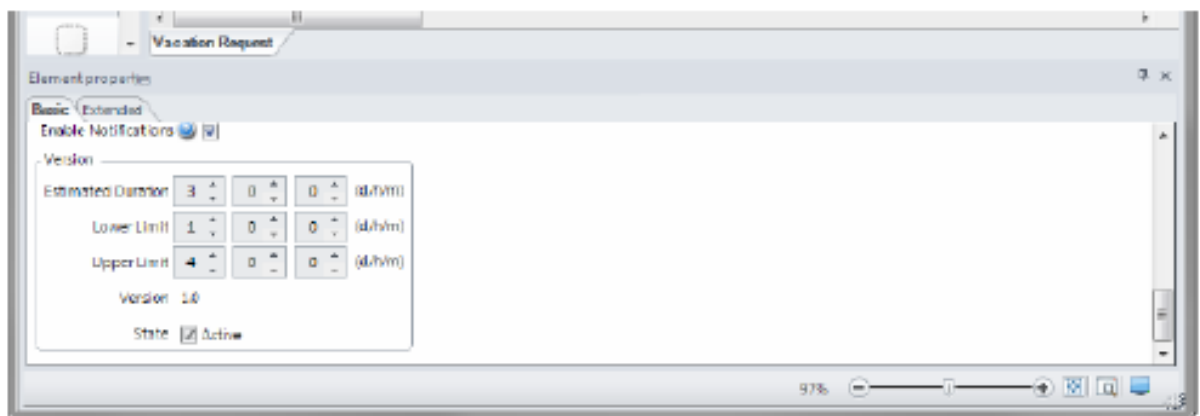


Figure 6.13 – Element properties

Once the properties for process has been entered, configure the following properties for each User Activity:

Activity	Help Text	Duration (days)	Timer Event Duration (days)
Enter Application Data	Fill in all the mandatory information	1	

Complete Application Form	Complete/correct the information	5	5
Check Credit History	Check credit history of the applicant to assess risk	3	
Appraise Property	Check the market value of the property and its surrounding properties	3	
Assess Eligibility	Determine if applicant is eligible or not for the loan	2	
Prepare and Send Acceptance Pack	Determine repayment schedule and prepare acceptance pack	2	
Verify Repayment Agreement	Verify form returned by applicant for agreed terms and conditions	15	14
Take Final Decision	Take final decision on the application	2	
Prepare and Send Home Insurance Quote	Generate and print the Quotations and send to the applicant	2	

Note: The help text will be displayed to the end user when the Activity is executed in the Work Portal.



Once you are finished, Save your changes and close the Process Modeler Suite to return to the Process Wizard.

## Tasks

### **Exercise 1: Hospital Process**

A hospital wants to establish a rating workflow for their doctors. To make the workflow reliable two different roles are assigned. The first one is a referee from the newly created quality assurance department while the second one represents the managing director of the hospital. Both roles execute all of their tasks independently from each other.

Visualize this business process using BPMN.

### **Exercise 2: Insurance Process**

Consider the following business process at an insurance company. The process includes two major roles, agents (supporting customers outdoor) and clerks (work indoors). When the insurance company receives a new claim, the clerk calls the agent to actually check the claim, and creates a new case.

Visualize this business process using BPMN.

### **Exercise 3: Computer Repair**

The workflow of a computer repair service (CRS) can be described as follows. A customer brings in a defective computer and the CRS checks the defect and hands out a repair cost calculation back. If the customer decides that the costs are acceptable, the process continues, otherwise she takes her computer home unrepaired.

Visualize this business process using BPMN.

#### **Exercise 4: Bicycle Manufacturing**

A small company manufactures customized bicycles. Whenever the sales department receives an order, a new process instance is created. A member of the sales department can then reject or accept the order for a customized bike. In the former case, the process instance is finished. In the latter case, the storehouse and the engineering department are informed.

Visualize this business process using BPMN.

#### **Exercise 5: Catering Service**

Design the processes for a client who wants to establish an online catering service. The service should be available over the Internet and provide the options to create or change customer profiles, choose and remove goods from a shopping cart, as well as a checkout. The goods are divided into two types: cold and warm.

Visualize this business process using BPMN.

#### **Exercise 6: Travel Booking**

A travel agency wants to establish a booking service. The service is triggered by an incoming request and can return two different messages, either an unavailable notification or a confirmation. The business process of the service starts by first checking the request. If for certain reasons the request can only be handled manually by an employee (e.g. group travels), a sub-process for manual handling is activated.

Visualize this business process using BPMN.

#### **Exercise 7: Student Project**

End-of-study projects in an industrial environment are a mandatory part in the Bachelor curriculum. The students are not yet involved in the planning phase, where each research group interacts with its industry partners. As the project

proposals have to be handed in to the faculty by 30 June, the research group starts planning in the beginning of June.

Visualize this business process using BPMN.

### The structure of the report

1. Prepare a report that fully describe the execution of tasks.
2. The lab report should contain:
  - a. The title of the work;
  - b. The purpose of the laboratory work;
  - c. The wording of the task and the technology of its implementation;
  - d. Answers to test questions.

### Questions

1. Describe the methodology BPMN.
2. What are the main elements used when creating BPMN models?
3. The BPMN diagram. The rules and guidelines of the build.

### Literature

1. Shilpa Kochar, Marcello La Rosa Bizagi BMP suite assessment process lab, 2014-95 p
2. Bizagi - Business Process Management (BPM) – BPMS and Workflow. Bizagi.com. Retrieved 2 March 2014 - 23 June 2014, from <http://www.bizagi.com>
3. Dumas, M., La Rosa, M., Mendling, J. and Reijers, H. (2013). Fundamentals of Business Process Management. 1st ed. Berlin, Heidelberg: Springer.
4. Help.bizagi.com,.(2014). Bizagi BPM Suite User's Guide. Retrieved

5. E-resource: [http://bpt.hpi.uni-potsdam.de/foswiki/pub/Public/BPMNCorner/BPMN1\\_1\\_Poster\\_EN.pdf](http://bpt.hpi.uni-potsdam.de/foswiki/pub/Public/BPMNCorner/BPMN1_1_Poster_EN.pdf)

## Laboratory work №7: Modeling Process Data

**Objective:** to study the modeling process data using BizAgi Process Modeler.

**Organizational form practice:** problem solving tasks, case studies

**Questions for discussion:** notation BPMN 2.0; the technology modeling process data in the environment of BizAgi Process Modeler.

**Performance of the given work allows to generate the following competencies:** ability to conduct research and development of methods of analysis, synthesis, optimization and prediction of quality of processes of functioning of information systems and technologies (PC – 9).

### The theory

BizAgi provides the tools to create an application that models the process, while at the same time extracting and providing process information to management:

- The first step to create the application is to draw the process. BizAgi extends Microsoft Visio by creating its own BPM stencil to offer a standard, ready available graphical modeling tool.
- Then the data of the process is modeled within BizAgi (in Entity-Relationship diagrams).
- This data is grouped in forms that are composed and linked to the activities of the process.

- The fourth step consists of assigning the resources to the activities according to skills, positions, geographical areas and other variables. BizAgi even offers advanced work distribution algorithms.
- Afterwards, the business rules (for example, the definition of a big loan application that needs to be approved by a committee) are defined and linked to the flowchart.
- Finally, the intranet application generated by BizAgi is extended with interfaces to communicate with existing systems and by tools that provide very specific functionality within an activity.

### The equipment and materials

To perform laboratory work requires a personal computer with features that allows you to install the Windows XP operating system, integrated with the Microsoft Office Suite, Bizagi Process Modeler.

### The safety instructions

Independently produce: installation and removal of software, repair of personal computer. To comply with the rules of technical safety when working with electrical equipment.

### The method of execution of work

Once the Process Diagram has been created we'll proceed to the Data Model creation. This Data Model will include all the information required by the Process.

In the second step of the Process Wizard select Model Data (figure 7.1).



Figure 7.1 – Model Data

A window will display where you should enter the Process Entity. The Process Entity is the entity that gives you access to the rest of the data model, the starting point. Name it Loan Application and click Ok (figure 7.2).

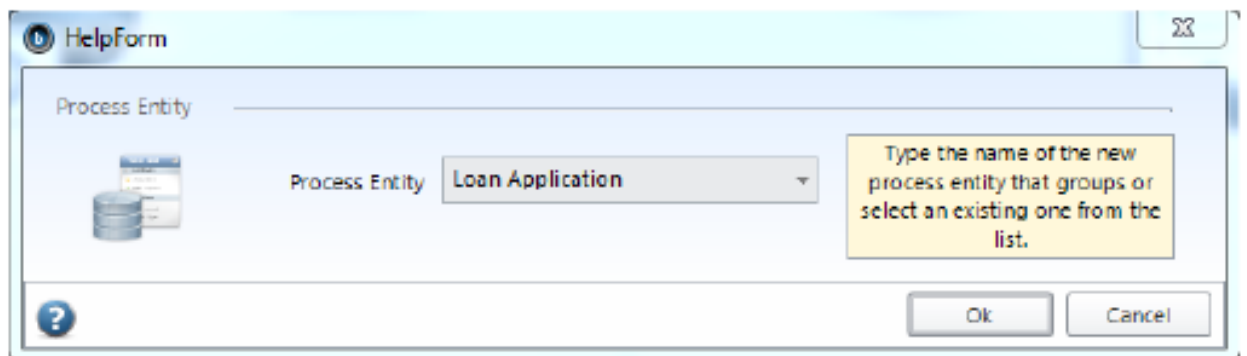


Figure 7.2 – Help Form

A new window to design the data model, containing the Process Entity will display. The creation of entities, attributes, and relationships can be completed in this editor. Right-click on the entity Loan Application and select Edit Attribute List (figure 7.3).

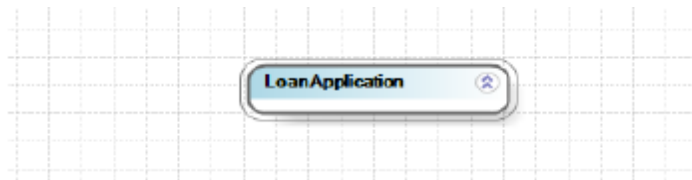


Figure 7.3 – Window to design the data model

Add the following attributes:

Display Name	Type
Name	String
Surname	String
Email	String
Home Phone	Integer
Cell Phone	Integer
Current Address	Extended Text
Previous Address	Extended Text
Current Employer	String
Monthly Net Revenue	Currency
Bank Name	String
Account Type	String
Account Number	String
Property Type	String
Property Address	Extended Text
Purchasing Price	Currency
Loan Amount	Currency
Loan Duration (years)	String
Start Date	Date-Time
Loan Interest Rate	String
Interest Type	Parameter Entity



Insurance Quote Required	Boolean
Application Number	Integer
Submission Date	Date-Time
Revision Date	Date-Time
Status	Parameter Entity
Comments	Extended Text
Eligibility	Boolean
Loan Officer ID	Integer

The attribute list for Loan Application will look as illustrated in the following screen (figure 7.4).

Note that we have Interest Type and Status as Parameter Entities. This is because these entities will have pre-defined values. To create parameter entity, in the Type column, select Entity ->Parameter Entity -> New Entity. A new window will open to create properties for parameter entity. Check the box Manage values in Production environment only and click next (figure 7.5).

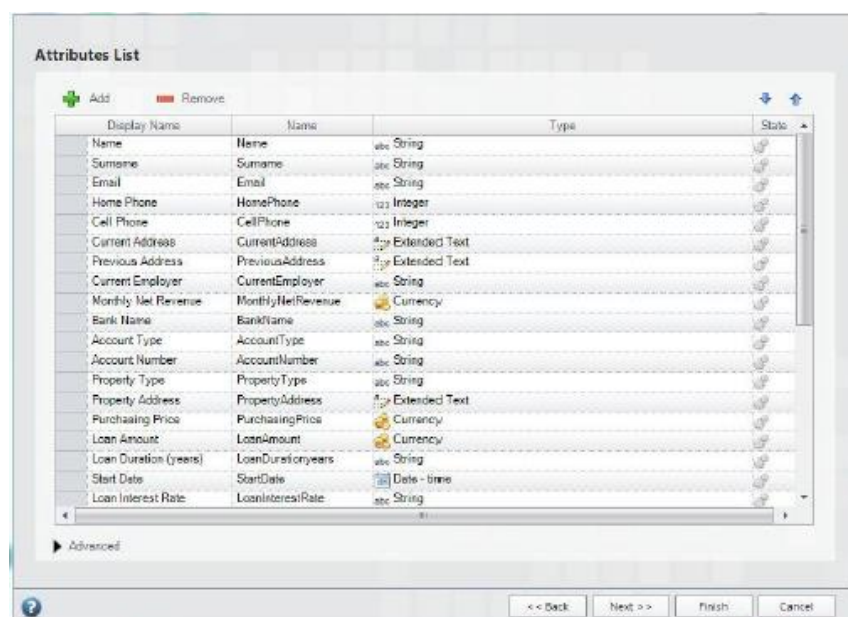


Figure 7.4 – Attributes List

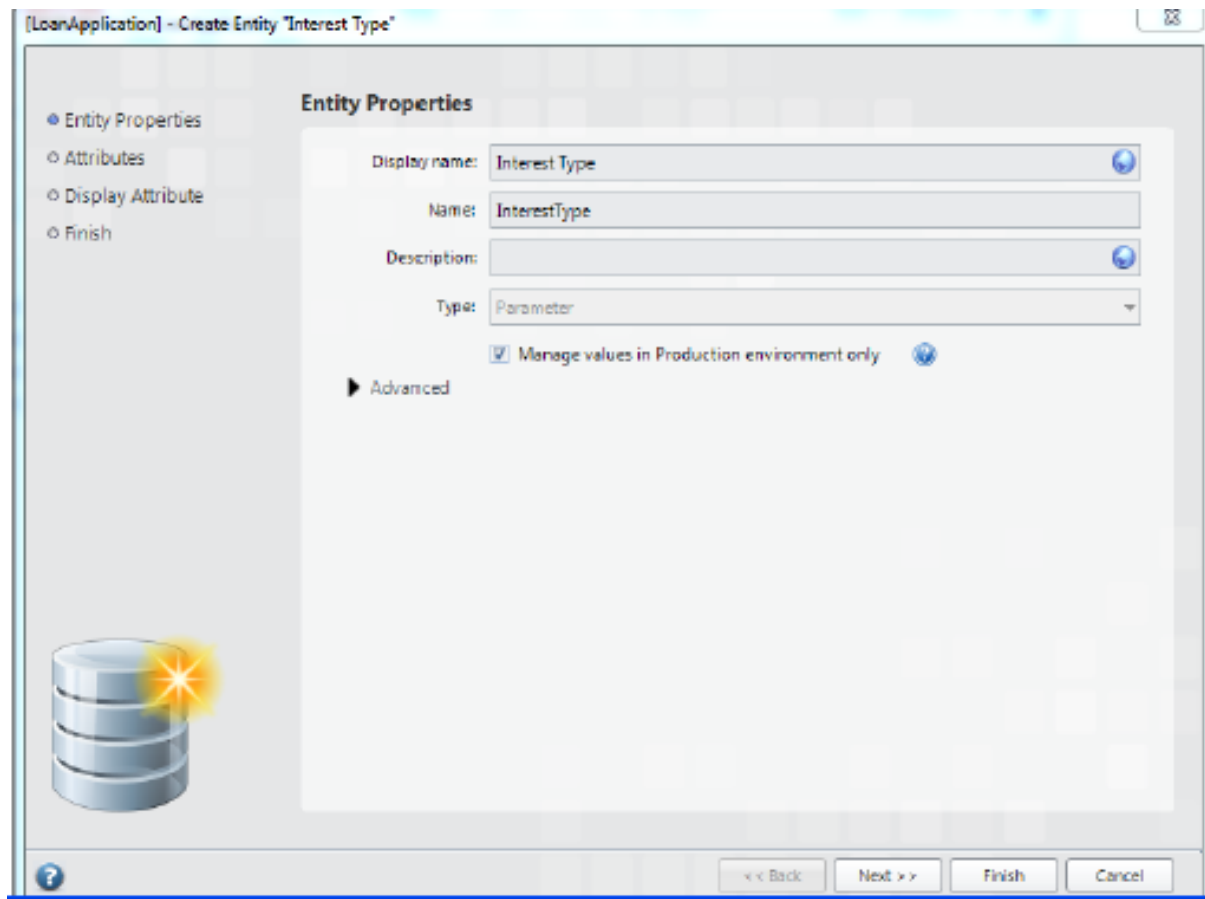


Figure 7.5 – Create Entity

In the Attributes List screen, add attribute Interest Type (string) and click Finish. Do the same for Status attribute as well.

The entity Loan Application also related to a user entity. The user entity, known in Bizagi as WFUser is created by default for all projects, and is used to store all the information related to the end users. We need a relationship to this entity but since it is already created by default we just need to relate it.

Press 'Add' button to add entity Officer and relate "Officer" to the SYSTEM entity (you need Entity option and then the System sub-option to find the WFUSER table)

Click Next. A Summary window will display for the Loan Application entity (figure 7.6).

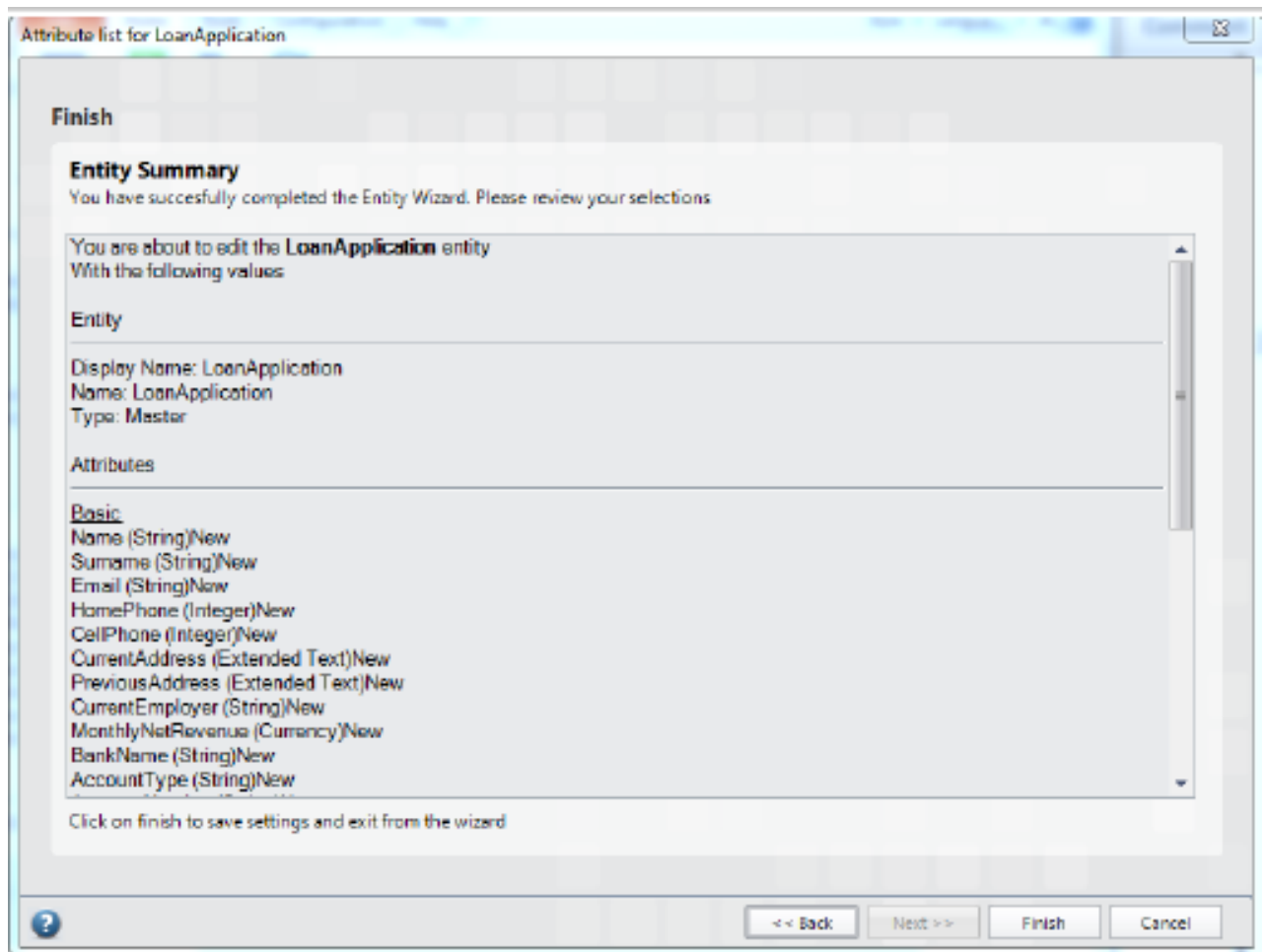


Figure 7.6 – Attribute List for LoanApplication

Click Finish. The data for Loan application is ready and is presented in a graphical way in the diagram screen (figure 7.7).

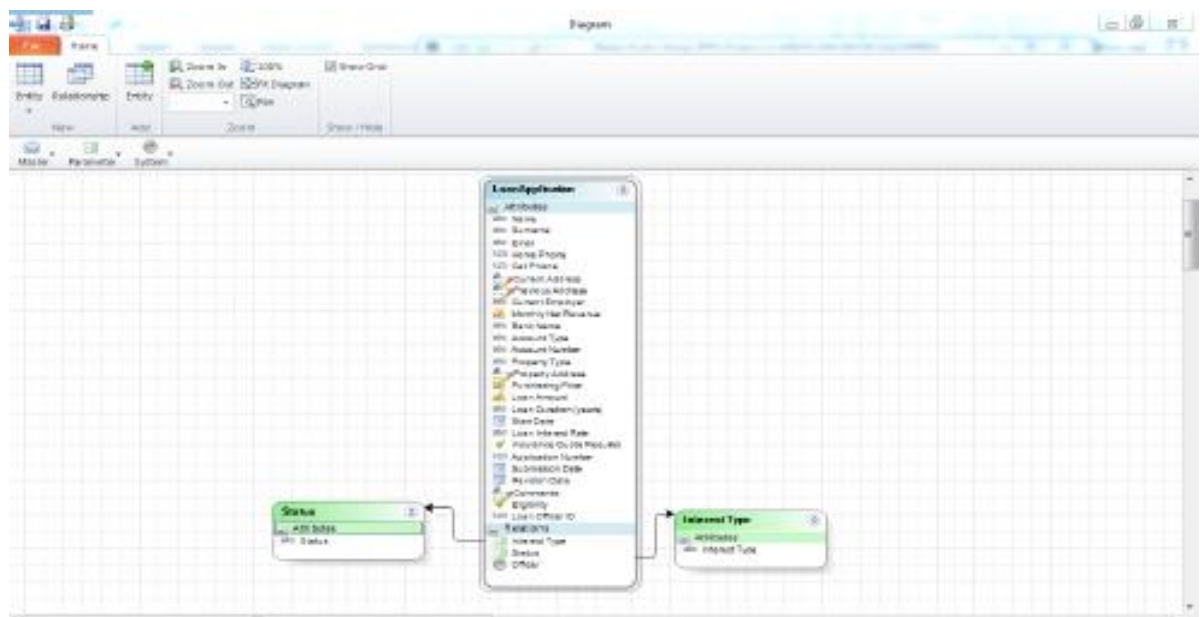


Figure 7.7 – Diagram screen

To add more entities to the diagram, right click anywhere on the Diagram screen and select New Entity. Type Display Name for Entity and select Master as entity type. Click next. Add attributes to the entity as done for Loan Application Entity.

Create master entity Credit History Report with following attributes:

Display Name	Type
Application Number	Integer
Financial Officer ID	Integer
Loan Type	String
Loan Amount	Currency
Loan Duration	String
Loan Interest Rate	String
Credit Type	String
Default Amount	Currency
Duration	String
Interest rate	String
Credit Card Provider	String
Start Date	Date-Time
End Date	Date-Time
Credit Interest Rate	String
Court Judgements Information	Extended Text
Bankruptcy Information	Extended Text
Credit Assessment	Parameter Entity
Credit History Report Number	Integer

Create master entity Risk Assessment with following attributes:

Display Name	Type
Credit History Report Number	Integer
Risk Weight	Integer

Create master entity Repayment Agreement with following attributes:

Display Name	Type
Application Number	Integer
Monthly Repayment Amount	Currency
Number of Repayments	Integer

Create master entity Home Insurance Quote with following attributes:

Display Name	Type
Application Number	Integer
Home Insurance Total Cost	Currency
Additional Cost on Monthly Repayment	Currency
Insurance Terms & Conditions	Extended Text
Insurance Sales Rep ID	Integer

Create master entity Agreement Summary with following attributes:

Display Name	Type
Application Number	Integer
Conditions Agreed	Boolean

Repayment Agreed	Boolean
Agreement Copy link	File
Application Approved	Boolean

The diagram will now look like the screen below (figure 7.8):

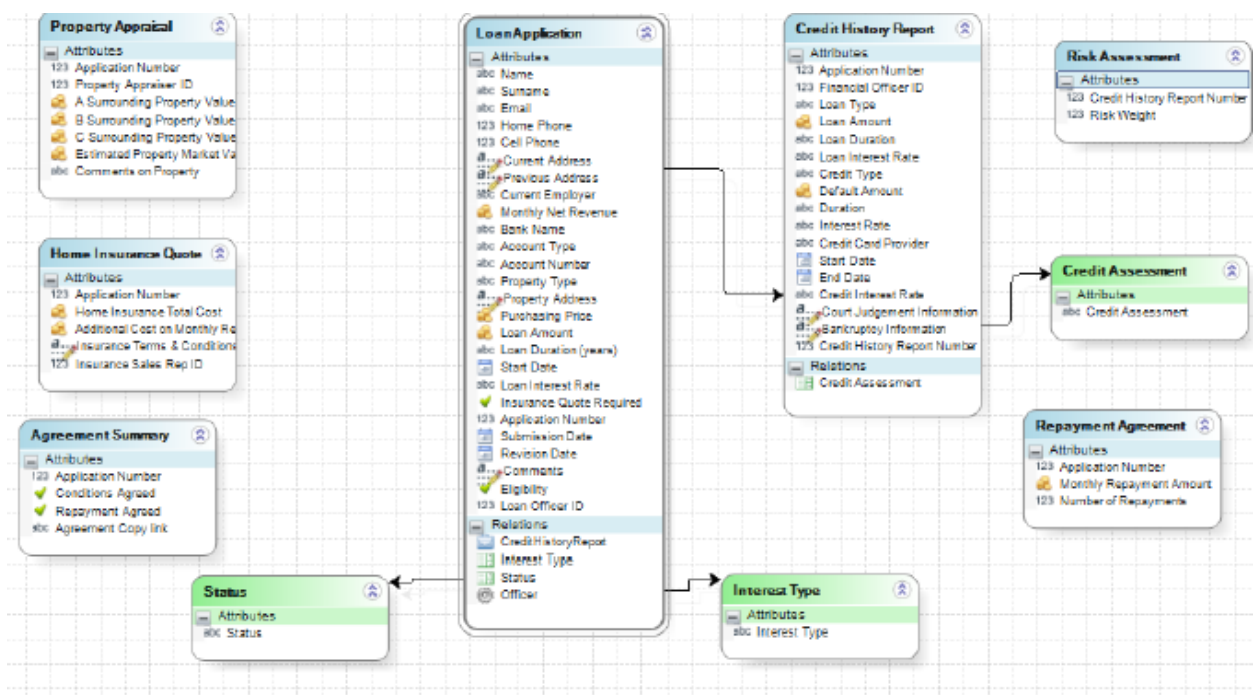


Figure 7.8 – Diagram

Note: You can drag and reposition the entities as desired

Now we need to establish relationship between different entities.

- Click on relationships which is at the top-left corner of window.
- Relationship Wizard will open up. Click next on the welcome screen.
- In the select entities screen, select the two entities between which relation will be created, in this case select Loan Application and Credit History Report and click next

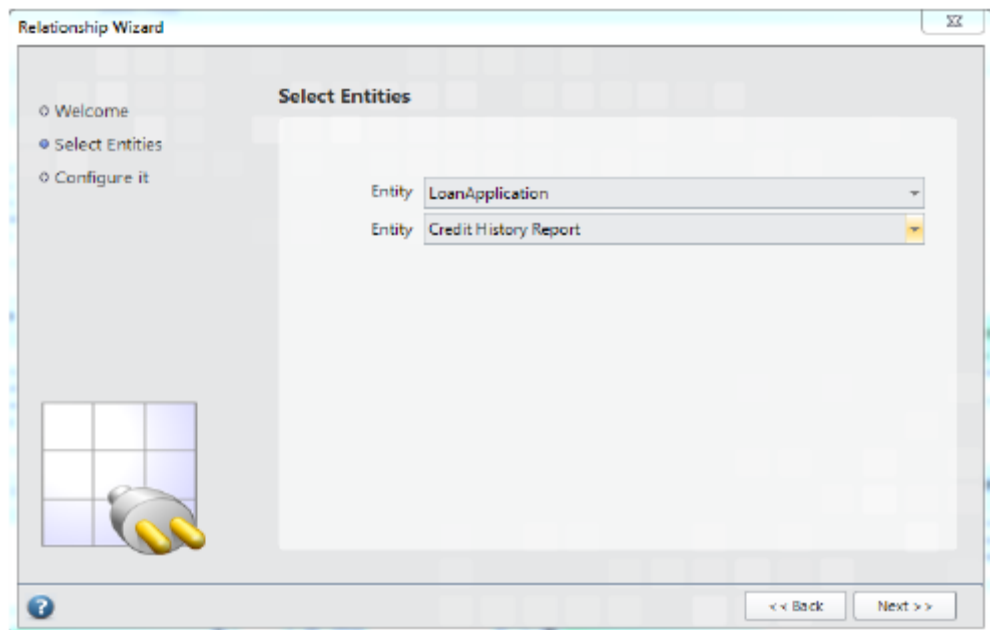


Figure 7.9 – Relationship wizard

In Configure Relationship screen, select Related Attribute and click finish (figure 7.10).

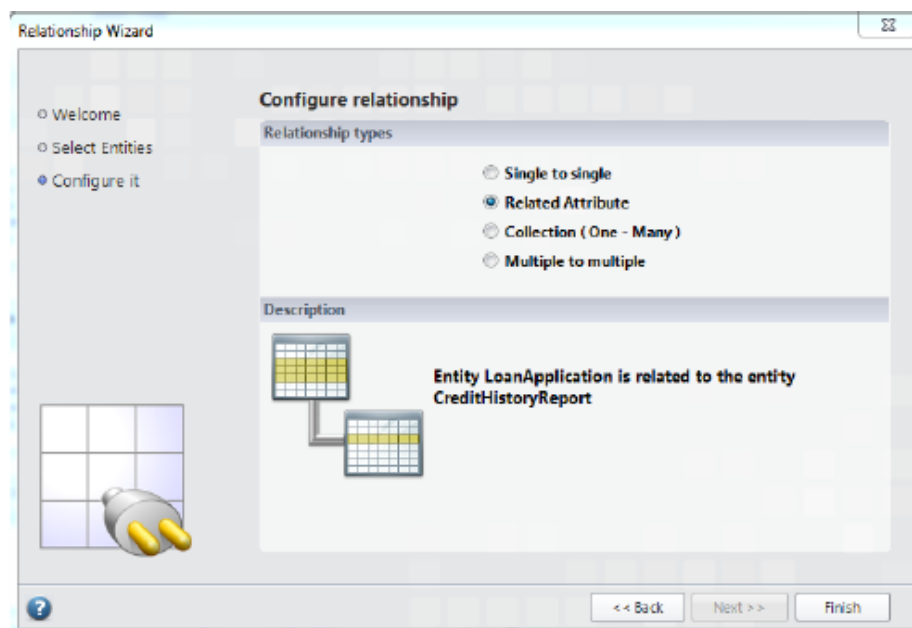


Figure 7.10 – Relationship wizard

Similarly, connect Credit History Report entity to Risk Assessment entity.

Connect remaining entities to Loan Application Entity.

Final Diagram should look like the screen below:

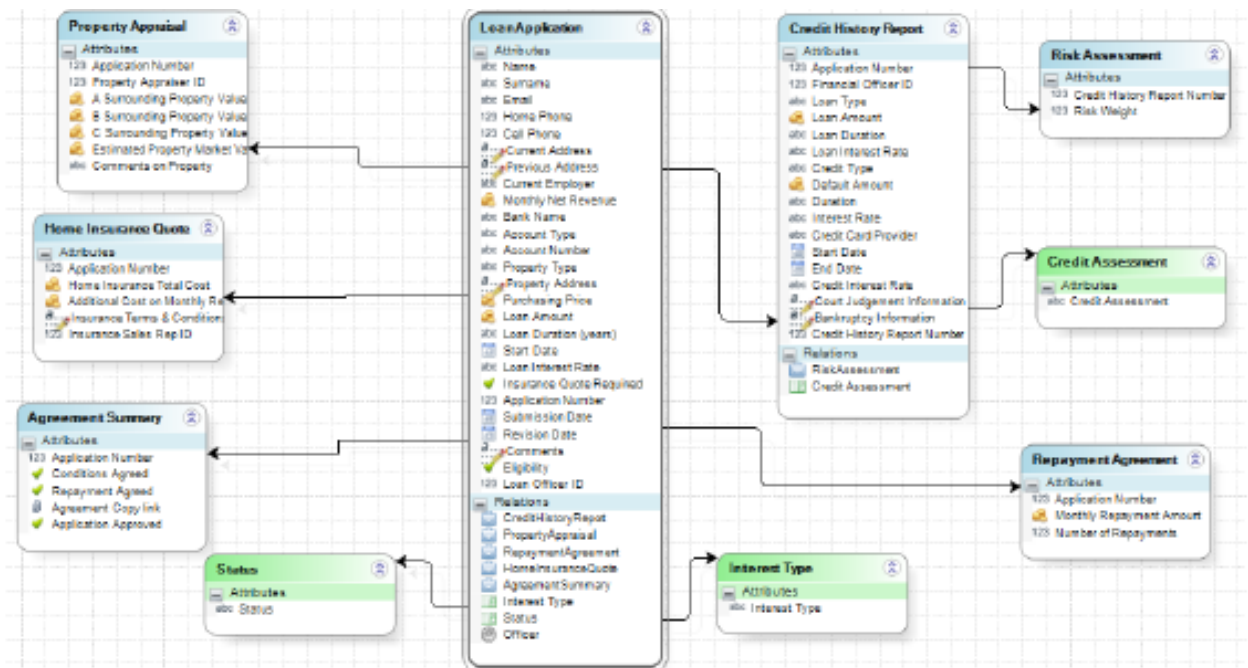


Figure 7.10 – Final diagram

Save the data model and close the Diagram window to return to the Process Wizard.

## Tasks

**Exercise 1:** Create Data Model for hospital.

**Exercise 2:** Create Data Model for Insurance Process

**Exercise 3:** Create Data Model for Computer Repair

**Exercise 4:** Create Data Model for Bicycle Manufacturing

**Exercise 5:** Create Data Model for Catering Service

**Exercise 6:** Create Data Model for Travel Booking

**Exercise 7:** Create Data Model for Student Project

## The structure of the report

1. Prepare a report that fully describe the execution of tasks.
2. The lab report should contain:



- a. The title of the work;
- b. The purpose of the laboratory work;
- c. The wording of the task and the technology of its implementation;
- d. Answers to test questions.

## Questions

1. As actions are portrayed on the chart in Bizagi Process Modeler?
2. How to depict the flow of control?
3. Give the concept of an Association.
4. What is the artifact?

## Literature

1. Shilpa Kochar, Marcello La Rosa Bizagi BMP suite assessment process lab, 2014-95 p
2. Bizagi - Business Process Management (BPM) – BPMS and Workflow. Bizagi.com. Retrieved 2 March 2014 - 23 June 2014, from <http://www.bizagi.com>
3. Dumas, M., La Rosa, M., Mendling, J. and Reijers, H. (2013). Fundamentals of Business Process Management. 1st ed. Berlin, Heidelberg: Springer.
4. Help.bizagi.com,.(2014). Bizagi BPM Suite User's Guide. Retrieved

## Laboratory work №8: Forms Creation

**Objective:** to study the technology Forms Creation using Bizagi Process Modeler.

**Organizational form practice:** problem solving tasks, case studies

**Questions for discussion:** technology of Forms Creation using Bizagi Process Modeler.

**Performance of the given work allows to generate the following competencies:** ability to carry out author's supervision of the processes of design, implementation and maintenance of information systems and technologies (PC – 4).

### The theory

End users interact with the automated Processes through a web designed portal that executes with any web browser. Users access this interactive Process portal called Work Portal, where they have access to all their cases with activities pending. Each pending activity is represented by a user interface, known as a Form in Bizagi, that displays its data.

The third step of the Process Wizard, Define Forms, manages all user interfaces for human activities. The Forms Designer provides an intuitive and user-friendly structure to drag and drop the data fields (known as Controls in Bizagi) onto a form and arrange them in any way the Process calls for, without the need of programming. Forms associated with each activity that make up the Process automatically upon saving the design.

The Forms Designer has a what-you-see-is-what-you-get (WYSIWYG) approach to it, meaning that you can build a Form and know exactly how it will display to end users. Additionally you can define complex validations and perform actions on the information to ensure the content entered by end users is correct and complete.

### The equipment and materials

To perform laboratory work requires a personal computer with features that allows you to install the Windows XP operating system, integrated with the Microsoft Office Suite, Bizagi Process Modeler.

### The safety instructions

Independently produce: installation and removal of software, repair of personal computer. To comply with the rules of technical safety when working with electrical equipment.

### The method of execution of work

Once the Process Diagram and the Data Model are ready we will proceed to create the forms (screens) associated with each one of the human activities of the Process. Forms are used to enter and display required information, so that end users may interact with the Process.

Now go to the Third step of the Process Wizard: Define Forms (figure 8.1).



Figure 8.1 – Define forms

You'll see a diagram where only user Tasks are available to create Forms in. User Tasks that have no forms associated will be highlighted with an exclamation mark.

Select the Activity Enter Application Data by clicking on it. The following screen will appear (figure 8.2):

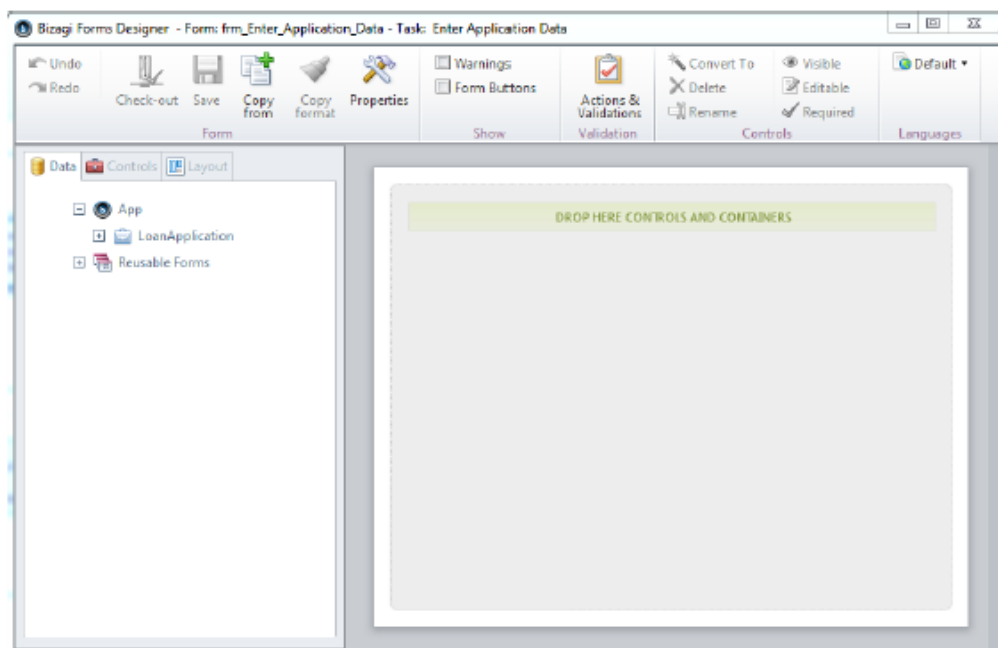


Figure 8.2 – Bizagi Form Designer

Click on the Controls tab to include a Group. Go to Containers and drag and drop a Group to the DROP HERE section (figure 8.3).

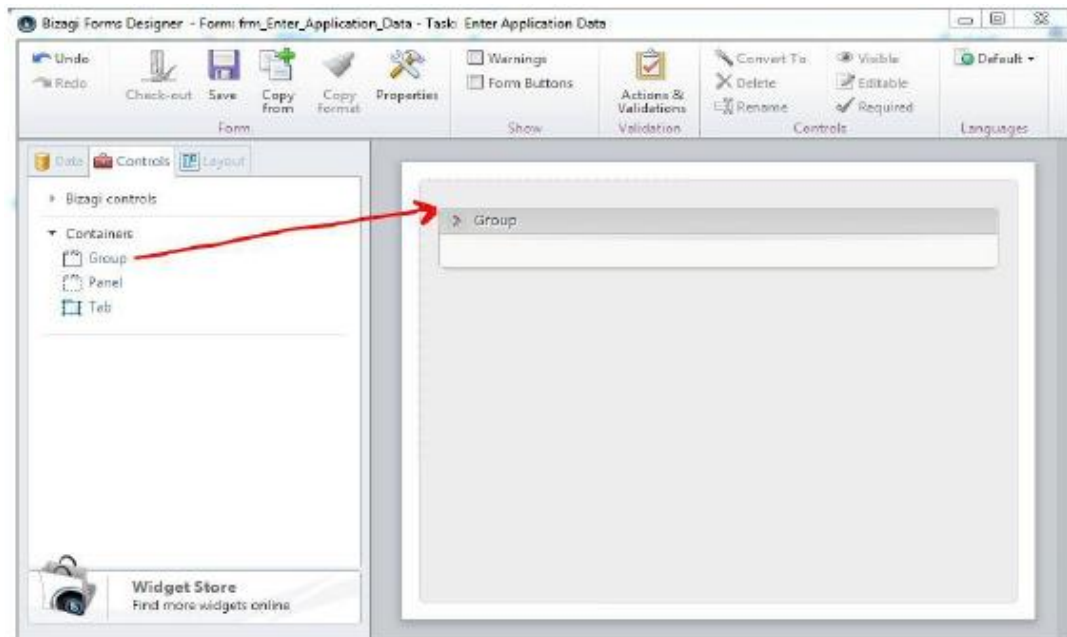


Figure 8.3 – Bizagi Form Designer

Double-click on it and type Applicant Information. Then click on the Check icon (figure 8.4).

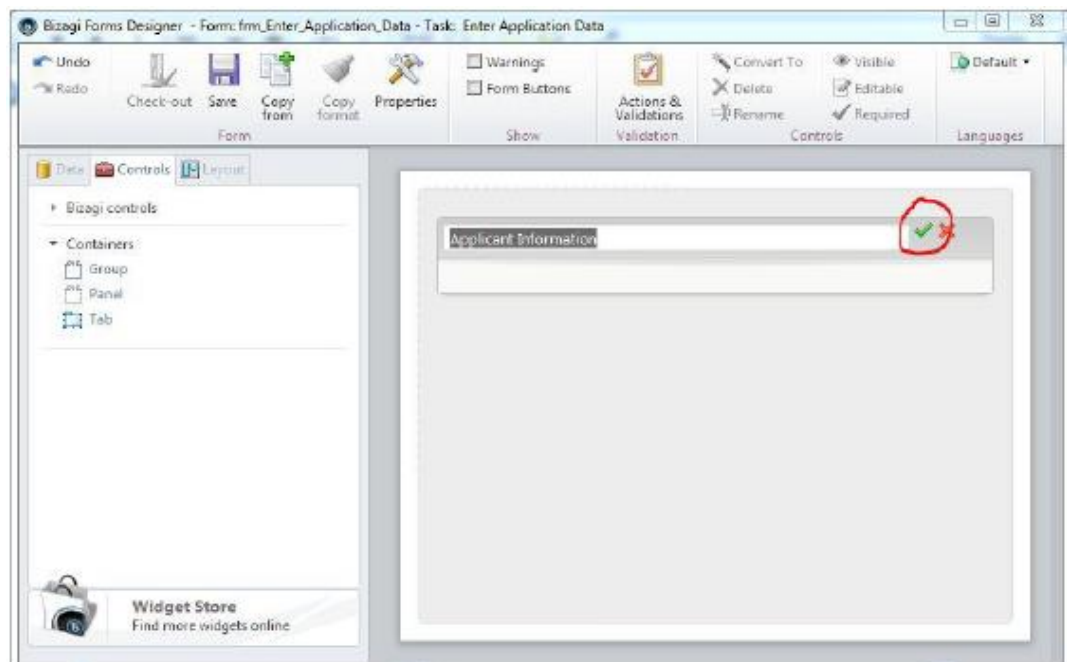


Figure 8.4 – Bizagi Form Designer

Click on the Data tab and expand LoanApplication entity to include the attributes in the group. Drag and drop the elements from the Data Model. First drag and drop Name attribute.

Click on the Name field, its properties will display. Locate the Required property and select the Yes option. This will make the control mandatory.

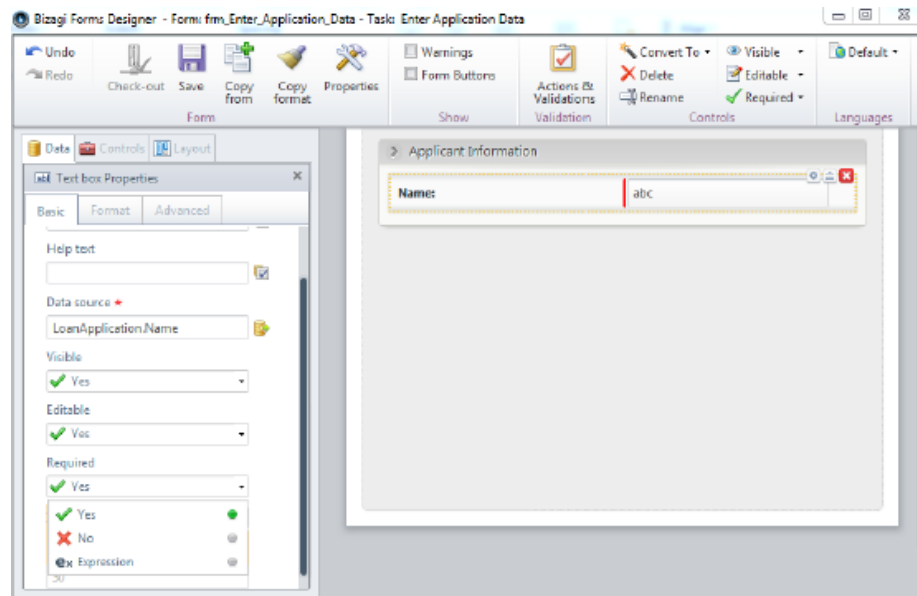


Figure 8.5 – Bizagi Form Designer

Go back to the Data tab. Drag and drop the following attributes from the Data Model as shown below. Surname, Email, Home Phone, Cell Phone, Current Address, Previous Address.

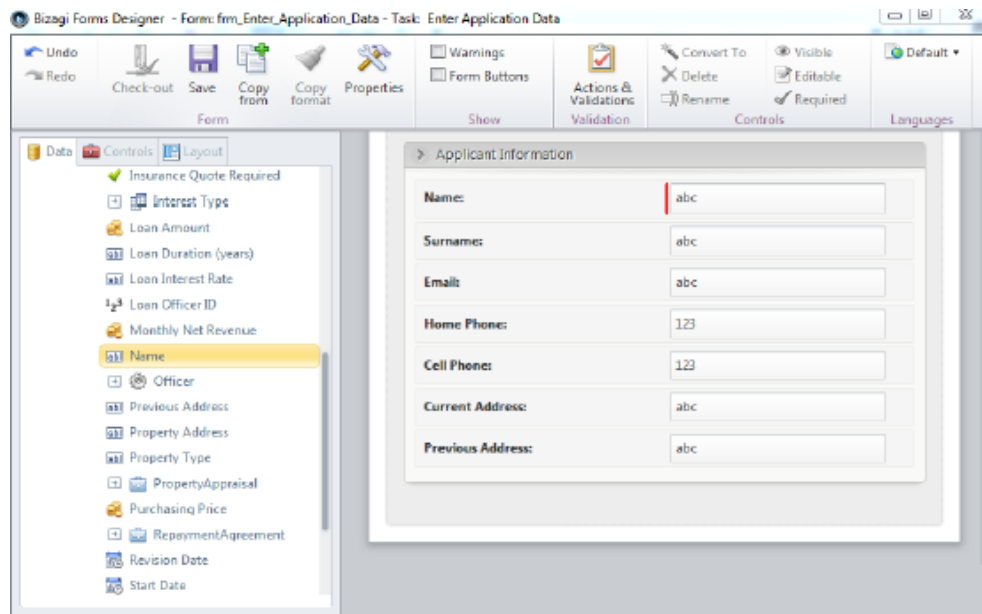


Figure 8.6 – Bizagi Form Designer

These fields will be mandatory (except previous address which is optional). Select them all holding down the CTRL key. Their Properties will be displayed. Select the Check mark on the Required property.

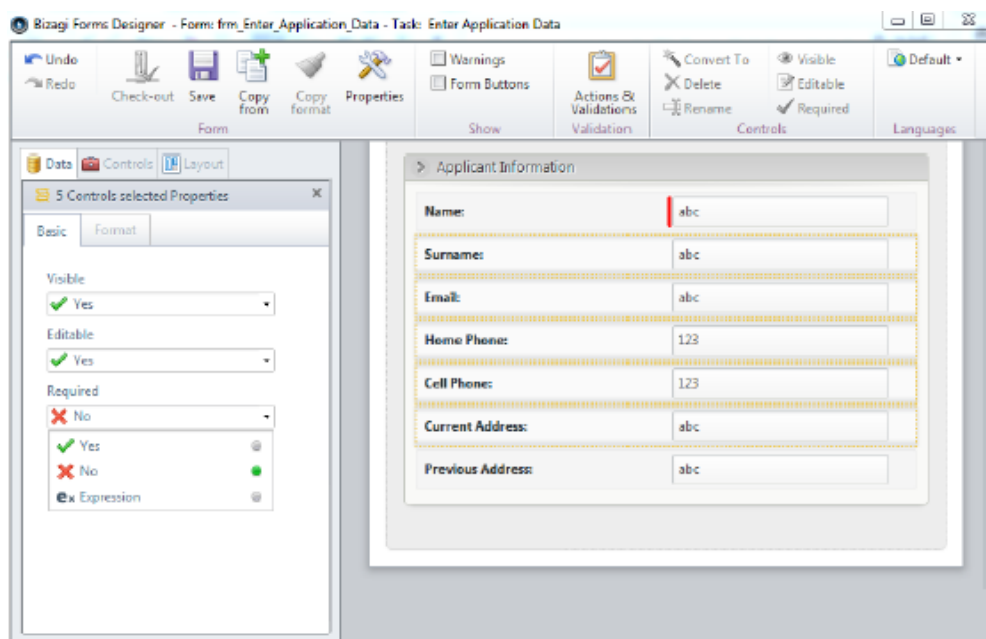


Figure 8.7 – Bizagi Form Designer

Now drag and drop a group into the Applicant Information group and include attributes: Current Employer, Monthly Net Revenue, Bank Name, Account Type and Account Number. Set the property for all these as Required as these are mandatory fields.

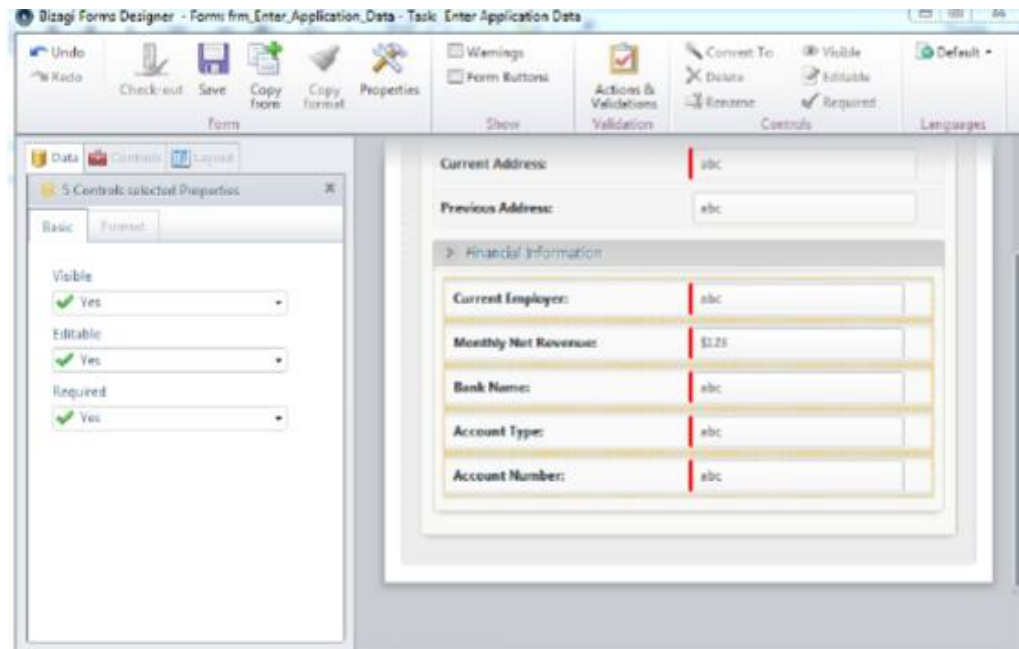


Figure 8.8 – Bizagi Form Designer

Drag and drop three Groups from the Containers section in the Controls tab (below Applicant Information group), and name them: Property Information, Loan Information and Administration Information.

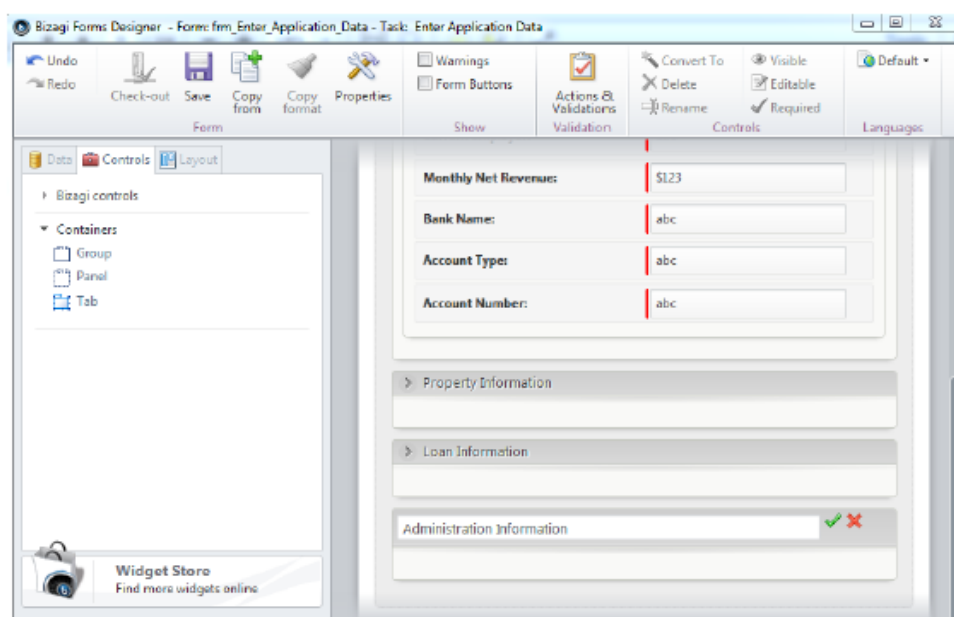




Figure 8.9 – Bezagi Form Designer

Include the following attributes from Data tab in respective groups:

- Property Information: Property Type, Property Address, Purchasing Price
- Loan Information: Loan Amount, Loan Duration, Start Date, Loan Interest Rate, Interest Type, Insurance Quote Required
- Administration Information: Application Number, Submission Date, Revision Date, Status, Comments, Eligibility, Loan Officer ID

Set the Required property to Yes for all the attributes in Property Information and Loan Information group. Set the Editable property to NO for all attributes in Administration Information group.

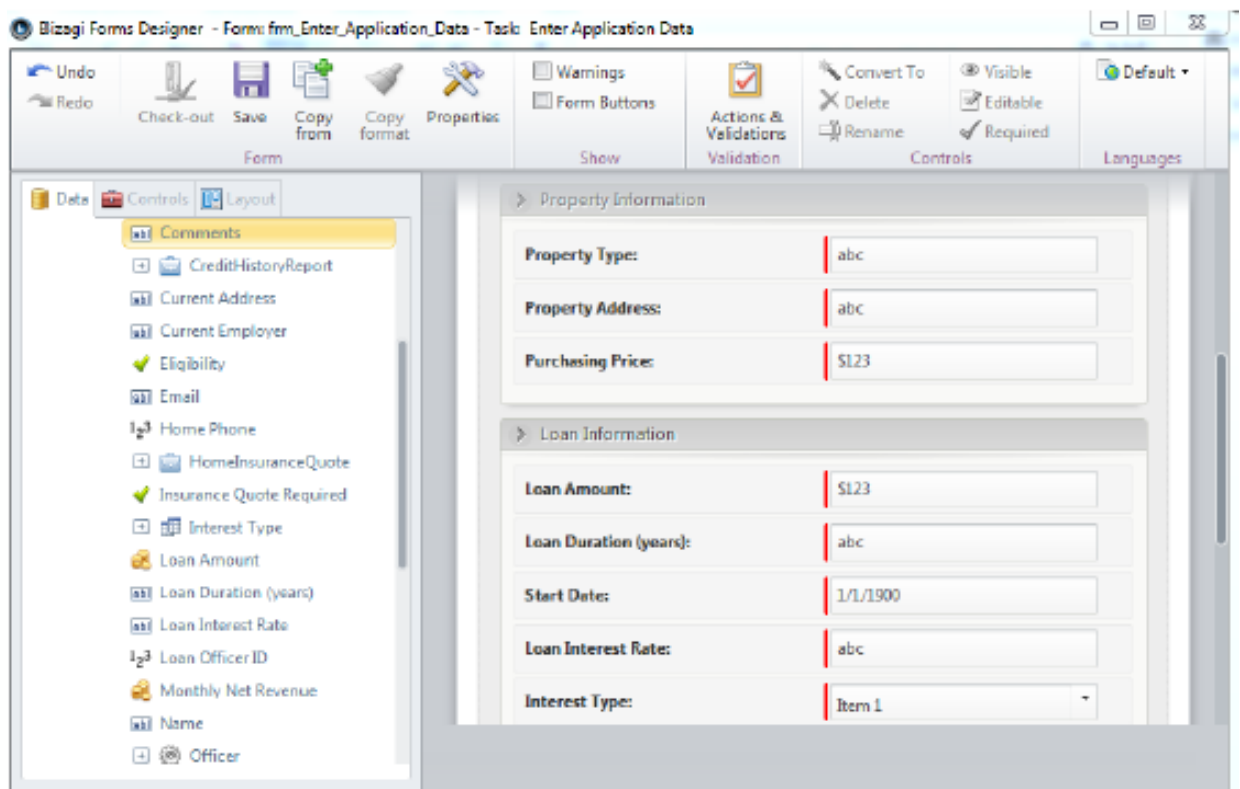


Figure 8.10 – Bezagi Form Designer

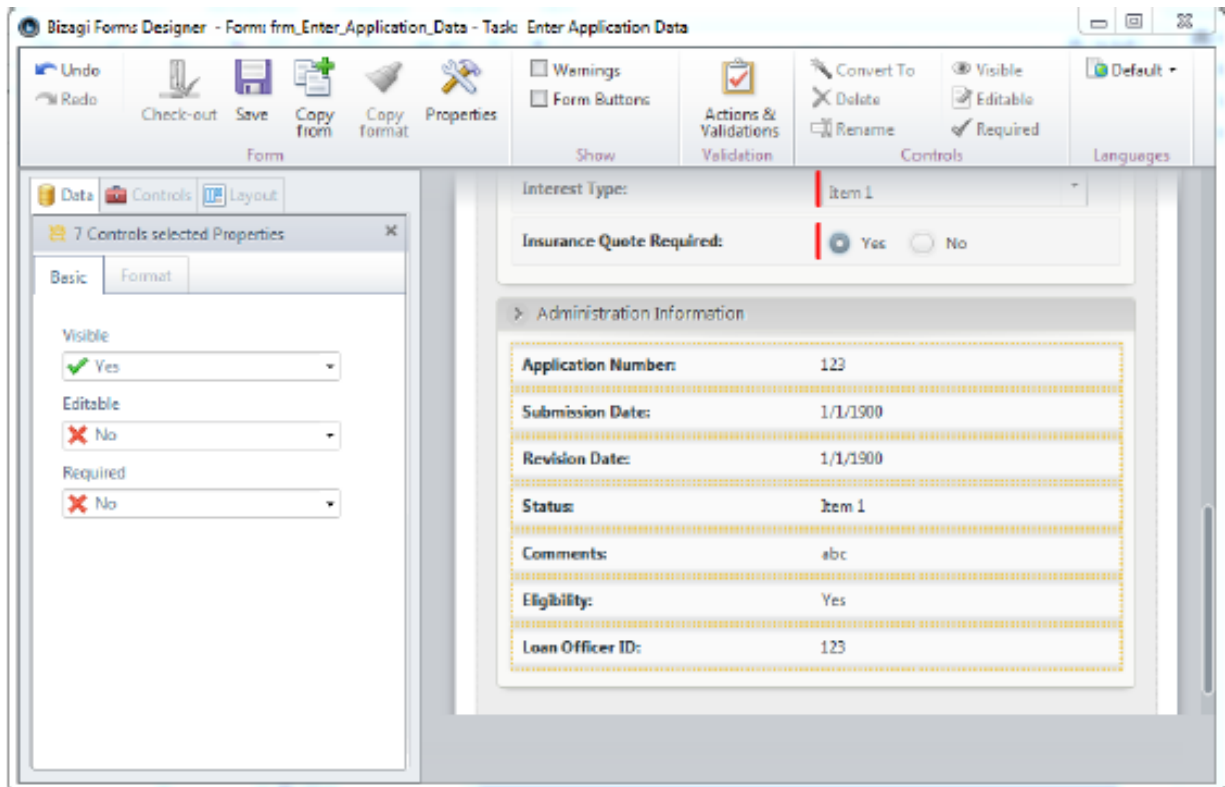


Figure 8.11 – Bizagi Form Designer

Save the form and close it to return to the process wizard.

## Tasks

**Exercise 1:** Create form for hospital.

**Exercise 2:** Create form for Insurance Process

**Exercise 3:** Create form for Computer Repair

**Exercise 4:** Create form for Bicycle Manufacturing

**Exercise 5:** Create form for Catering Service

**Exercise 6:** Create form for Travel Booking

**Exercise 7:** Create form for Student Project

## The structure of the report

1. Prepare a report that fully describe the execution of tasks.

2. The lab report should contain:
  - a. The title of the work;
  - b. The purpose of the laboratory work;
  - c. The wording of the task and the technology of its implementation;
  - d. Answers to test questions.

## Questions

1. Which components has Form Designer?
2. How are creating Form?

## Literature

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3. Dumas, M., La Rosa, M., Mendling, J. and Reijers, H. (2013). Fundamentals of Business Process Management. 1st ed. Berlin, Heidelberg: Springer.
4. Help.bizagi.com,.(2014). Bizagi BPM Suite User's Guide. Retrieved

## Laboratory work №9: Modeling using data flow diagrams

**Objective:** to study the technology of building a model of a data stream using Bizagi Process Modeler.

**Organizational form practice:** problem solving tasks, case studies

**Questions for discussion:** the data flow; data flow model; technology of building a model of the data stream using Bizagi Process Modeler.

**Performance of the given work allows to generate the following competencies:** ability to organize the collaboration with the teams of customer and developer, managerial decision making under conditions of different opinions (PC – 5).

### The theory

Modeling using data flow diagrams involves building a model of the analyzed information system. This model can be represented as a hierarchical data flow diagrams that describe the conversion process incoming and outgoing information system. Data flow diagrams top-level define the main processes of an existing or planned system and have external inputs and outputs. For a detailed description of the processes occurring in the upper level charts are data flow diagrams of the lower level. Such detailing may continue until, until you reach this level of decomposition, on which further detail is impossible.

For a graphical description of the flow charts of data used: data sources; systems/processes; storage.

Data flow diagram consists of data sources, creating information flows, reporting to the processes that convert the received information and transmit it through new information flows data to other processes or the storage of data, which are consumers of information.

For effective use of data flow diagrams, for each business process included in its composition should be designed to the specification, in which details and definitely will describe all stages of receipt, conversion, and further transmission of information. The specification must be drafted in such a way that the developer can organize the enterprise the business process or develop as appropriate software solution.

The specifications of the business processes are created at the end of the process modeling data flow diagrams. When developing the specifications should consider the following criteria:

- each business process should be described by only one specification;
- must be specified the method of converting the incoming data into outgoing;
- specifications should be written simply and clearly.

### The equipment and materials

To perform laboratory work requires a personal computer with features that allows you to install the operating system WindowsXP, integrated package Microsoft office, BizagiProcessModeler.

### The safety instructions

Independently produce: installation and removal of software, repair of personal computer. To comply with the rules of technical safety when working with electrical equipment.

## The method of execution of work

Bizagi Process Modeler allows you to document a previously created business processes. Information which will be recorded in the documentation can be added to the business process and to any item included in the business process. For the most complete description of a business process, it is recommended as fully as possible and describe in detail all the important stages and elements of the business process. Once the schema of the business process will be well documented, you can publish in a user friendly format.

To add a description to the diagram of a business process, you should click the right mouse button on the chart area and in the drop-down list to select the menu item "Diagram properties". In the bottom of the window in the field "Diagram properties" you can add a description for the chart. Figure 9.1 presents the area "Diagram properties" window Bizagi Process Modeler.

To add information to a chart object, it is also necessary to highlight the desired item and press the right mouse button. In the drop down menu select "Properties" (figure 9.2). Further, in the bottom of the window, enter a description of the selected chart element (figure 9.3).

When properties you can use the following options: select text, change the font and text size, highlight color.

Once the schema of the business process will be described, it is possible to start the procedure of its publication.

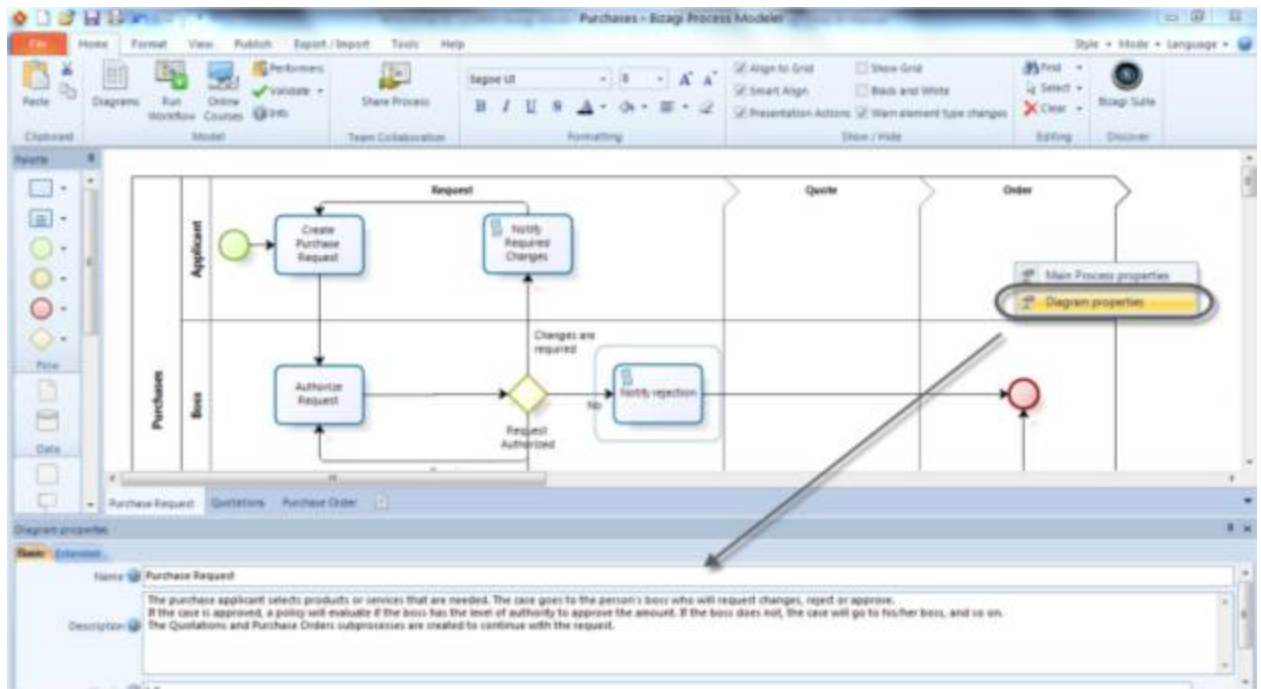


Figure 9.1 – Area "Diagram properties" window Bizagi Process Modeler

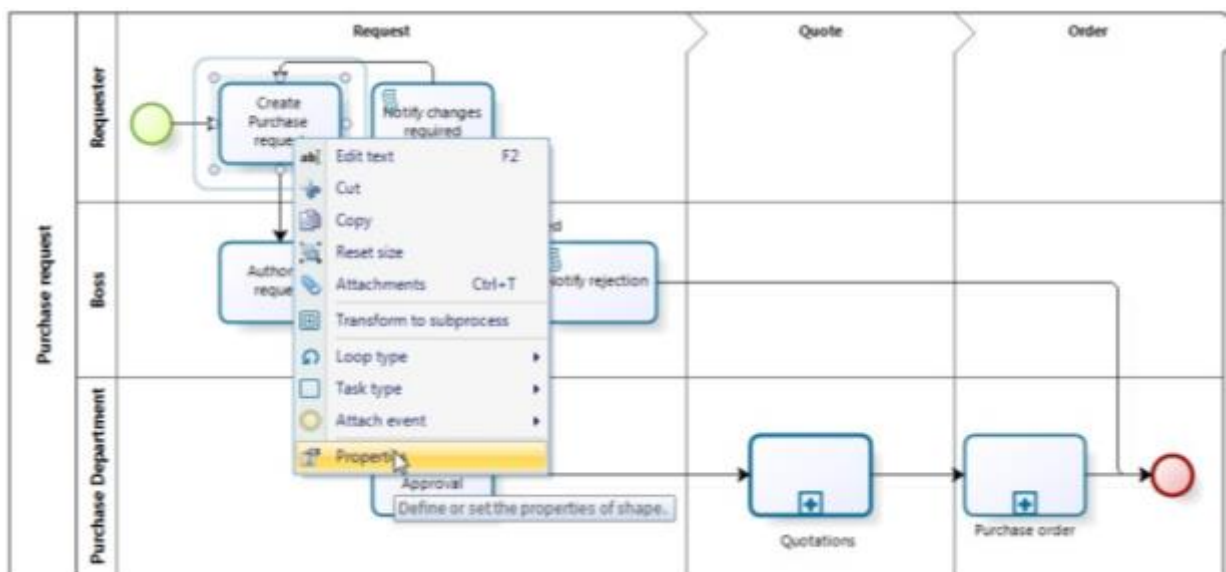


Figure 9.2 – Region "Properties" window Bizagi Process Modeler

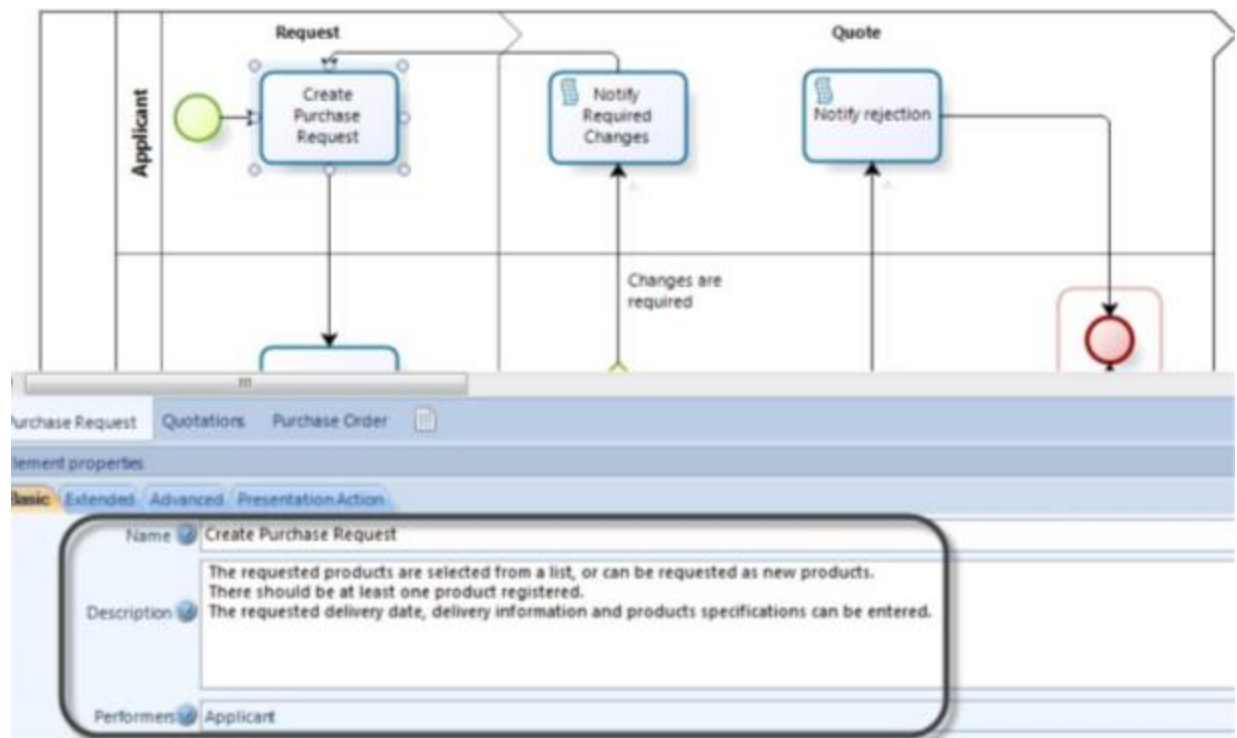


Figure 9.3 – Area "Element properties" window Bizagi Process Modeler

For reporting, the business process need:

- go to the tab "Publish" and select the desired option: word, pdf, web, etc.;
- choose, for example, a variant of the Word;
- opens a window "publish to Word";
- choose Diagramm1;
- click "next";
- select all available components.

## Tasks

Make reports on business processes, which were built in the previous lab.  
Publish it in word, pdf and web.



## The structure of the report

1. Prepare a report that fully describe the execution of tasks.
2. The lab report should contain:
  - a. The title of the work;
  - b. The purpose of the laboratory work;
  - c. The wording of the task and the technology of its implementation;
  - d. 2.4. Answers to test questions.

## Questions

1. What are the main components of the graphical language diagrams, data flows, you know?
2. Give the definition of data flow diagrams.
3. Give the definition of the logical model.
4. Give the definition of the model environment.
5. Give a definition of the behavior model.

## Literature

1. Shilpa Kochar, Marcello La Rosa Bizagi BMP suite assessment process lab, 2014-95 p
2. Bizagi - Business Process Management (BPM) – BPMS and Workflow.  
Bizagi.com. Retrieved 2 March 2014 - 23 June 2014, from <http://www.bizagi.com>
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4. Help.bizagi.com,.(2014). Bizagi BPM Suite User's Guide. Retrieved