

Introduction to
Business Process Management
Concepts, Languages & Architectures

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Slides And Videos - Download, Watch, Interact



Watch this lecture and download the slides from

<http://jarrar-courses.blogspot.com/2015/01/dataandbusinessprocessmodelling.html>

Some diagrams in this lecture are based on [1]

Keywords: subtype, subclass, subset, concept, instance, Rules, Business Rules, Business logic derivation rules, integrity constraints

Reading

[1] Every material in these slides.

[2] Chapters one and two of BPM book.

[3] The Fable chapter of Lucy's book.

Keywords: Data Engineering, Data Modeling, Conceptual Data Modeling, ORM, Object Role Modeling, Information Modeling, Schema engineering, Business Rules, integrity constraints, Derivation rules, Logic, verbalization of business rules, rules contradictions, rules implications, Business Process Engineering, Business Process Management, Business Process Modelling, Process Mapping, Process identification, process re-engineering, process re-engineering, Process Optimization, Process execution.

هندسة الـبيانات، مخطط بيانات المفاهيمية، النمذجة المفاهيمية للبيانات، هندسة العمليات، إعادة هندسة
العمليات الإدارية

What is a Process?

Enroll in a course

Is this a process?

How many sub processes in it?

How many people are involved?

How many departments are involved?

How the registration department monitor its lifecycle?

Which university regulations are related to student-course enrollment?

Where this process is defined and documented?

How the current execution of the process related to the university policy and strategic plans?

How to improve, optimize and speed up the enrollment?

What is a Process?

Processes exist **everywhere**, and they are part of our daily life

System operations and software processes: messaging, file sharing, remote procedure call, ... which can be also distributed.

Public services and organizational procedures: enroll in a course, apply for passport, issue birth certificate, renew driving license, apply for loan, insure car, consult doctor,

Social events: organize festival, camping,

Personal activities: plan a trip, apply for job, come to university, make coffee, ...

It is even more complex than we can imagine when **multi organizations'** processes **collaborate/communicate** with each others to achieve a certain goal(s).

Defining and identifying a process is a challenge!

Engagement to Processes

- Business processes are either **triggered or initiated** by person, system, events (student request to enroll in a course)
- Then a business process instance is **executed** which in we participate in of business processes (administrative department, student, advisor...)

How many people and department **involved** in the course enrollment process?

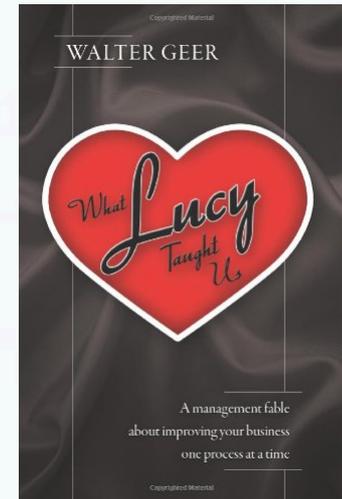
Potential roles: Student, Instructor, Advisor, Academic Department, Registration, Finance, Dean.

The Fable (What Lucy Taught Us)

- Link to Lucy's video:

<https://www.youtube.com/watch?v=8NPzLBSBzPI>

- Remind us to appreciate the work we do (weather at home or workplace)
- Underscores the importance of **well-designed** and **well-managed** processes in any organization
- Dysfunctional processes lead to dysfunctional employees



Role in Process

People who work on the process, are not aware about their role in it.



No Visibility to Stakeholders

No visibility to stakeholders about whether the things are going like they should be done or in a different way.

Difficult to improve since wrong visibility is seen by stakeholders, in fact it is going worst.



More challenges

- People who collaborate to work on business process are usually from **different backgrounds** (i.e., roles of course enrollment process).
- Processes **exist in our heads**: ask an employee how a particular task is performed and typically you will get his or her interpretation of the process.
- **Importance of documenting a process**, bring it up to stockholders and agree on how things are being done. Then, collaboratively define process improvements opportunities to evaluate “**how things should be done**”

How People See Business Processes

Consider how people see business processes e.g.,:

- Interests in **business administrations**
 - To **Improve operation**: satisfy customer, cheaper products and services, reduce costs, among others
- Interests of **computer science**
 - **Researchers**: to use **formal methods** to understand **structural** properties of processes, to better **abstract** real-world business processes.
 - **Software Engineers**: to **better communicate** understanding with domain experts, to provide **robust & scalable software systems**

Process vs Process Instance

Process, simply how things should be done.

Instance, a live execution of process workflow to achieve certain goal.

Thinking technically, objects are the basis of object oriented programming.

When you declare an object/class, then later create an instance of it (process instance)

Think about object declaring, then we have object instances.

Roles Involved in Process Management

- ✓ Process participants – domain experts
- ✓ Process owners – domain experts, management, business background
- ✓ BPM consultants – Process experts
- ✓ Software architects and developers – IT experts implementation

All these people from different backgrounds, they speak different languages

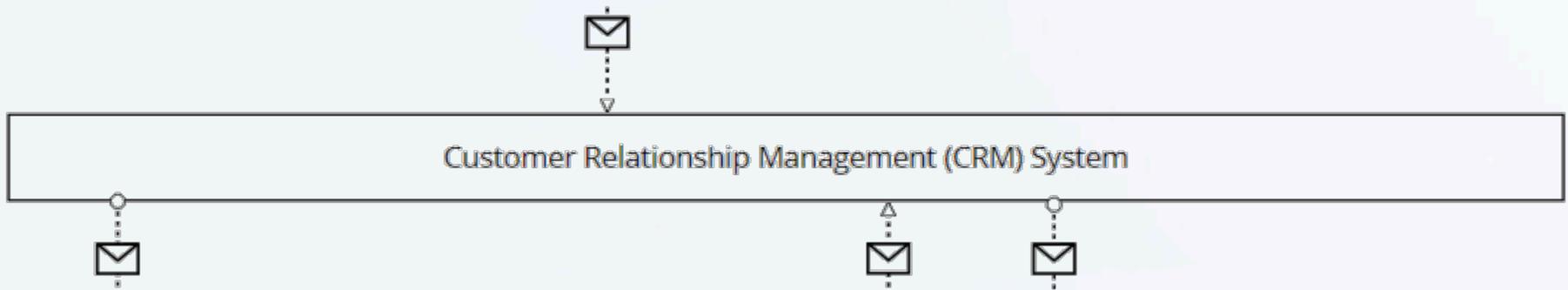
Example: each student should at least register two courses from his/her major specialization which can't withdraw later. However, some students don't know the problem.

Importance of Process Documentation

Developers **do mistakes** because of incorrect understanding of business requirements with the domain experts and product owners.

Consider if we are able to **document** the process using models.

Consider a CRM system, **how many messages** it exchange with various systems, and **how many processes** activated upon receiving or sending a message



Business Process Management Lifecycle

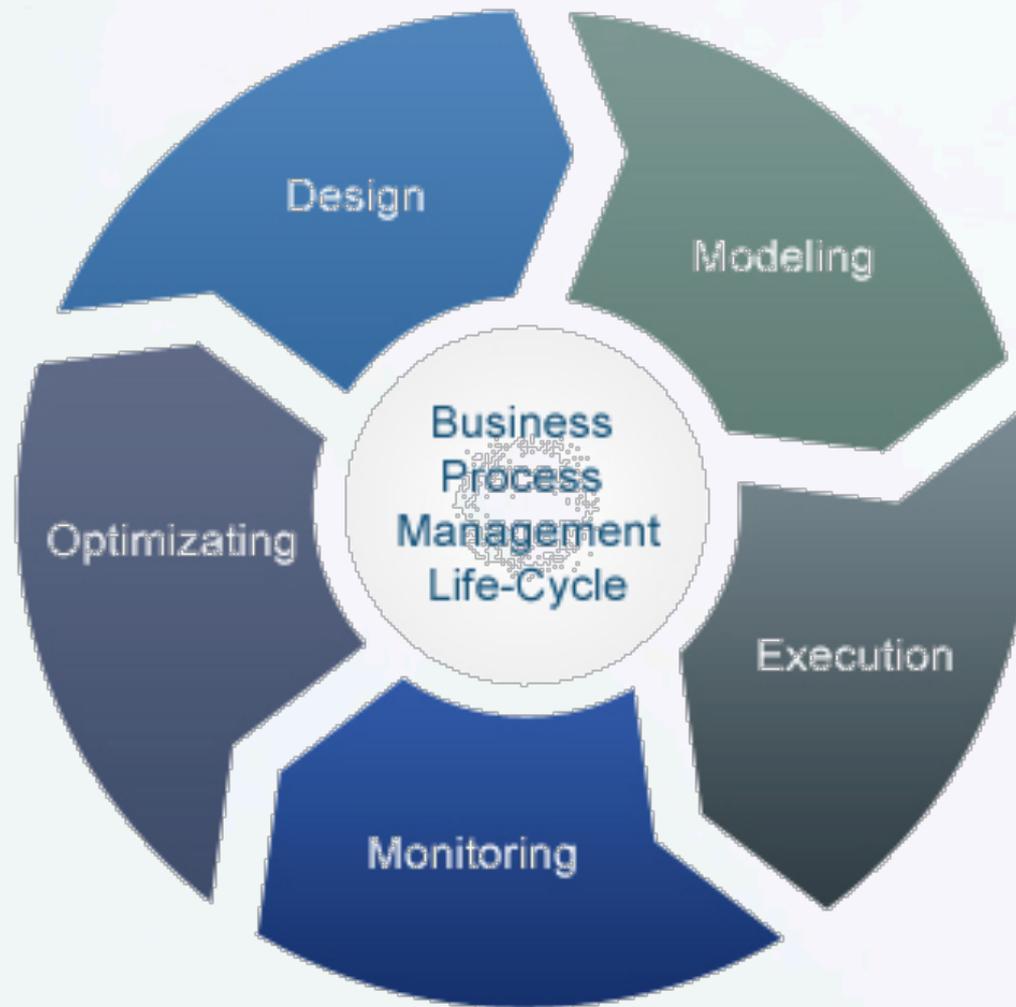


Image Source: <https://teaminformatics.files.wordpress.com/2013/03/bpm-diagram-1.jpg>

BPM Lifecycle

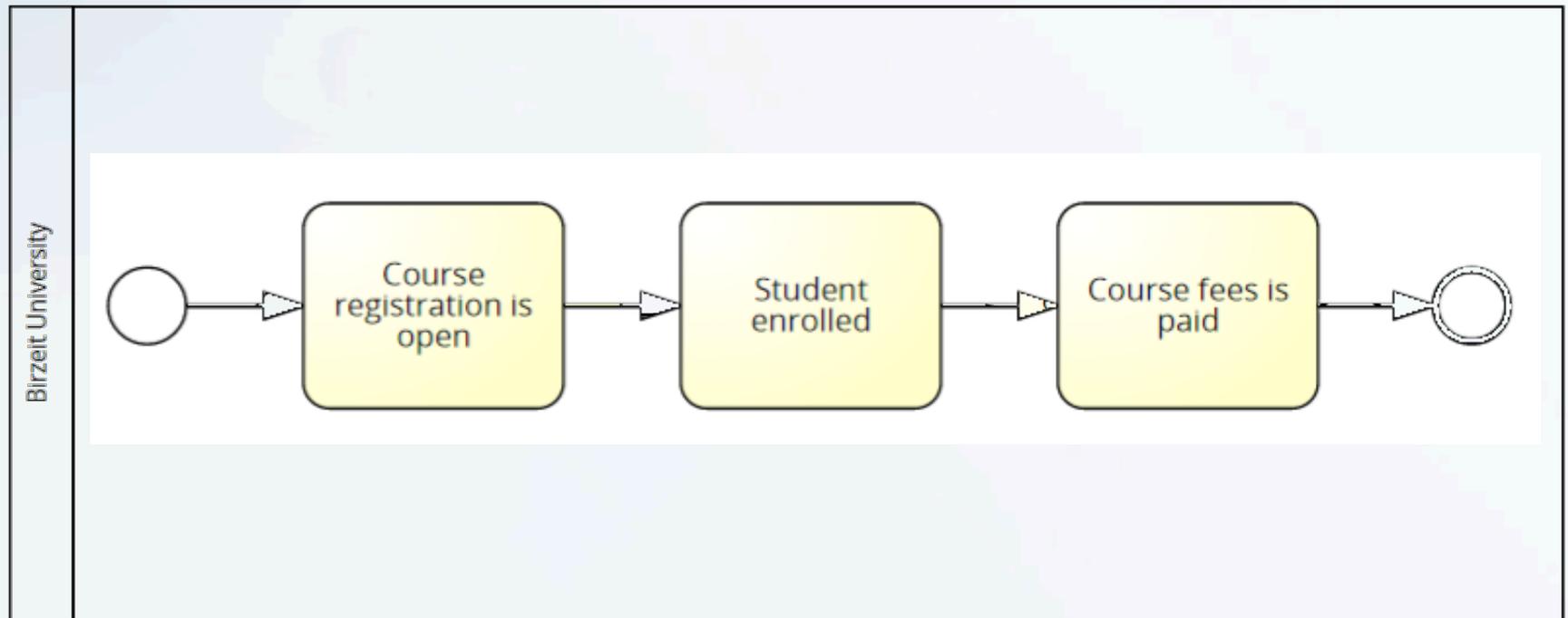
- **Process Modeling and Design:** What are the main business processes in an organization? how to describe them? (text, excel sheets, figures, ...)
- **Process Improvement/Optimization:** organizations like to be more effective! Involving domain experts, consultants and IT department to help improve
- **Process Automation/Execution:** implement the improved process in the IT architecture. Not always we automate all part of process.
- **Process Monitoring:** once it is implemented, it need to be monitored. To evaluate and apply metric measurements to see if the implemented process meet the requirements that have been defined for it.

Business Process Models

Business process models is the core of BPM.

- Documentation of processes.
- Improve processes and discuss them with professionals from different roles.
- Part of the process might be implemented in an IT system
- Decide what/how to monitor (activities, run time)

Brainstorming: Enroll in a Course Process



Few Words on BPMN Model Notation

- Helps to understand and share our understanding,
- Reason about the process for identifying opportunities of process improvements.

Business Process Modeling Tools



Signavio Process Editor
(BPM Academic Initiative)



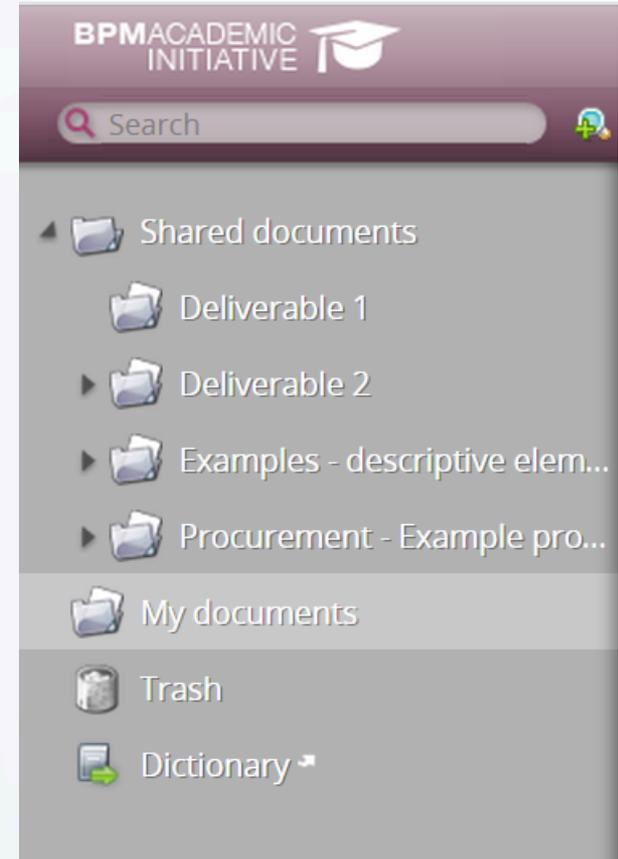
**Activiti Modeling
Eclipse Plugin**

→ **There more tools**

- The official process modeling tool in this course.
- Online and free for academic purposes,
login URL <http://academic.signavio.com/p/login>
- You will receive an invitation by Email to setup your access.
- BPMN 2.0 notation compliant.

Managing Documents in Signavio

There are shared documents and user private documents.



Signavio Shared Documents

Shared workspace that everyone have access to read/open diagrams.

BPM ACADEMIC INITIATIVE

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Search

New Edit Import / Export Reporting Share

Setup Help Refresh

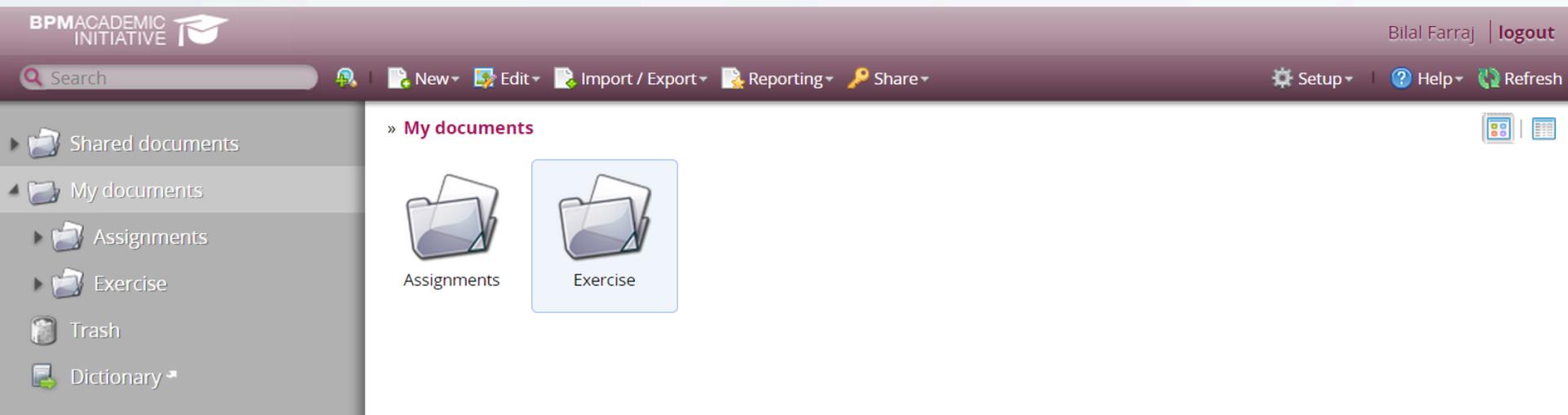
» **Shared documents**

- Shared documents
 - Deliverable 1
 - Deliverable 2
 - Examples - descriptive elements
 - Procurement - Example process...
- My documents
- Trash
- Dictionary

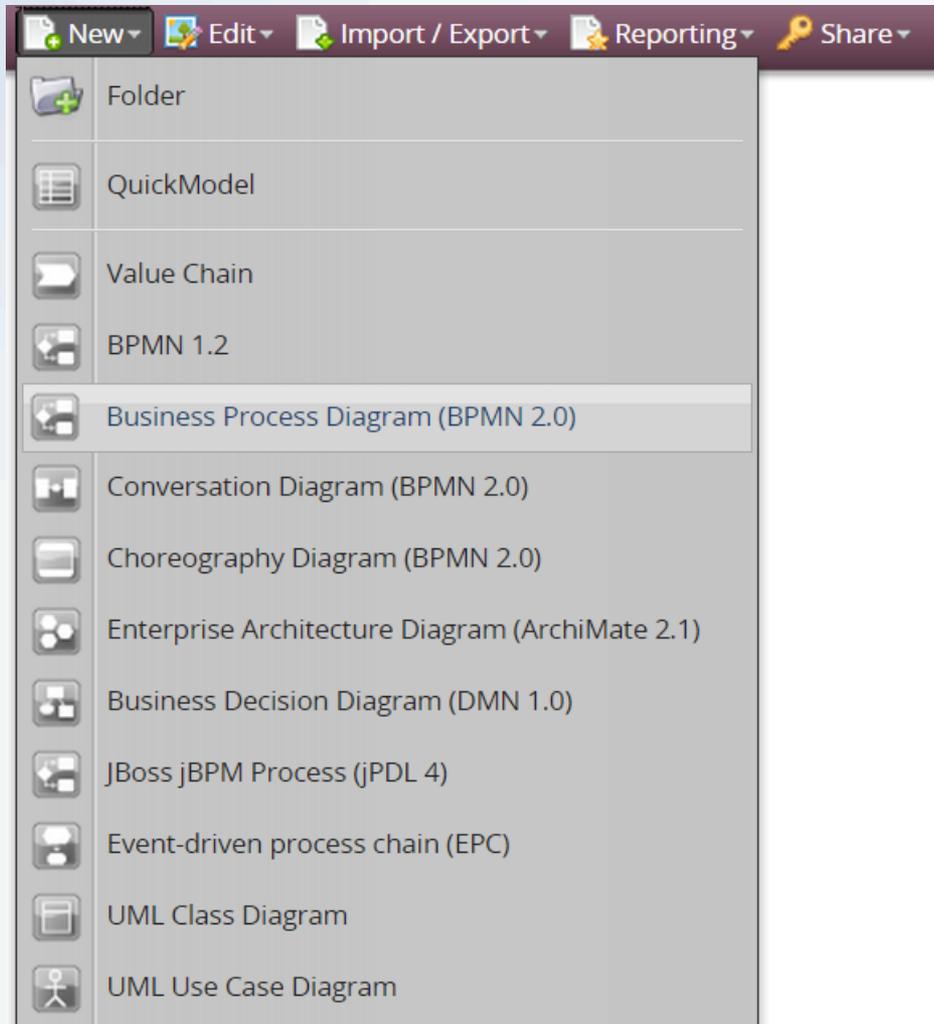
Deliverable 1 Deliverable 2 Examples - descriptive elements Procurement - Example process...

Signavio User Private Documents

Your personal work space where you place the diagrams that you don't want to share.



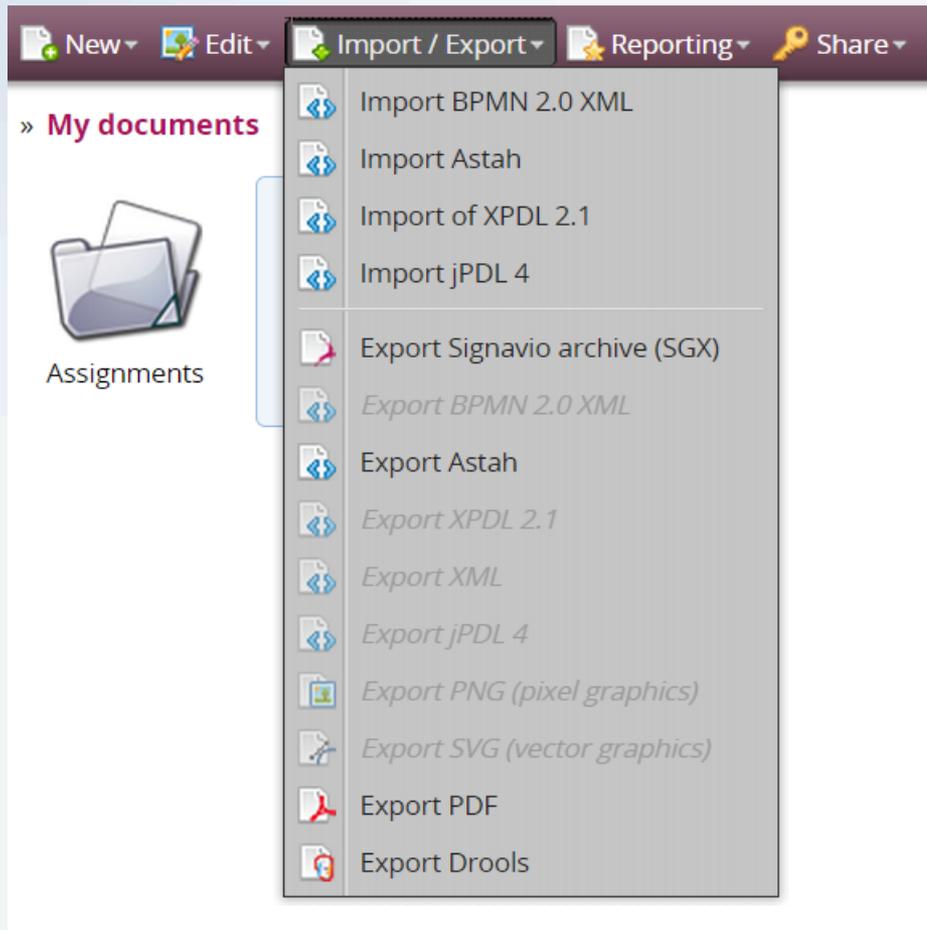
Create New Process Model



Go to menu bar and click on New.

Then click on Business Process Diagram (BPMN 2.0)

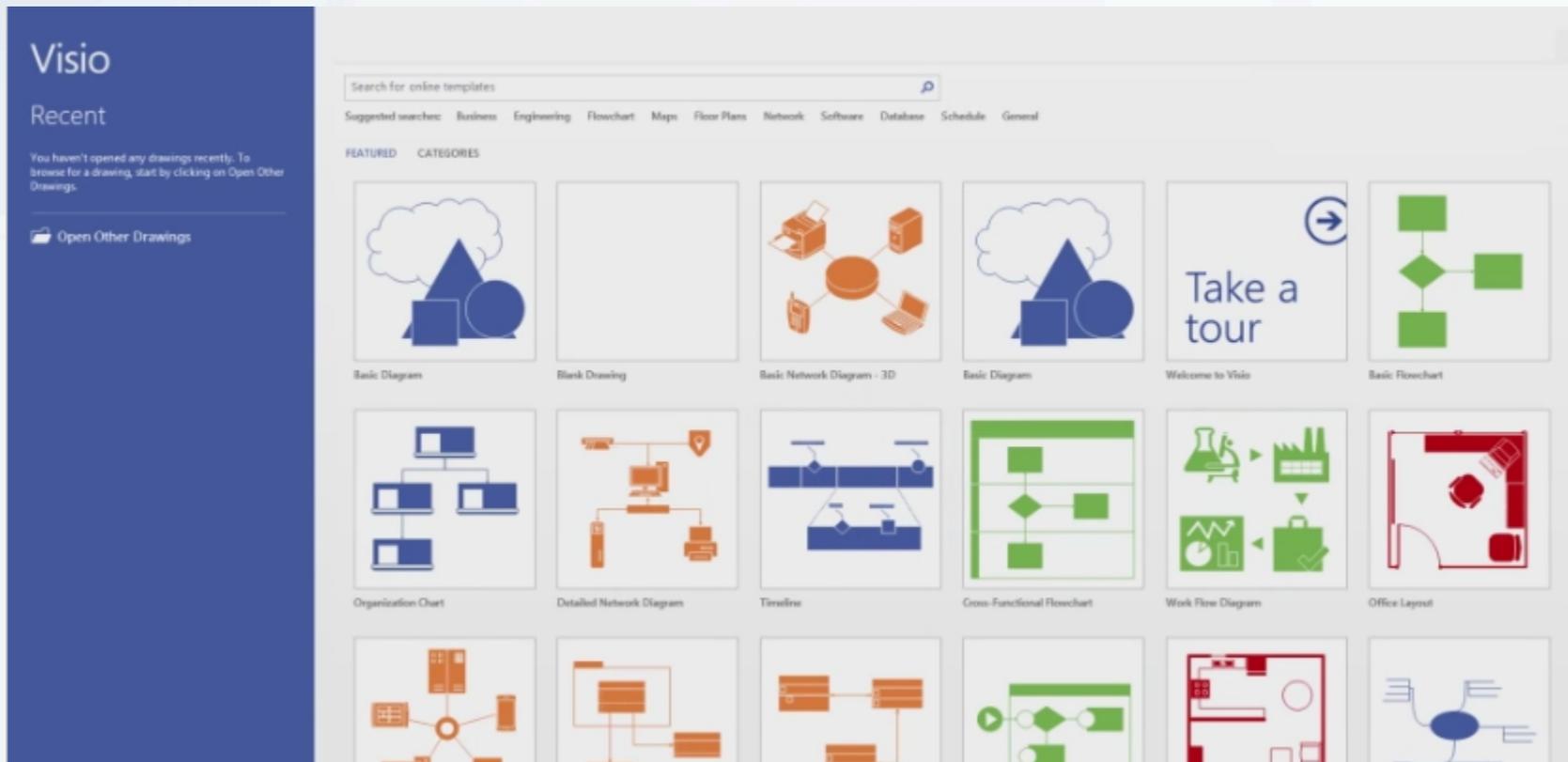
Import/Export



Other large set of functionalities including the Import/Export diagrams.

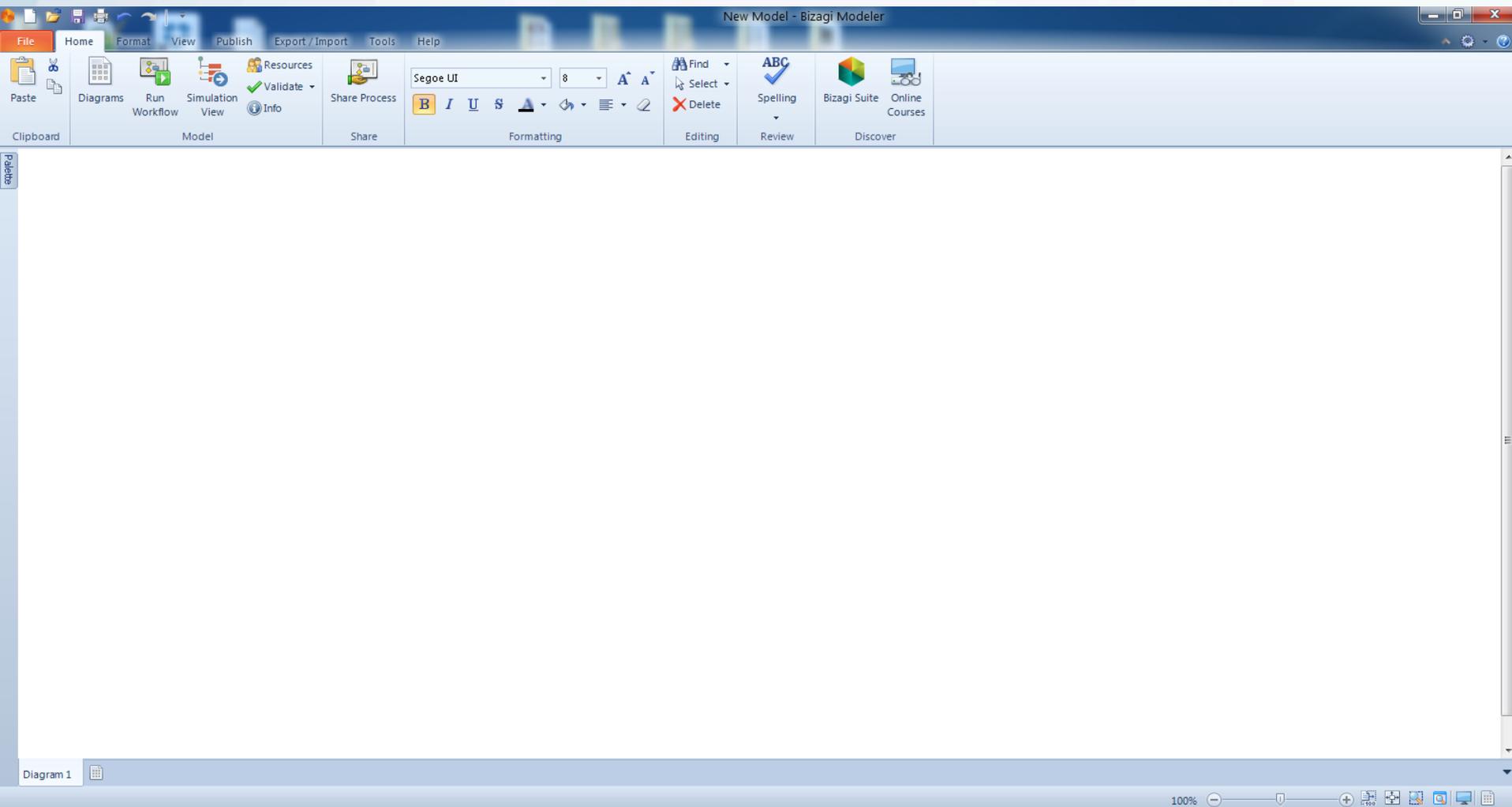
Other Tools – Microsoft Visio

Very powerful tool, the enterprises in industry uses this tool frequently. But it lacks some modeling constructs of BPMN 2.0



Other Tools - Bizagi

Good modeling tool, however, it lacks many BPMN 2.0 constructs.



Business Process Management Outline

- Introduction to Business Process Management
- Business Process Modeling and Notation
- Advanced Business Process Modeling and Notation
- Practice Use Cases
- Interview and ask questions
- Process improvement and re-engineering
- Process Execution and Programming
- Practical session 1 on process automation
- Practical session 2 on process automation