

# BUSINESS PROCESS MANAGEMENT

## INTRODUCTION

# AGENDA



- Business Process Management in a Nutshell
- Tasks of Business Process Management
- The Business Process Lifecycle and its Replication through the BPM and BS Lectures
- Organization

# BUSINESS PROCESS MANAGEMENT



## SOME INAUGURAL DEFINITIONS

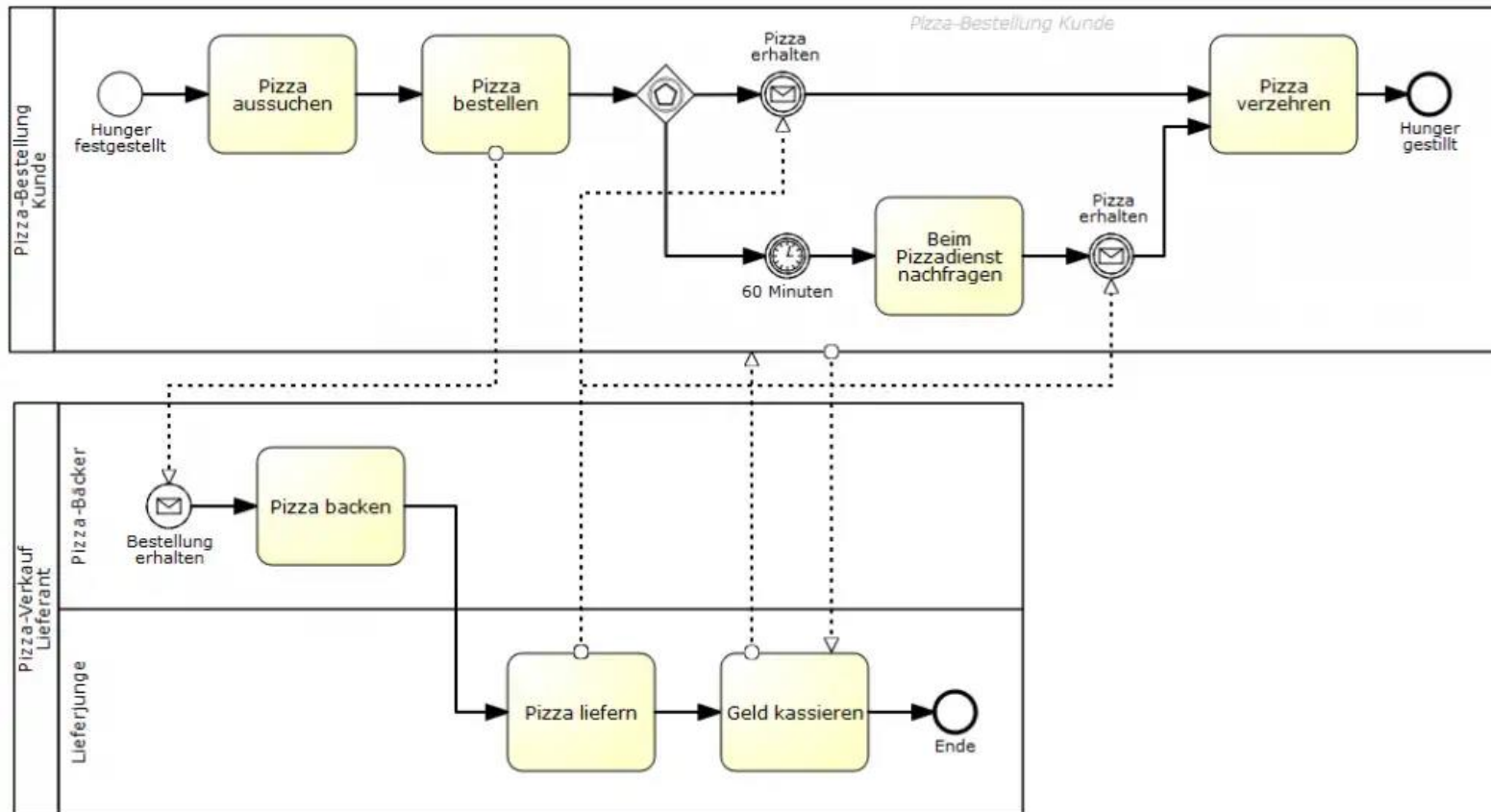
- “A **business process** consists of a set of activities that are performed in coordination in an organizational and technical environment. These activities jointly realize a business goal.”  
[Weske 2007, p. 5]
- Some examples
  - Credit application and approval (bank)
  - Claim settlement (insurance)
  - Building a car (automotive industry)

[Weske 2007, p. 5]

# BUSINESS PROCESS MANAGEMENT

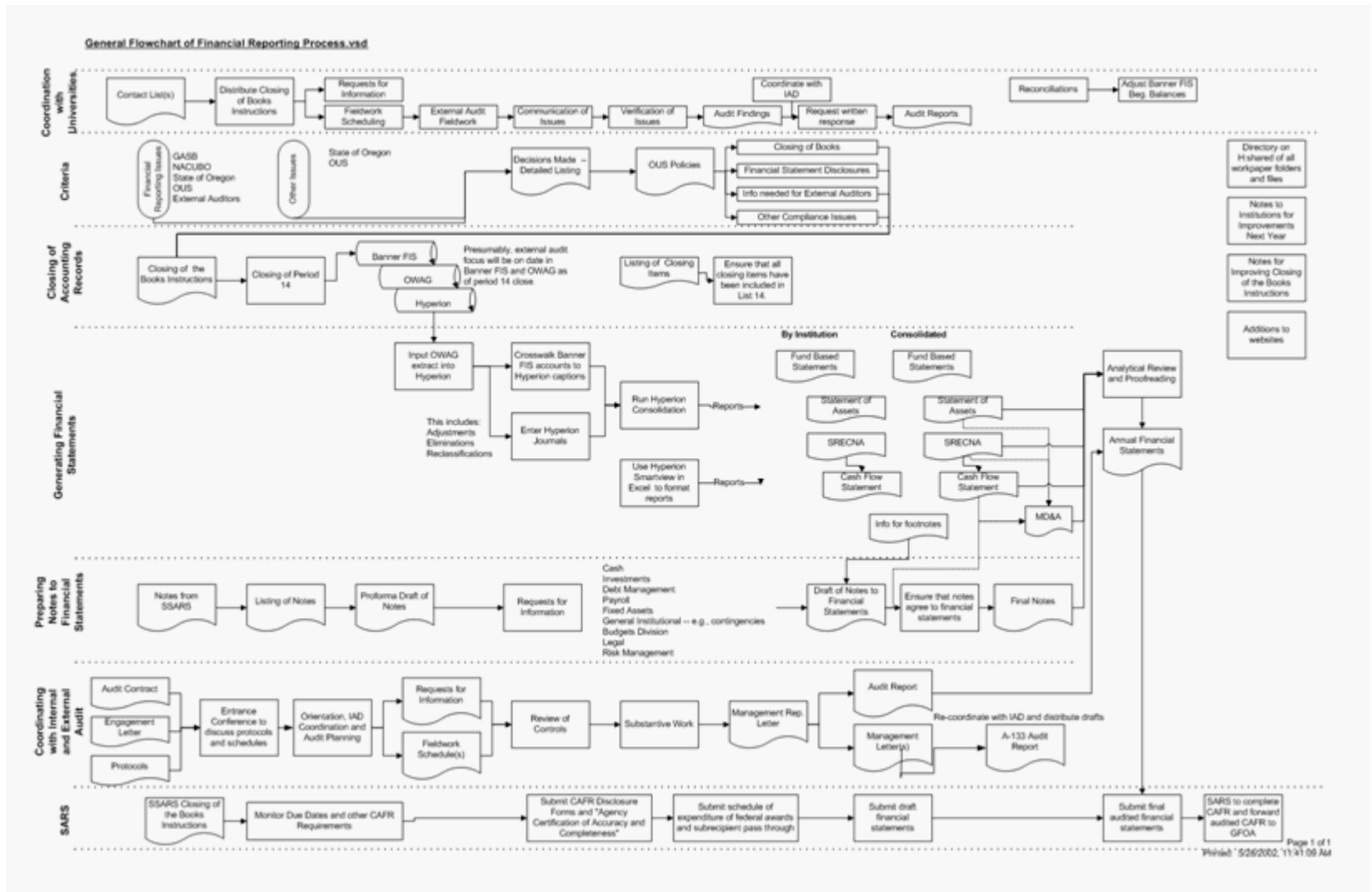


## SOME INAUGURAL DEFINITIONS



- Business Processes consist of
  - **Tasks** (what is done in which order?)
  - **People** (who does it?)
  - **Information** (what information is needed?)
  - **IT** (which IT systems can support process execution?)
  - **Products / services** (what is the outcome?)
  
- Business Processes are related to
  - **Business partners**
  - **Customers**

# COMPLEXITY OF BUSINESS PROCESSES?



# HOW CAN WE HANDLE COMPLEXITY AND DEMAND FOR CHANGE?



- Demand for increase of quality, efficiency, customer satisfaction, revenue, compliance...
- ... implies continuously **improving** business processes
- Business processes of medium to large companies typically consist of **thousands to tens of thousands** of interrelated tasks
- **Need for Business Process Management**

# BUSINESS PROCESS MANAGEMENT



## SOME INAUGURAL DEFINITIONS

- “Business process management includes concepts, methods, and techniques to support the design, administration, configuration, enactment, and analysis of business processes.”

[Weske 2007, p. 5]

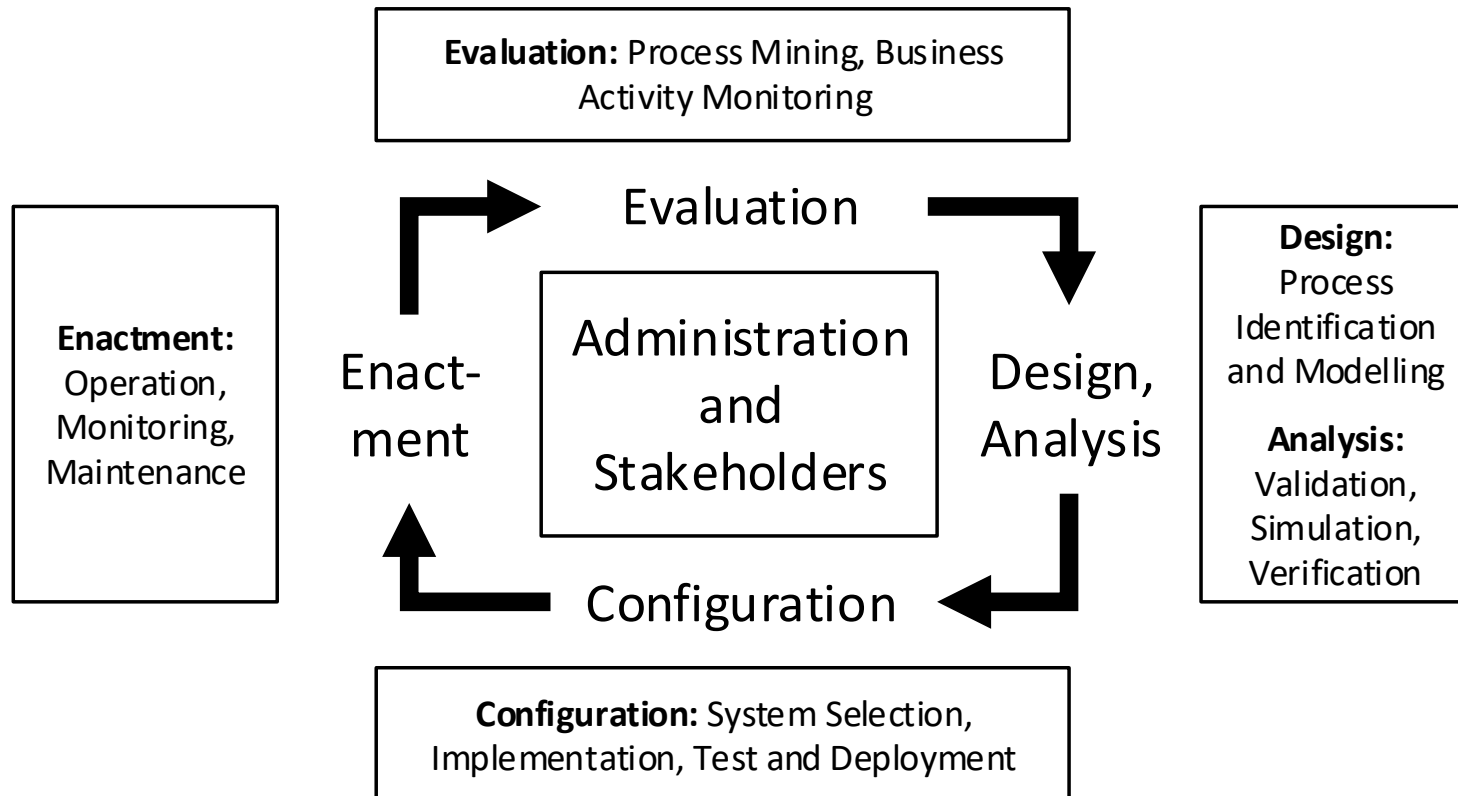


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# TASKS IN BUSINESS PROCESS MANAGEMENT



# TASKS OF BUSINESS PROCESS MANAGEMENT



- “Business process management includes concepts, methods, and techniques to support the **design**, administration, configuration, enactment, and analysis of business processes.”
  - How should a business process look like to support the business goal of a company best?
  - How should the individual tasks of a business process be arranged logically and chronologically?
  - Which people should execute which part of the business process?
  - What information/data is needed to execute the business process?
  - How should IT support the business process?
  - How can we represent a business process?

# TASKS OF BUSINESS PROCESS MANAGEMENT



- “Business process management includes concepts, methods, and techniques to support the design, **administration**, configuration, enactment, and analysis of business processes.”
  - How do we support Business Process Management with BPM tools?
  - How do we organize Business Process Management?

# TASKS OF BUSINESS PROCESS MANAGEMENT



- “Business process management includes concepts, methods, and techniques to support the design, administration, **configuration**, enactment, and analysis of business processes.”
  - How can business processes be implemented organizationally?
  - How can business processes be implemented technically?
  - How do we align business software to the business processes (“customizing”)?

# TASKS OF BUSINESS PROCESS MANAGEMENT



- “Business process management includes concepts, methods, and techniques to support the design, administration, configuration, **enactment**, and analysis of business processes.”
  - How are business processes executed through business software?
  - How can process instances be routed correctly?
  - How can we trace the current state of a process instance?
  - How can we use data a business process execution produces?

# TASKS OF BUSINESS PROCESS MANAGEMENT



- “Business process management includes concepts, methods, and techniques to support the design, administration, configuration, enactment, and **analysis** of business processes.”
  - How can we make business processes better? → analysis
  - How can we analyze business processes...
    - ... based on a business process representation?
    - ... based on data a running business process has produced?

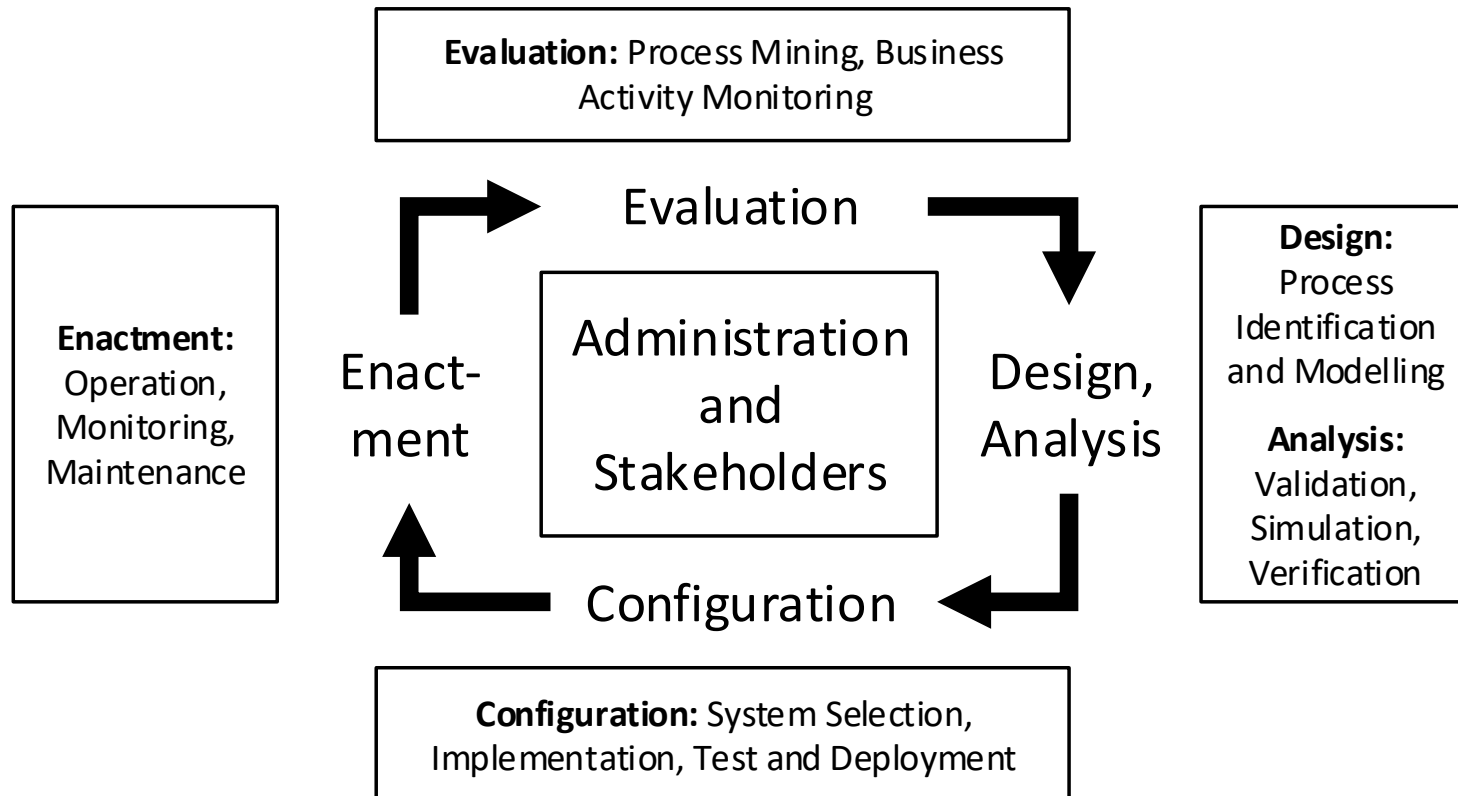
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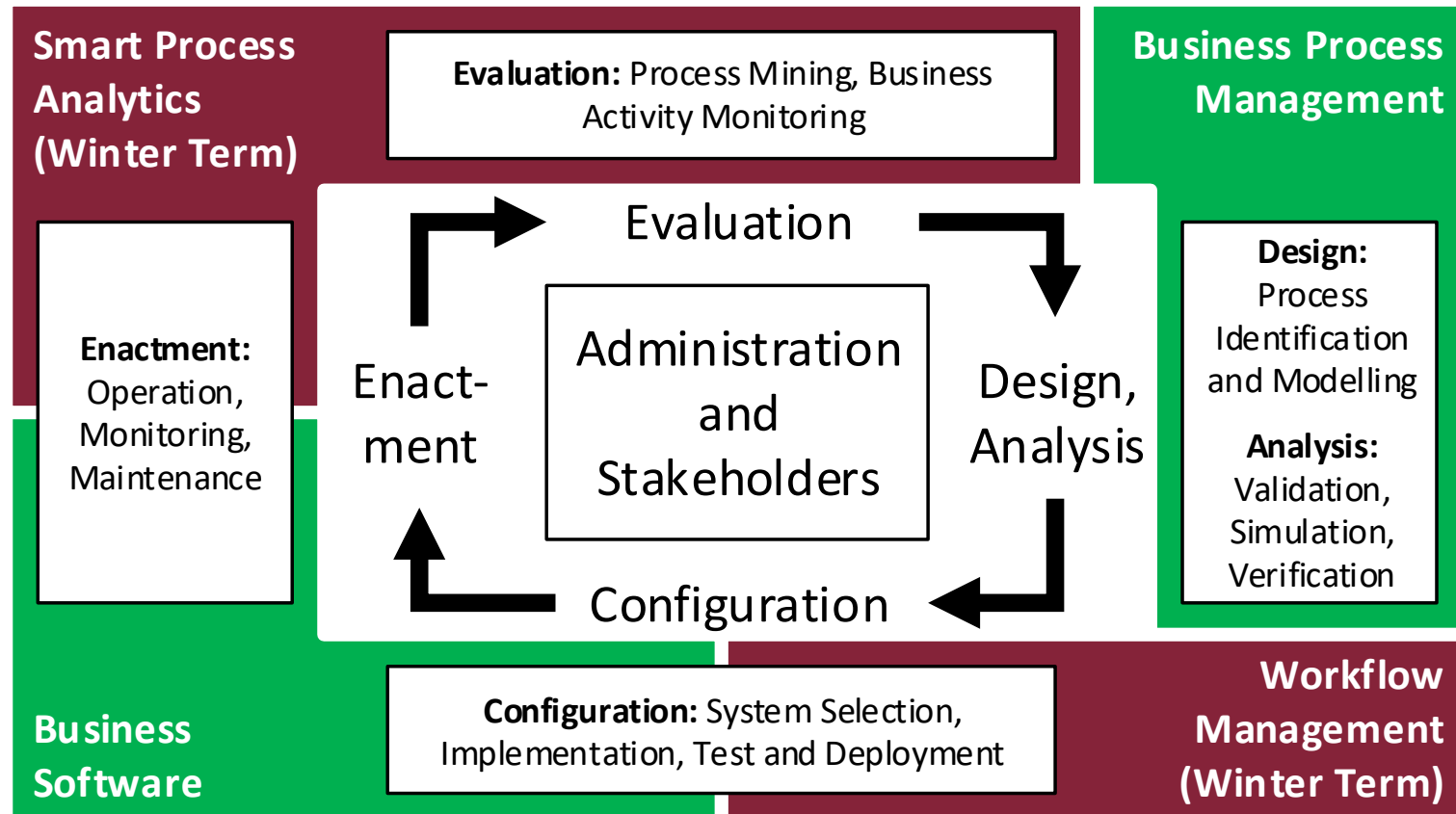


# THE BUSINESS PROCESS MANAGEMENT LIFECYCLE



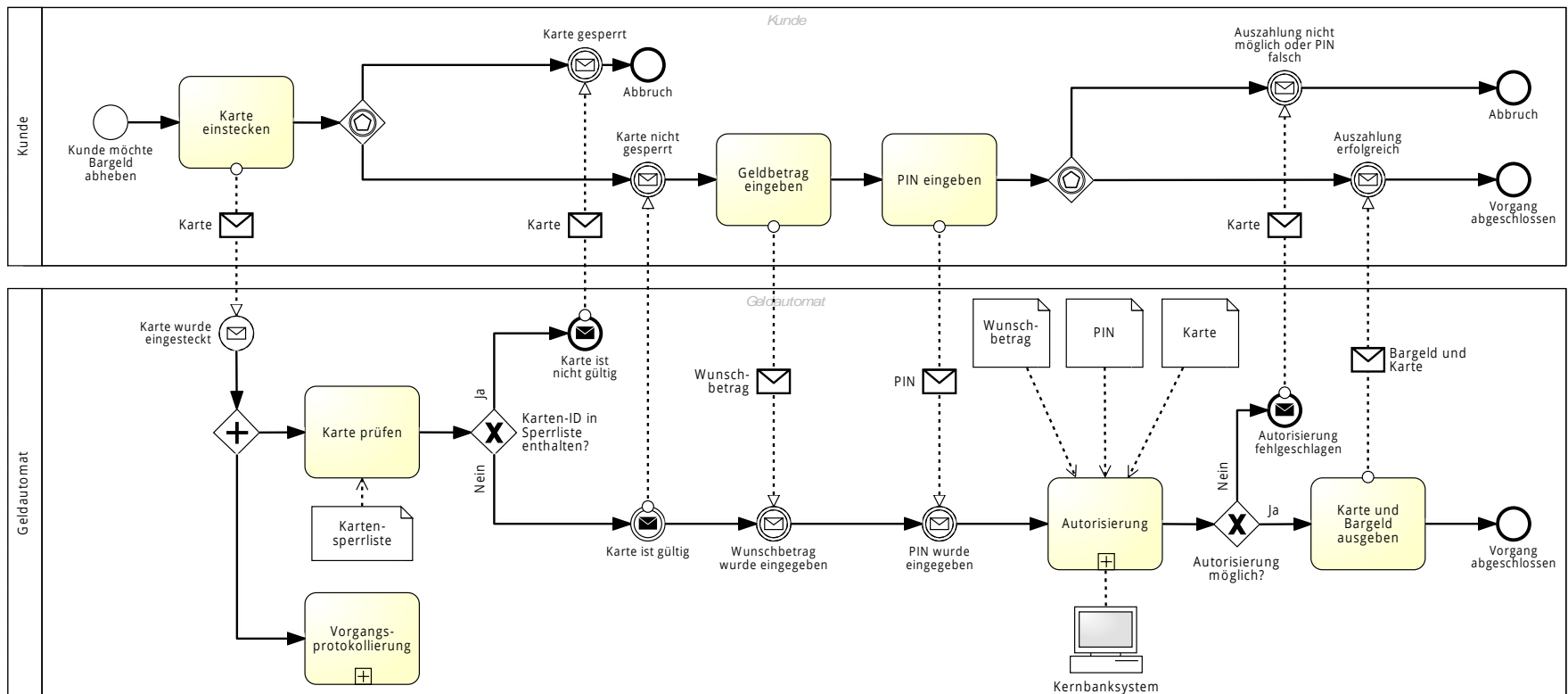
# THE BUSINESS PROCESS MANAGEMENT LIFECYCLE

... AND THE CORRESPONDING COURSES AT IWVI



# PROCESS MODELS (AND OTHER KINDS OF MODELS!)

- ... are a central means of BPM
- ... depict business processes in a formal, diagrammed way

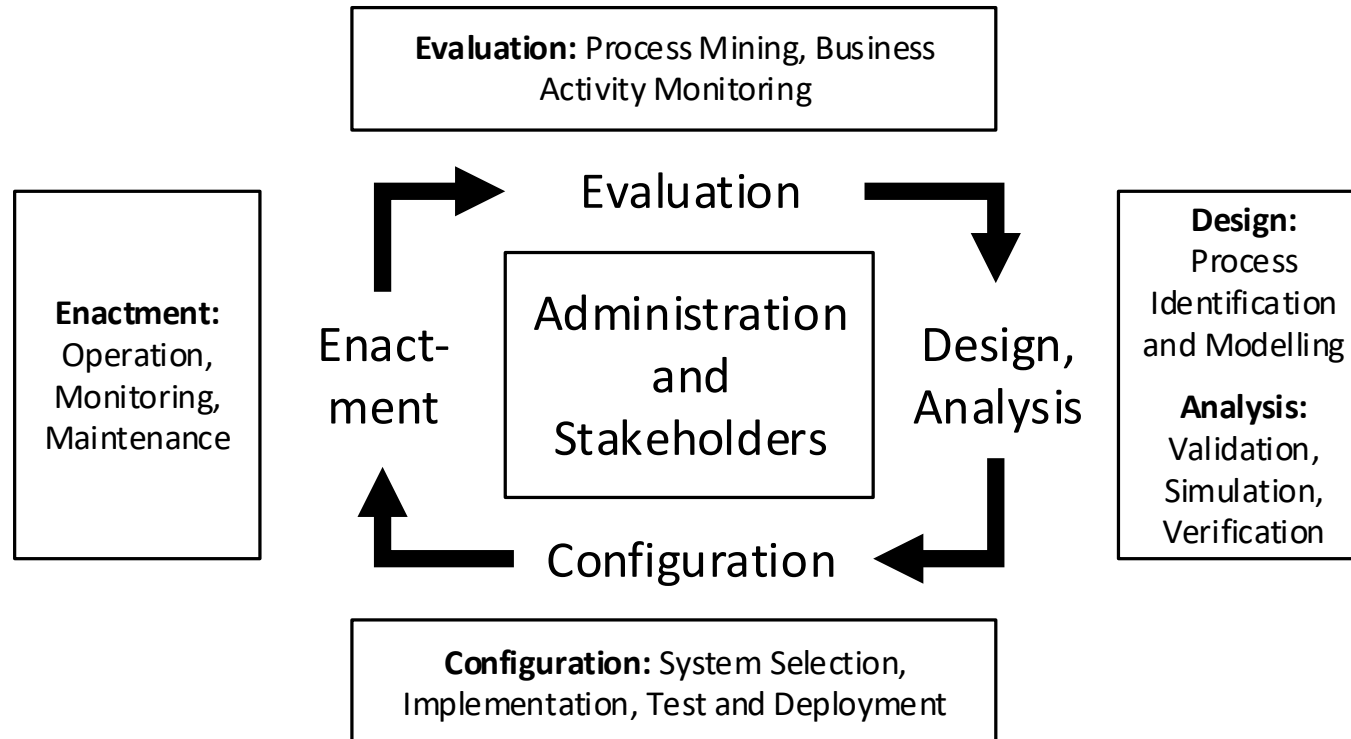


# (PROCESS) MODELS



- ... will be the object of investigation throughout this course
- We will carve out how we can
  - **manage** (process) models with BPM **tools**
  - **formalize** (process) models and (process) modeling languages
  - create (process) models that are **unambiguous** and thus **understandable** for both **stakeholders** and **automatisms**
  - **analyze** (process) models to identify **improvement** potential of business processes
  - **verify** (process) models to determine whether they contain **shortcomings** or even **inconsistencies**

# (PROCESS) MODELS IN THE BPM LIFECYCLE

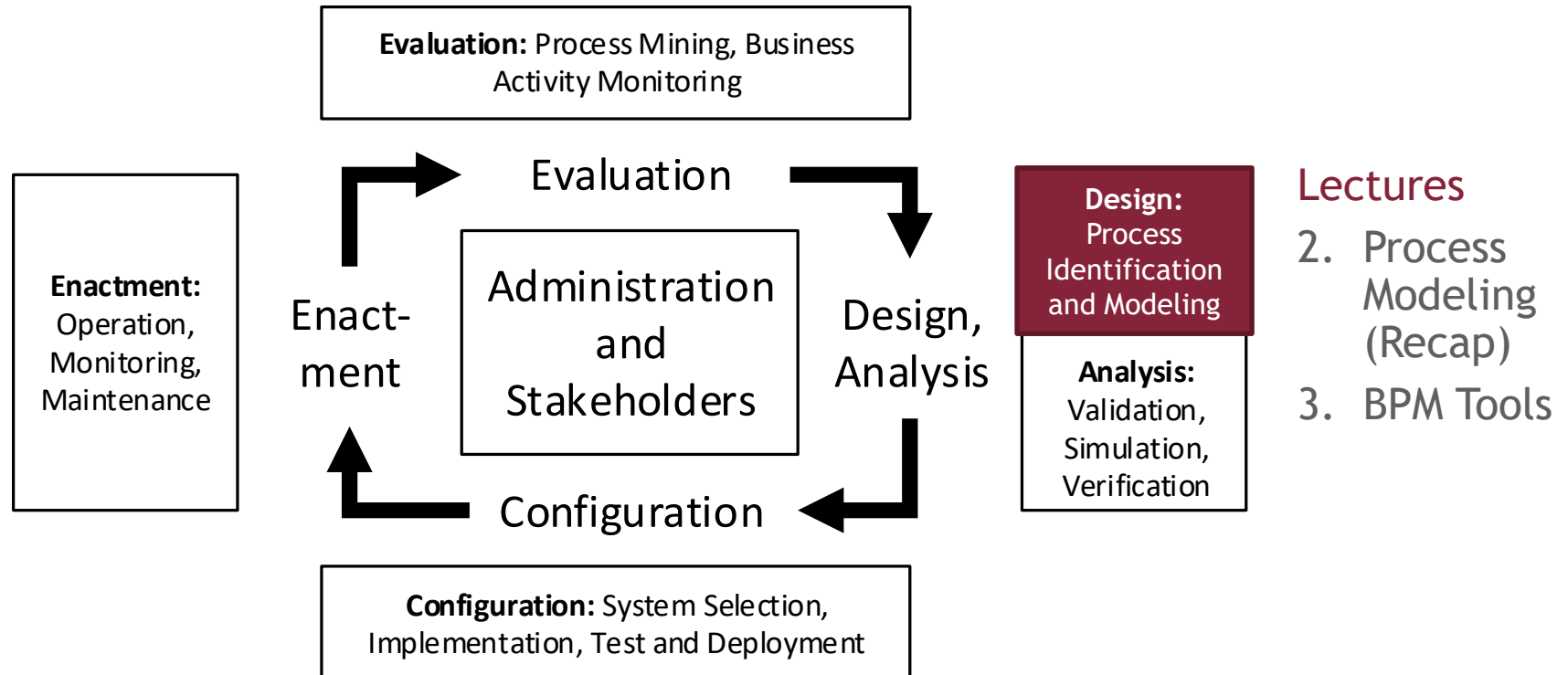


## Lecture

### 1. Basic Terms and Methodologies

## ■ Tasks in Process Model-based BPM projects

# (PROCESS) MODELS IN THE BPM LIFECYCLE

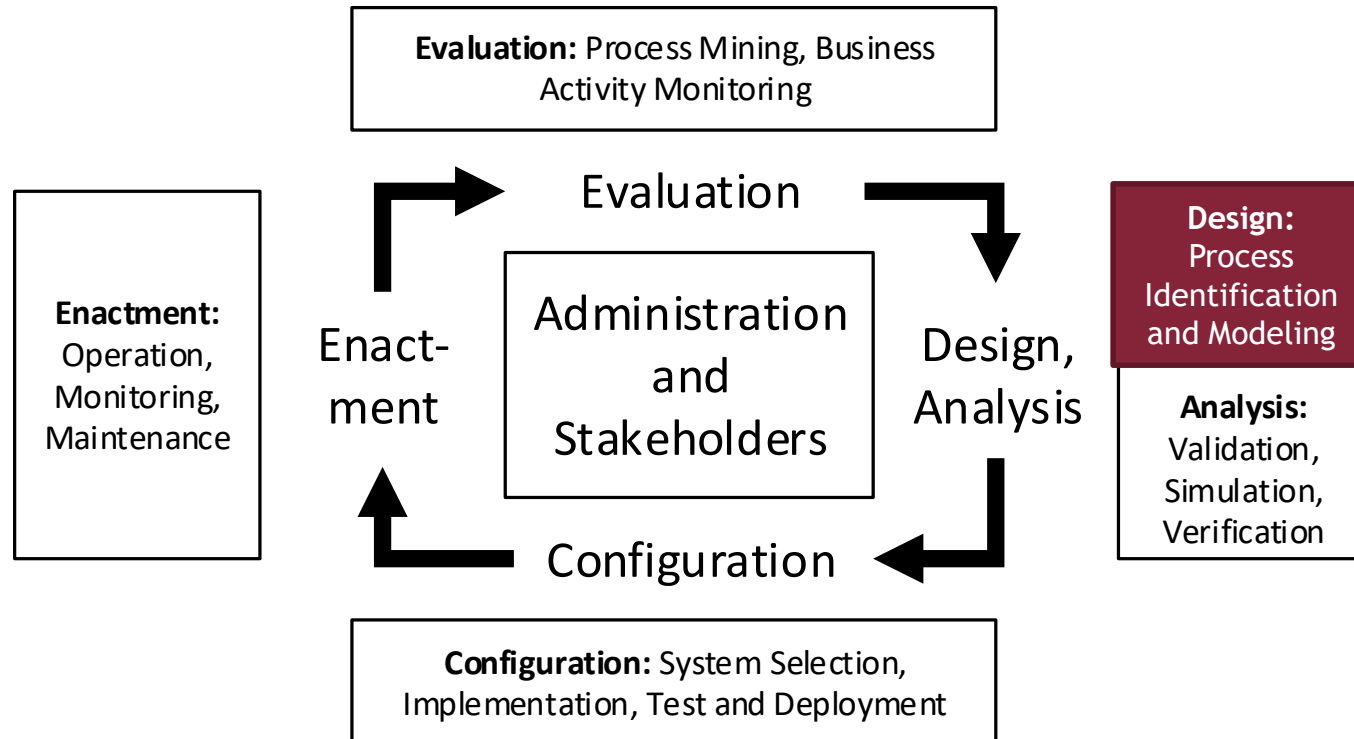


## Lectures

2. Process Modeling (Recap)
3. BPM Tools

- Identify processes and create corresponding process models using BPM Tools

# (PROCESS) MODELS IN THE BPM LIFECYCLE

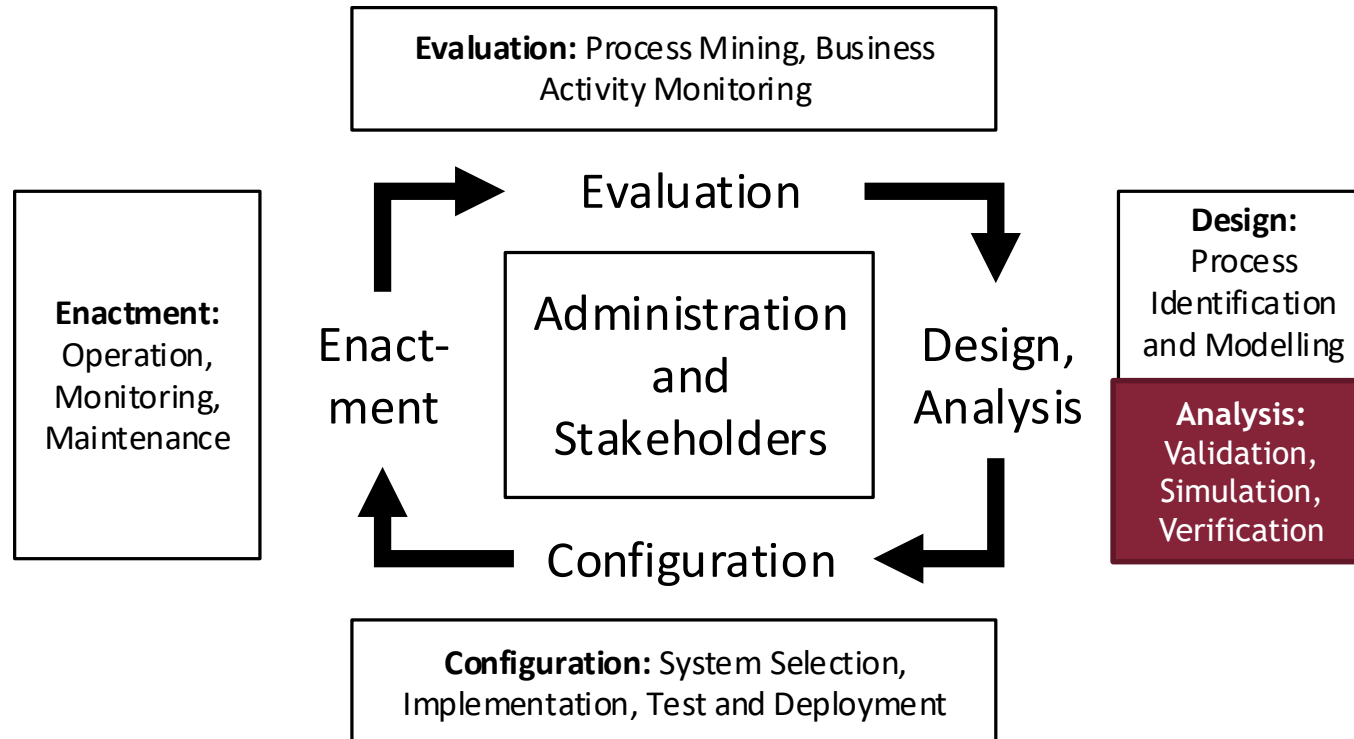


## Lectures

### 4. Formalization of process models

- **Formalize process models** so that we can process them automatically (which is a precondition to use them in practice at all!)

# (PROCESS) MODELS IN THE BPM LIFECYCLE



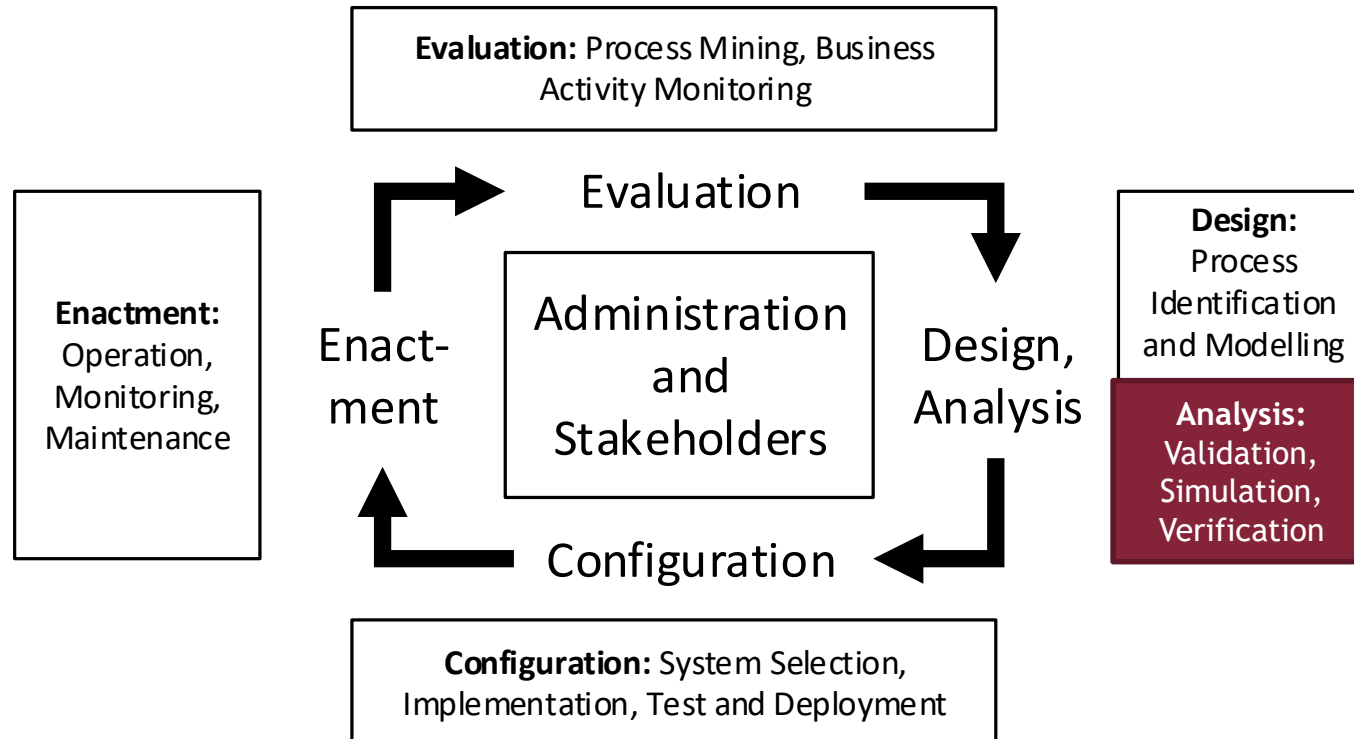
## Lecture

### 5. Unambiguous process models

- Create terminologically unambiguous process models



# (PROCESS) MODELS IN THE BPM LIFECYCLE

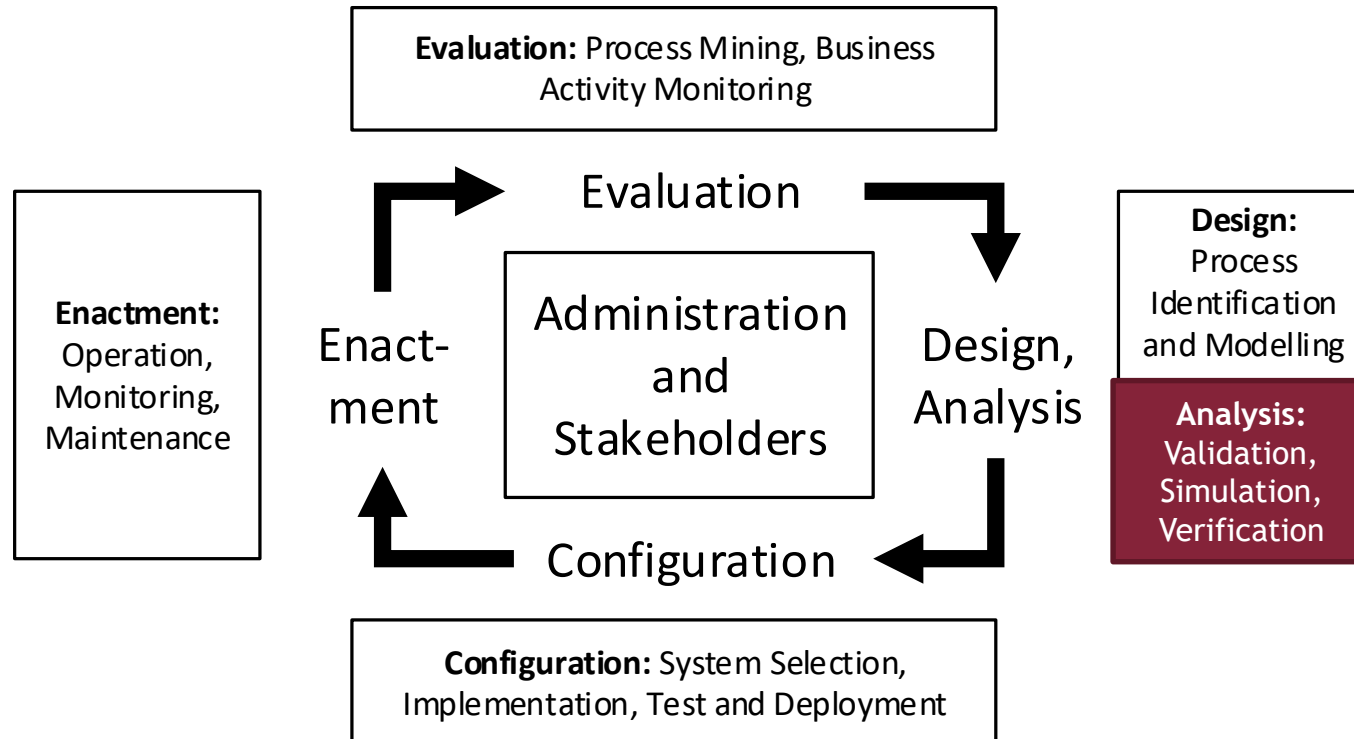


## Lectures

- 6. Model query I: CTL
- 7. Model query II: GMQL
- 8. Model query III: DMQL

- **Analyze process models** to find weaknesses and improvement potential (inefficiencies, law violations, etc.)
- Methodology: **query**; Input: **patterns** (business rules)

# (PROCESS) MODELS IN THE BPM LIFECYCLE

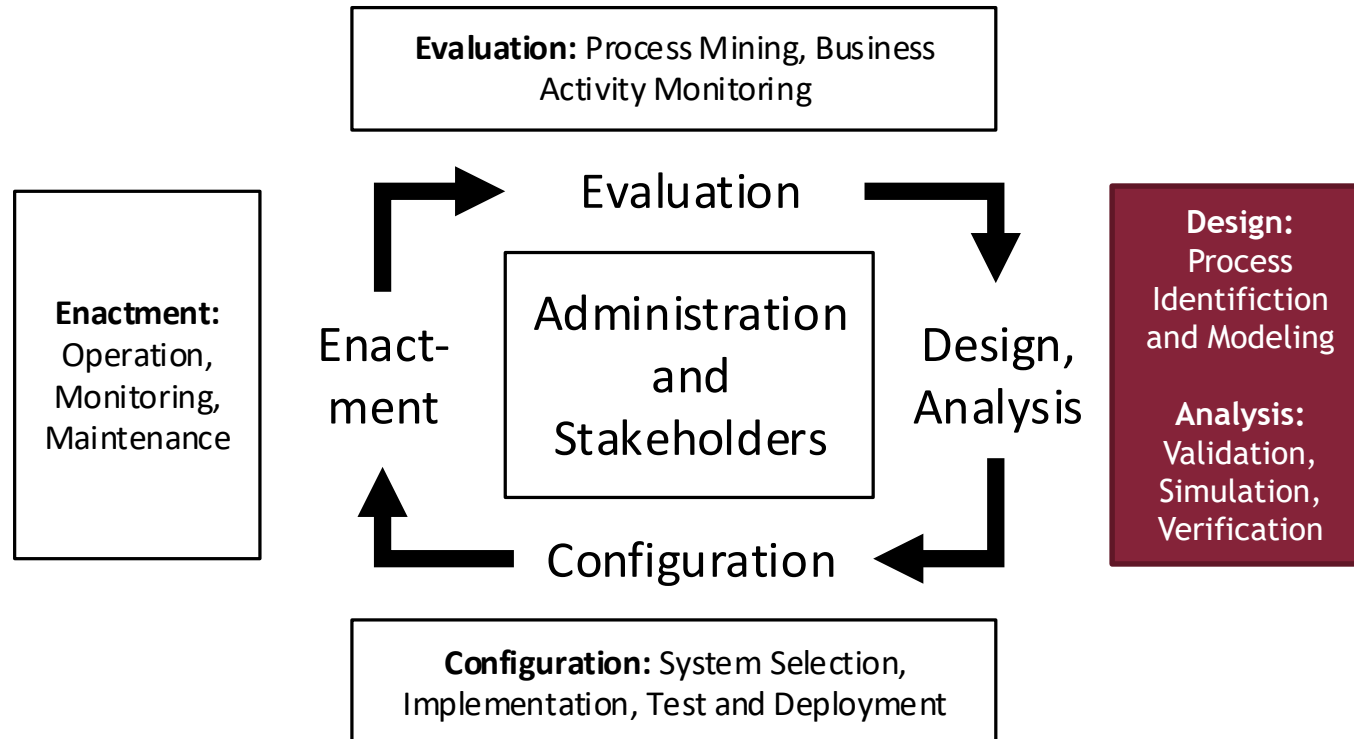


## Lectures

- 9. Business Rules Formalisms
- 10. Business Rules Management

- Manage inputs for model query languages:  
patterns = business rules

# (PROCESS) MODELS IN THE BPM LIFECYCLE



## Lecture 11. Model Merge

- **Fuse** two or more process models automatically, e.g., in mergers & acquisitions projects

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# THE BPM COURSE



- Components
  - Lecture & Exercise (6 ECTS)
- Due to the current situation, the **lecture** will be entirely conducted "online"
  - This includes a series of lecture videos
  - We will use the course platform OLAT and upload the lecture videos according to the timetable (more on this later)

- Olat registration: You should have received an invitation Link via E-Mail. Otherwise, please contact us!

# EXERCISE



- The lecture is accompanied by an exercise, also entirely “online”
- For each lecture, you will get an exercise sheet. These exercise sheets contain questions, which are a very good preparation for the exam.
- You will be able to form working groups and hand in exercise sheets.
  - Over the course of the semester, you can obtain up to 10 bonus points for the exam.
- All details on the exercise, the exercise sheets and handing in the exercises will be presented in a separate video, which will be released shortly on OLAT.

# LECTURE SCHEDULE (PRELIMINARY)



Date	Mode	Topic
Tu, 13.04.21	Joint Lecture	Introduction to BPM
Tu, 20.04.21	Joint Lecture	Basic Terms and Methodology
Tu, 27.04.21	Joint Lecture	Business Process Modeling & Tools
Th, 29.04.21	CANCELLED	No lecture yet
We, 05.05.21	CANCELLED	No exercise yet
Th, 06.05.21	Lecture	Formal Basics of BPM
We, 12.05.21	Exercise	Business Process Modeling & Tools
Th, 13.05.21	CANCELLED	Ascension day
We, 19.05.21	Exercise	Formal Basics of BPM
Th, 20.05.21	Lecture	Unambiguous Process Modeling
We, 26.05.21	CANCELLED	Pentecost
Th, 27.05.21	CANCELLED	Pentecost
We, 02.06.21	Lecture	Business Process Query: CTL
Th, 03.06.21	CANCELLED	Corpus Christi
We, 09.06.21	Exercise	Unambiguous Process Modeling
Th, 10.06.21	Lecture	Business Process Query: GMQL
We, 16.06.21	Exercise	Business Process Query: CTL
Th, 17.06.21	Lecture	Business Process Query: DMQL
We, 23.06.21	Exercise	Business Process Query: GMQL
Th, 24.06.21	Lecture	Business Rules I
We, 30.06.21	Exercise	Business Process Query: DMQL
Th, 01.07.21	Lecture	Business Rules II
We, 07.07.21	Exercise	Business Rules I
Th, 08.07.21	Lecture	Recap
We, 14.07.21	Exercise	Business Rules II

Joint Lecture Videos  
(with *Business Software*)

Lecture Videos

Exercise Videos

Exam dates are organized centrally by the university's administration and are not yet available. We will inform you as soon as we know them.



# PRECONDITIONS TO TAKE PART IN BPM



- We expect the following previous knowledge from all participants of BPM. During the course, we will frequently refer to that knowledge **without introducing it again**:
- process modeling
- graphs
- set theory and set writing
- logic operations

# QUESTIONS?



- Lecture: Prof. Dr. Patrick Delfmann
- Phone: +49 261 287 2516
- E-Mail: [delfmann@uni-koblenz.de](mailto:delfmann@uni-koblenz.de)
  
- Exercise: Sabine Nagel
- Phone: +49 261 287 2526
- E-Mail: [snagel@uni-koblenz.de](mailto:snagel@uni-koblenz.de)

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