Integration of BPMN and CMMN

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Based on joint work with Arianna Pierfranceschi

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LEARN PAD

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BPM  ACM

Classification of Processes

structured process	case	ad hoc process
• structured process flow • many repetitive elements • no degrees of freedom for people	• process flow can partly be structured • some repetitive elements • degrees of freedom for people	• process flow cannot be structured – new tasks on the fly • few repetitive elements • very high degrees of freedom for people

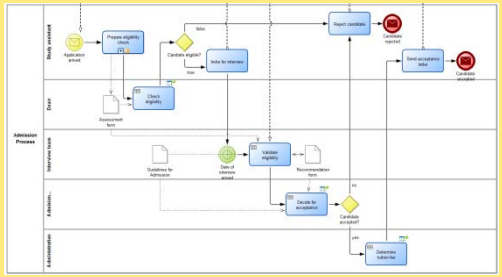
← can be modelled → ← cannot be modelled →

partly translated from (Gadatsch 2005, S. 44)

Classification of Processes

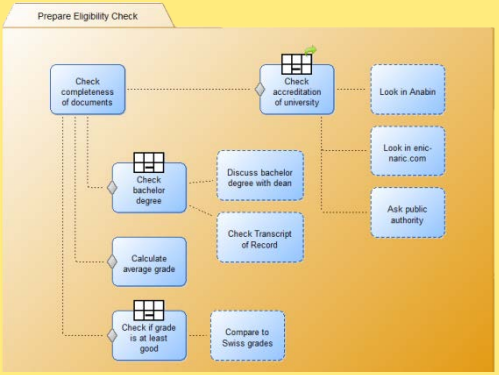
structured process

BPMN



case

CMMN



ad hoc process

- process flow cannot be structured – new tasks on the fly
- few repetitive elements
- very high degrees of freedom for people

can be modelled

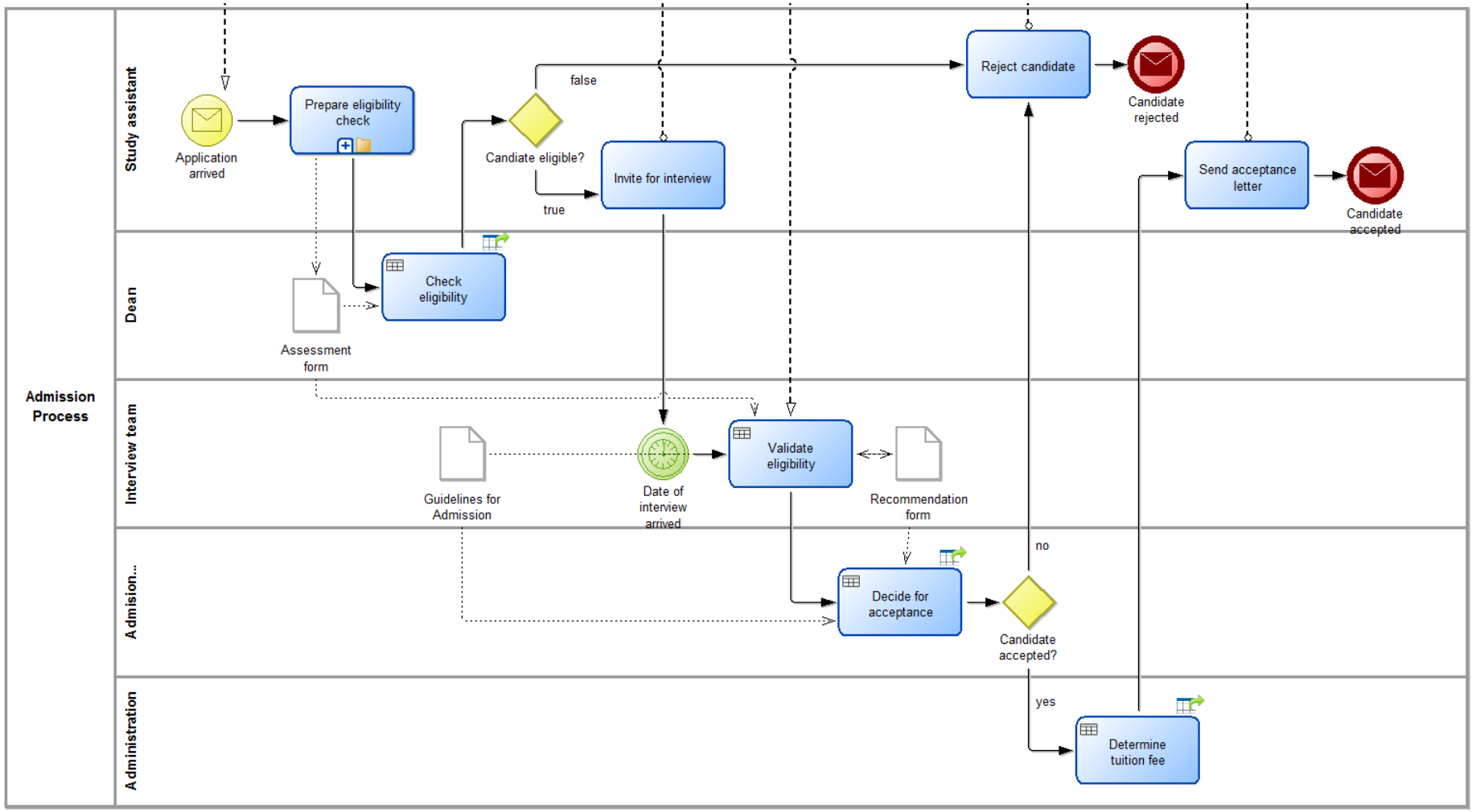
cannot be modelled

partly translated from (Gadatsch 2005, S. 44)

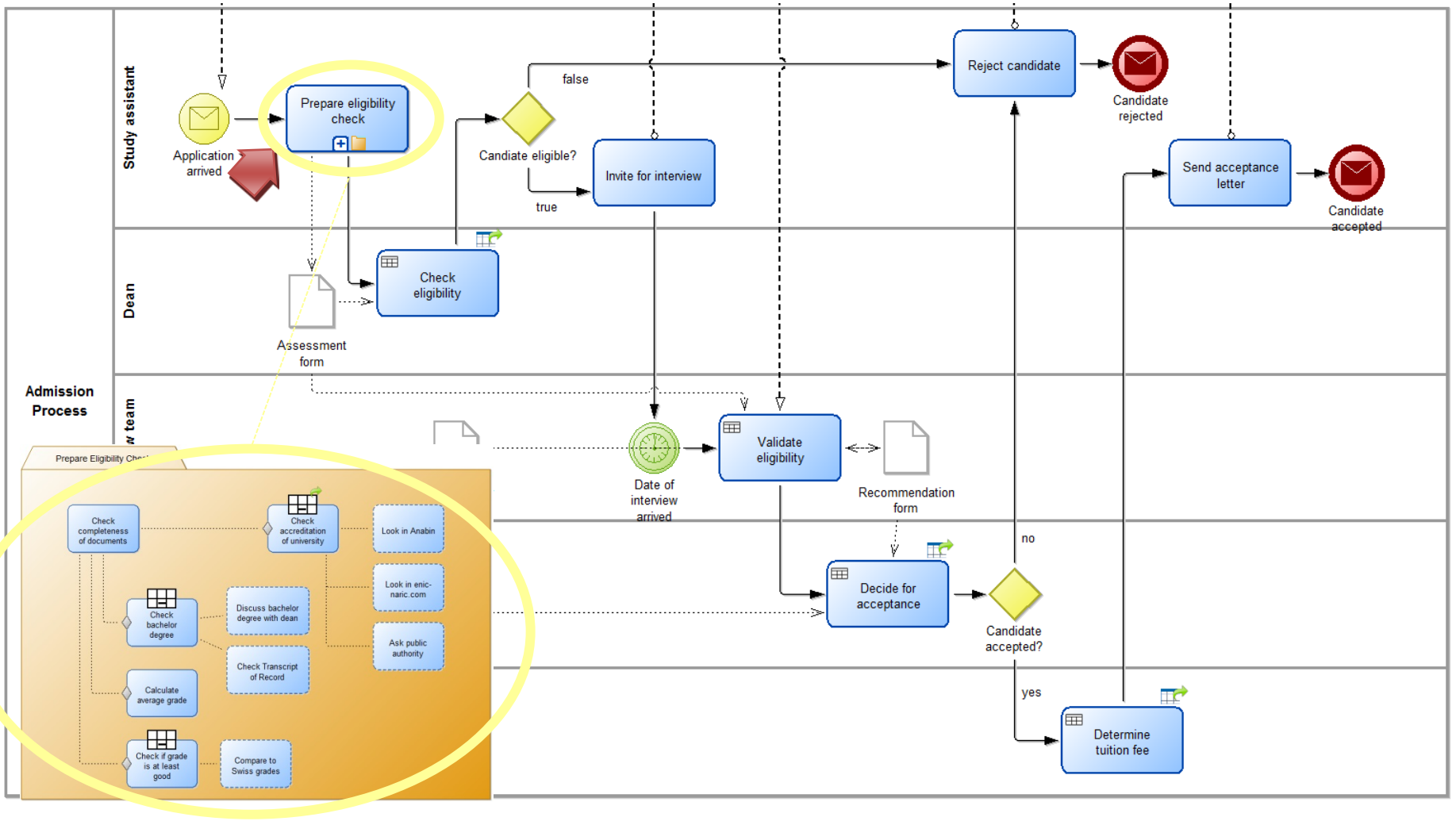
Issues

- Can we strictly separate case from process?
- Can we decide in advance which model type is appropriate?
- Is there no process flow in ACM?

Case Study: Admission to Master Program

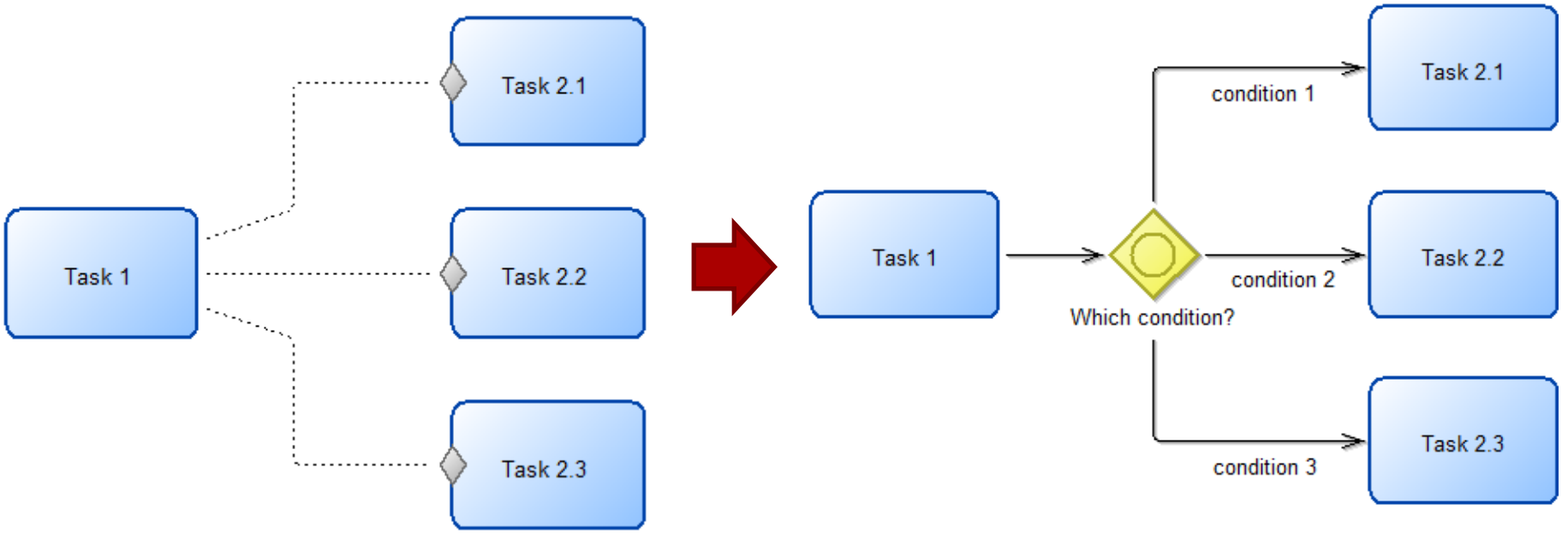


Separate BPMN from CMMN



Implicit Control Flow in CMMN

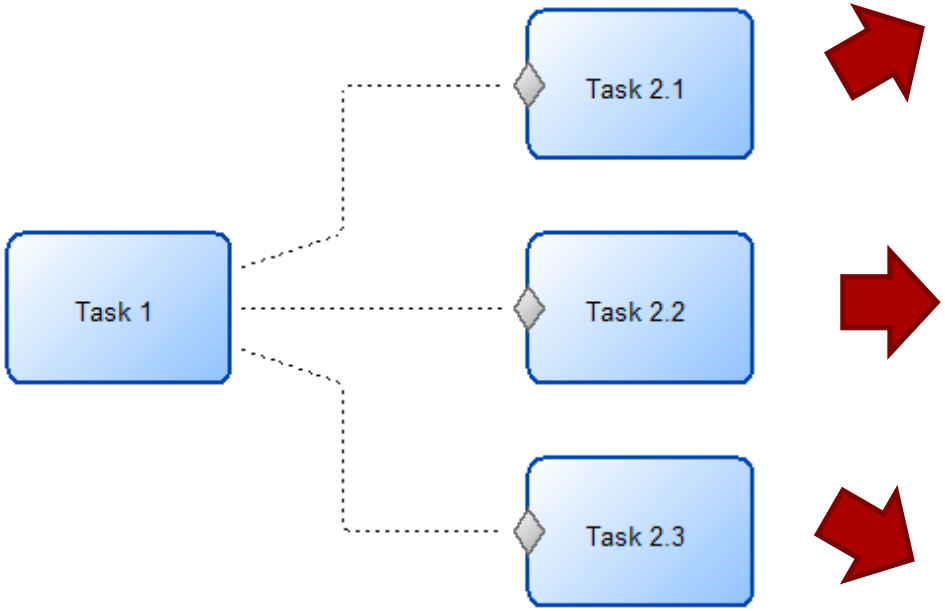
What does it mean?

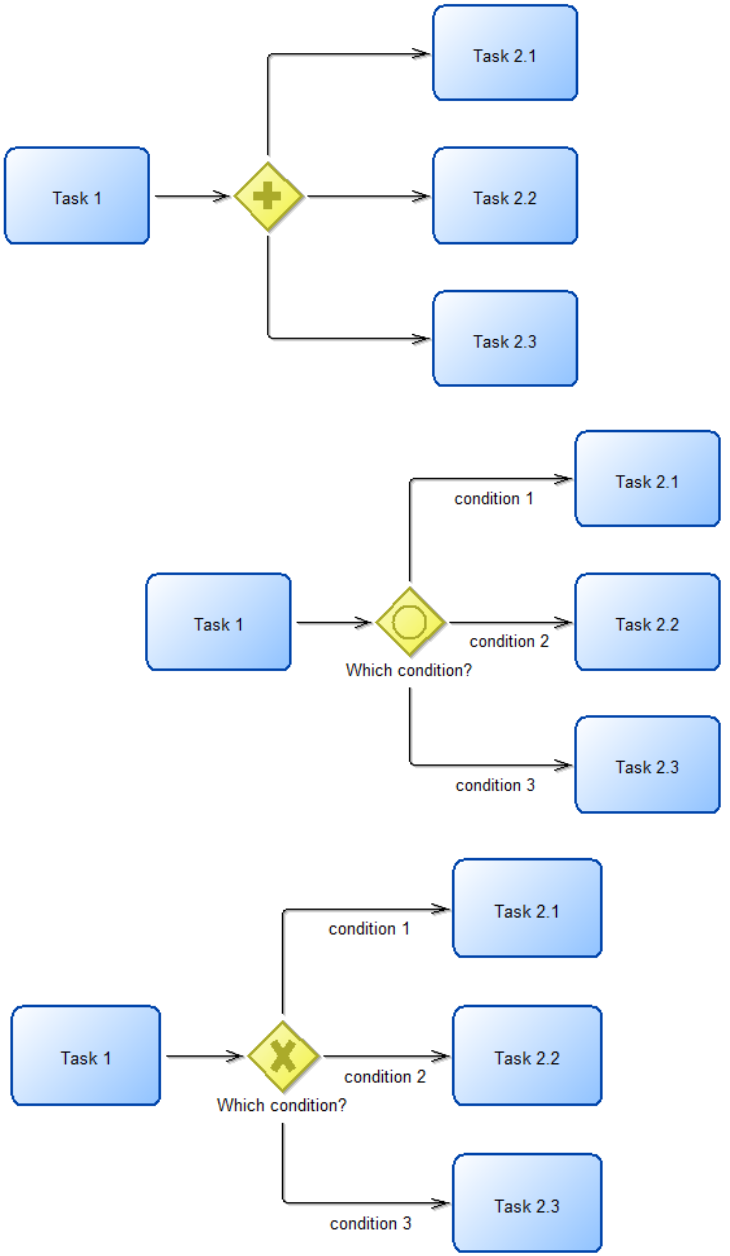


Visible conditions are better for understanding

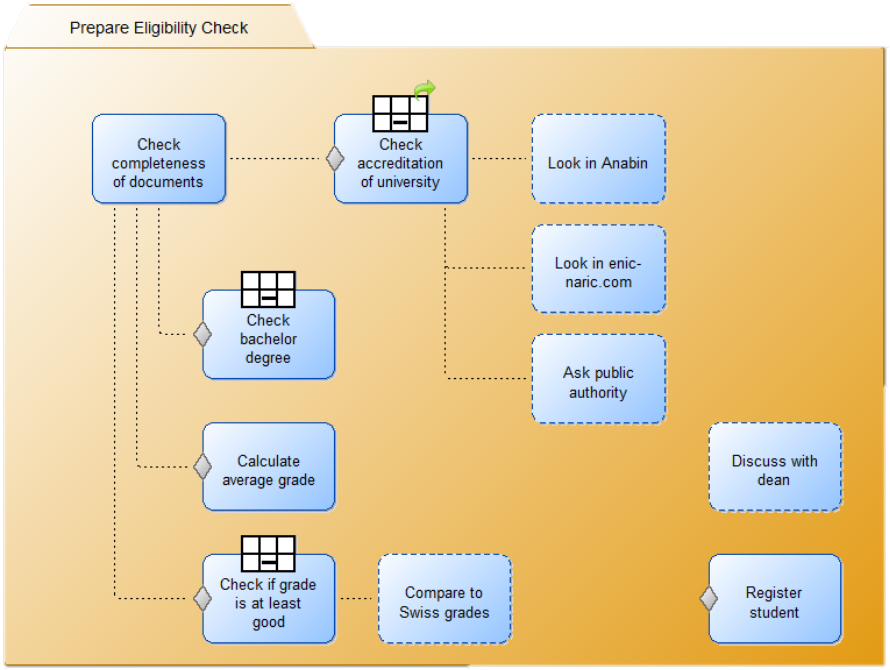
Explicit Control Flow in BPMN

What does it mean?

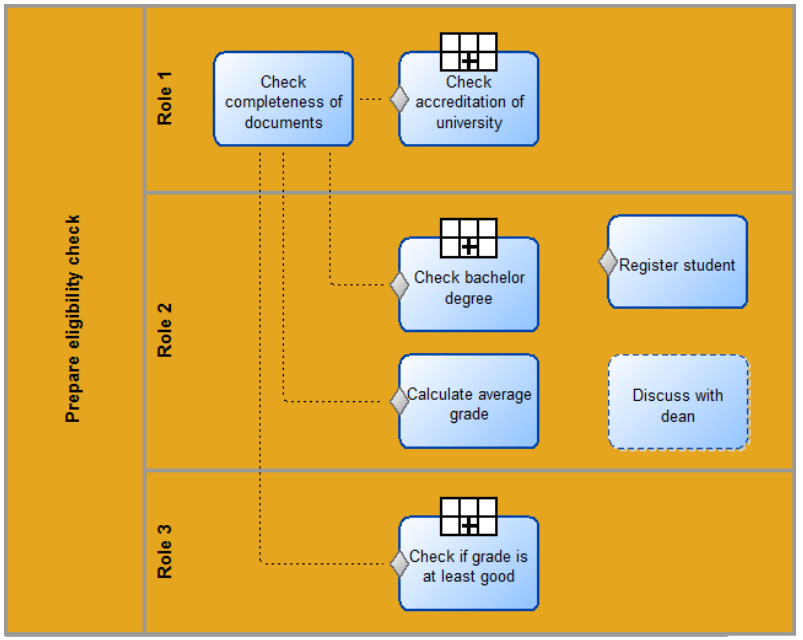




Who executes a Tasks?

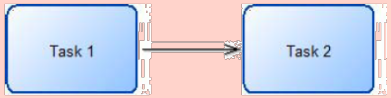
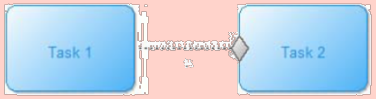
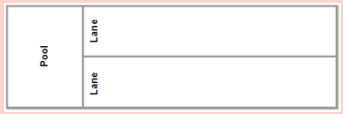


Implicit in roles



Visualized

Comparing Elements of BPMN and CMMN

BPMN	CMMN
Task types: User, Manual Script, …	Task types: Human
Subprocesses	Process/Case Tasks
Events: start – intermediate – end catching – throwing	event listeners (catching) implicit events, milestones
Gateways/Events	Sentries
Sequence Flow 	Sentry with empty condition 
--	Discretionary Tasks
--	Stages
Lanes	Roles
Pool 	Folder 

Rules in BPMN and CMMN

BPMN	CMMN
Business rules (tasks)	---
Events/gateways	Sentries
---	Applicability rules (planning tables)

Combining BPMN and CMMN

A combination of
control flow elements of BPMN
and discretionary tasks
and planning elements of CMMN

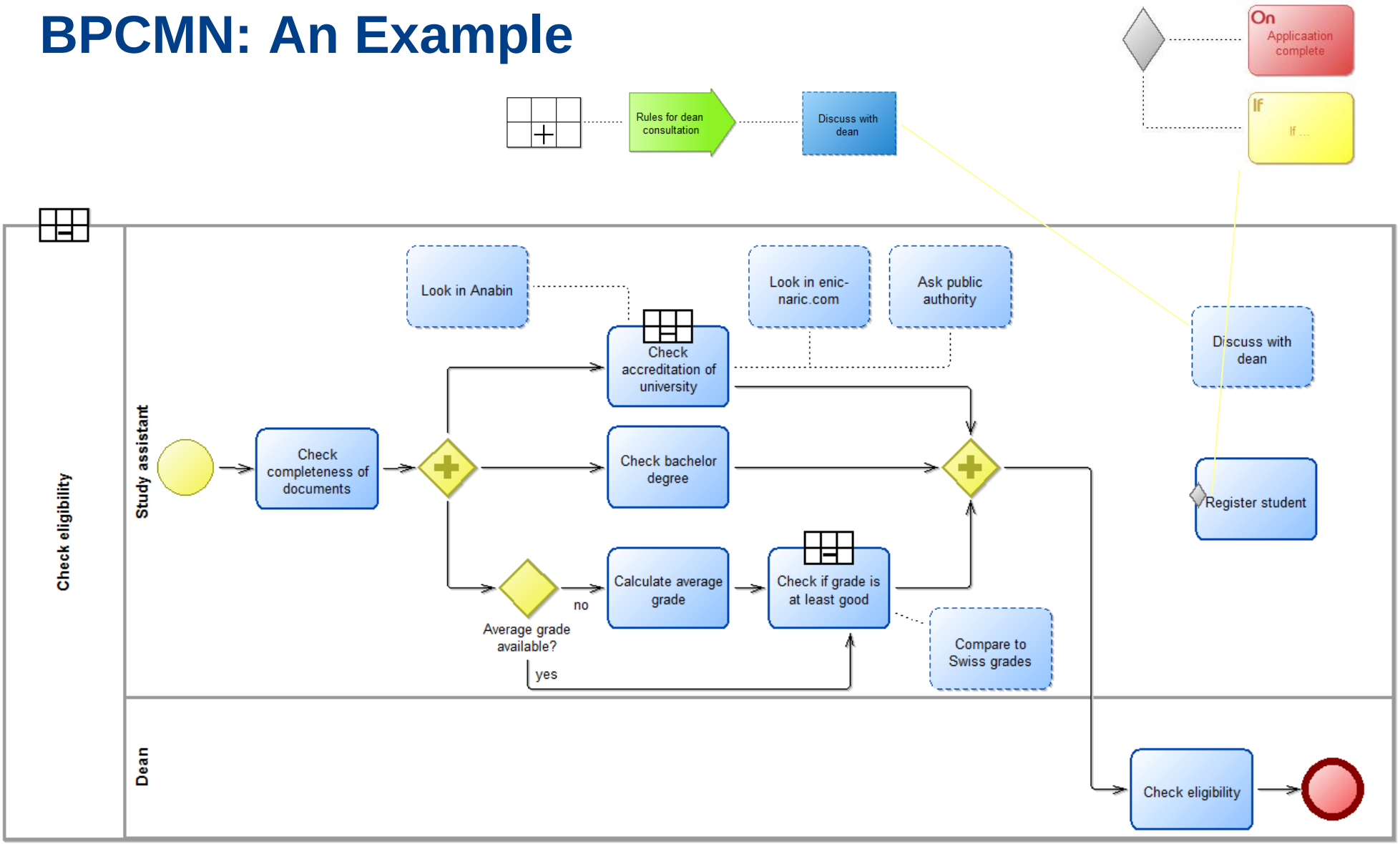
a suitable language
to deal with any kind of process.

BPCMN: A combined Process and Case Modeling Language

Silver (2010): BPMN covers about 90% of what is needed for business processes.

Start with BPMN and add the necessary case aspects.

BPCMN: An Example



Proposal for a combined Process and Case Modeling Language

- Activities can be
  - integrated in sequence flow (→ BPM)
  - initiated by Sentry (→ ACM)
- Gateways for explicit control flow
- Lanes for assignment of tasks to participants
- Allow discretionary tasks

Comparing Elements of BPMN and CMMN

BPMN	CMMN
Task types: User, Manual Script, …	Task types: Human
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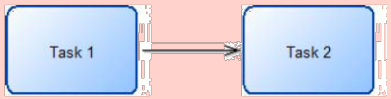
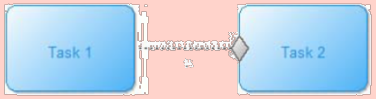
Gateways/Events	Sentries
Sequence Flow 	Sentry with empty condition 
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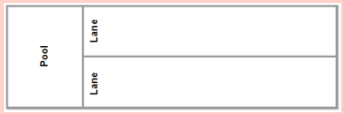
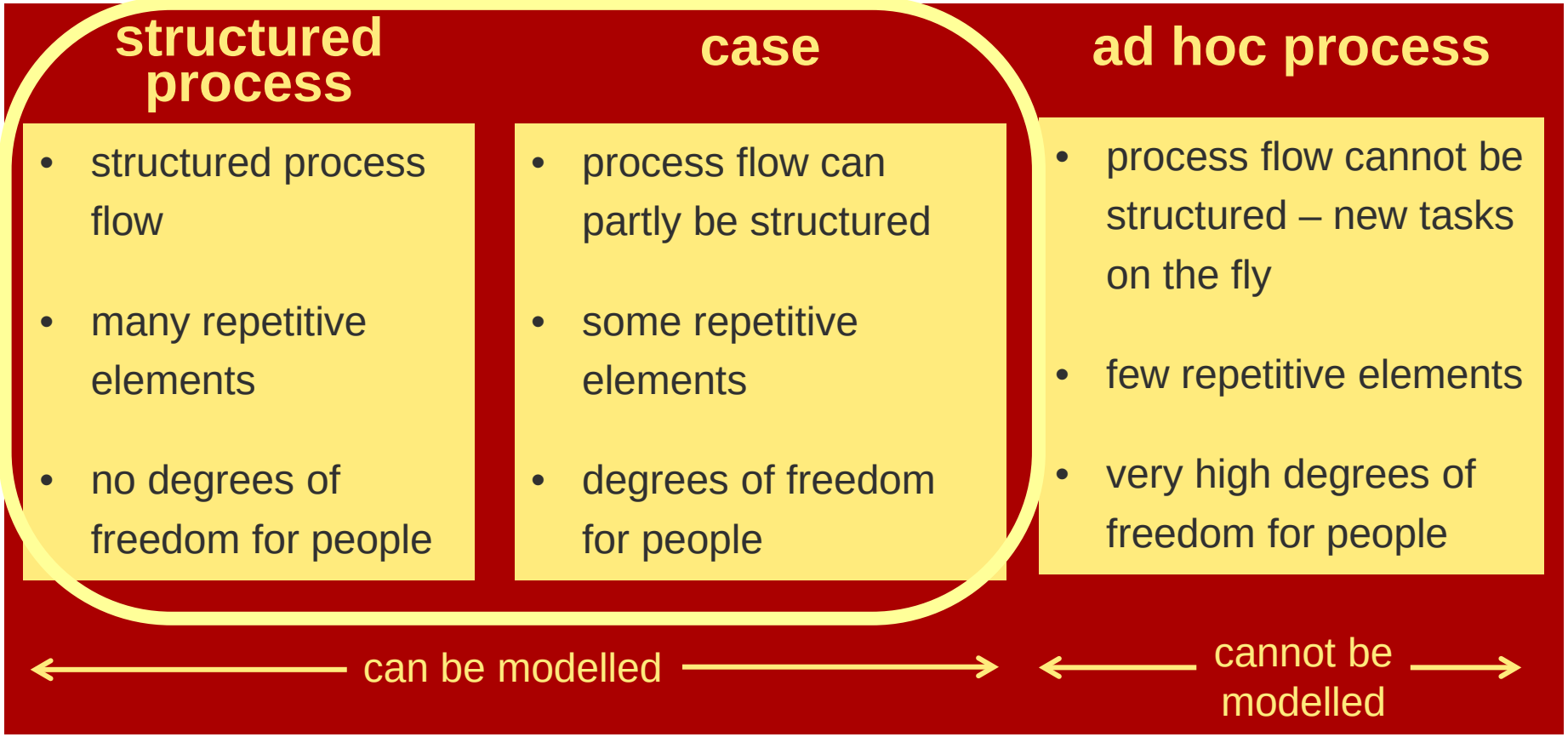
Pool 	Folder 

Rules in BPMN and CMMN

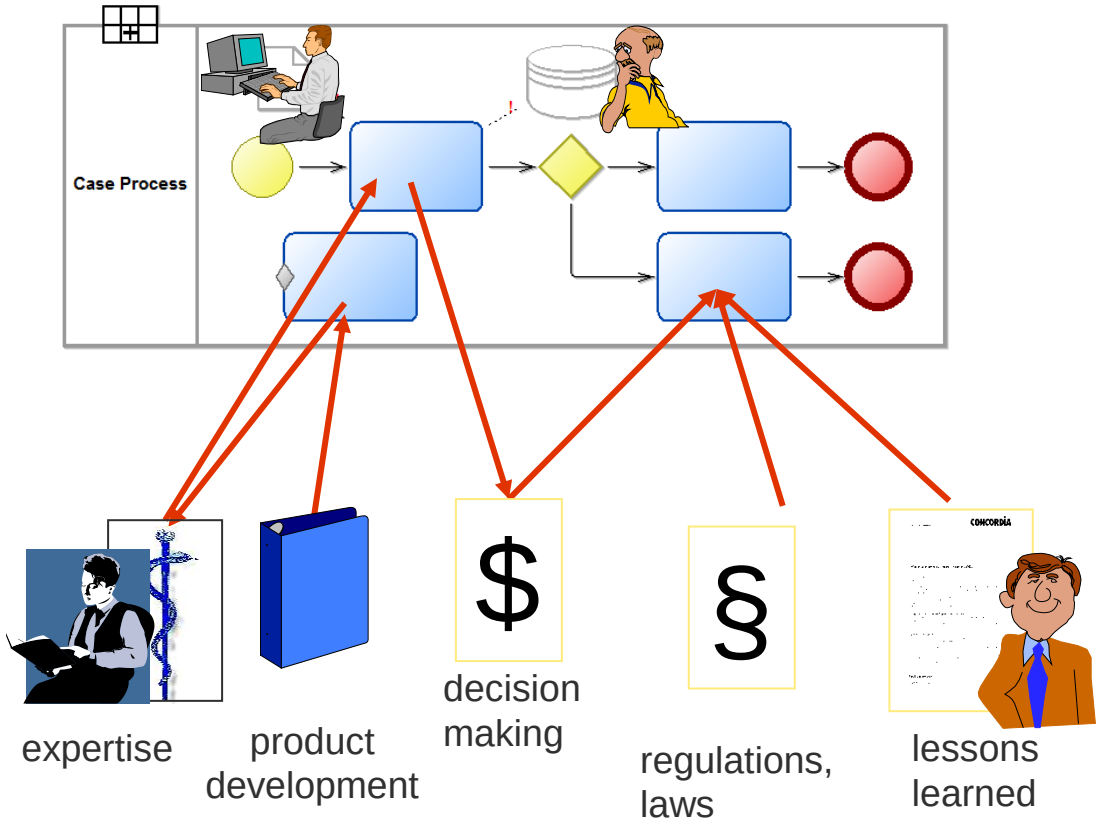
BPMN		CMMN
Business rules (tasks)		---
Events/gateways	ECA rules	Sentries
---		Applicability rules (planning tables)

BPCMN covers structured and case processes



partly translated from (Gadatsch 2005, S. 44)

Extension: Modeling Business Logic



knowledge *about* processes:

- process flow
- roles
- resources

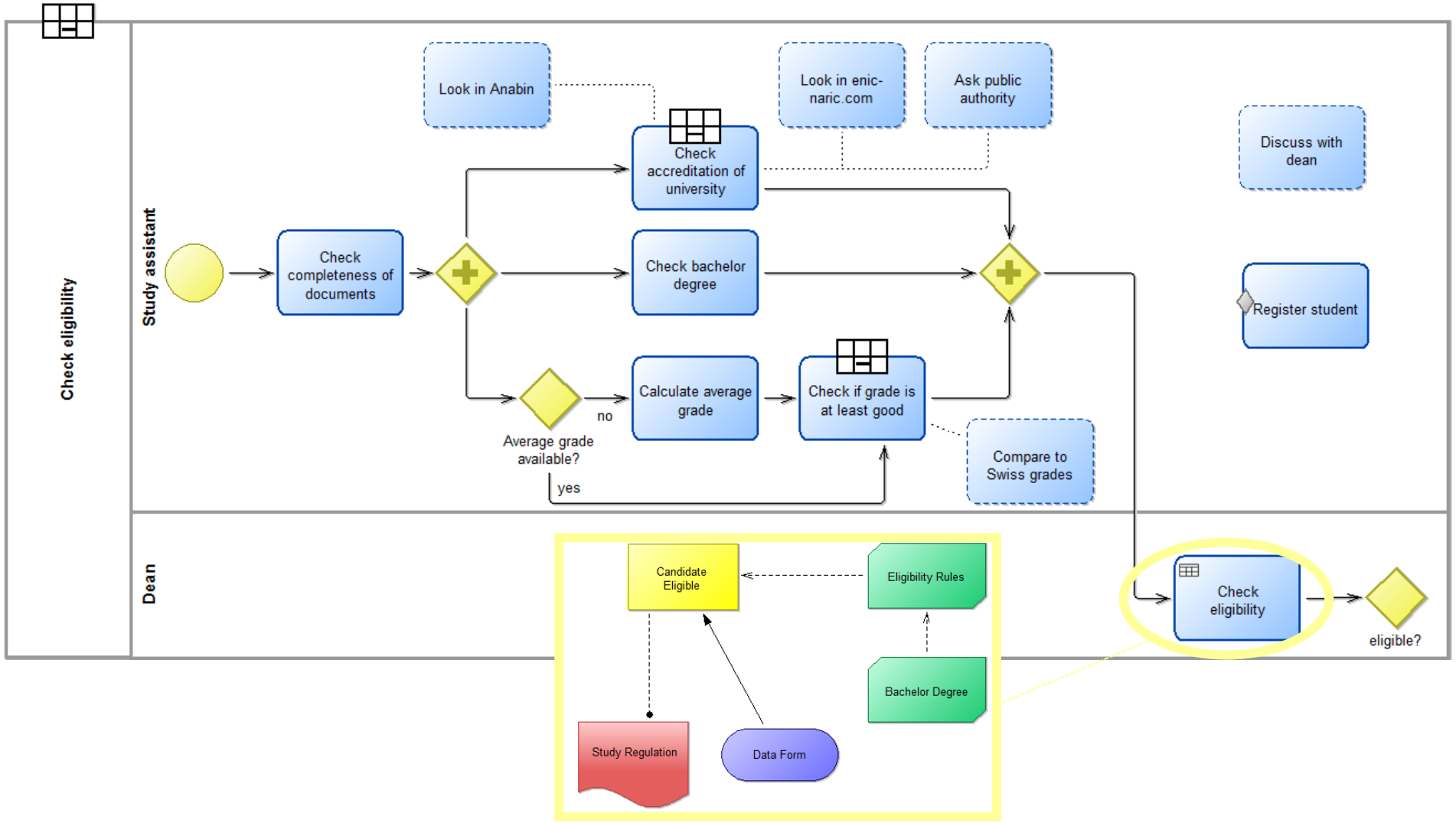
→ **process logic**

knowledge *in* processes:

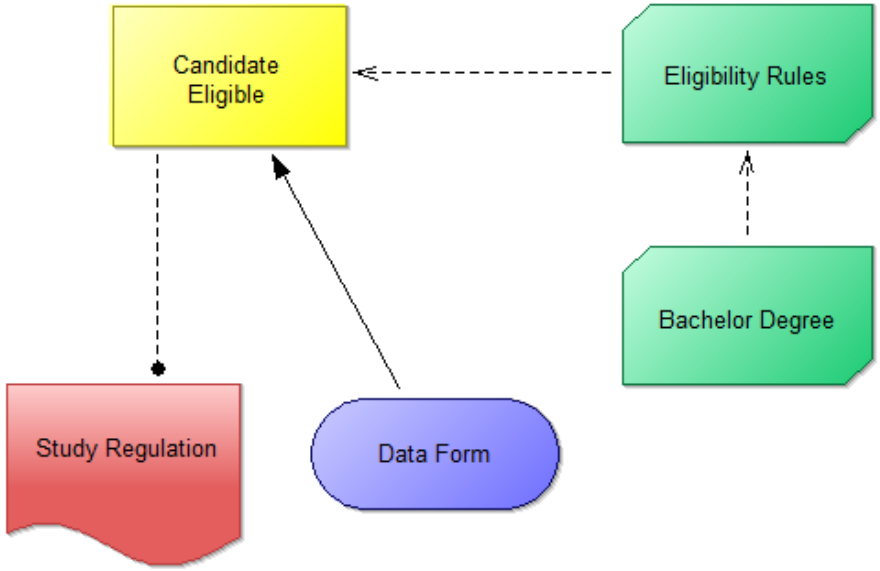
- supports practice
- skills, experiences
- know how

→ **business logic**

Using DMN to model Decision Logic



DMN – Eligibility Check



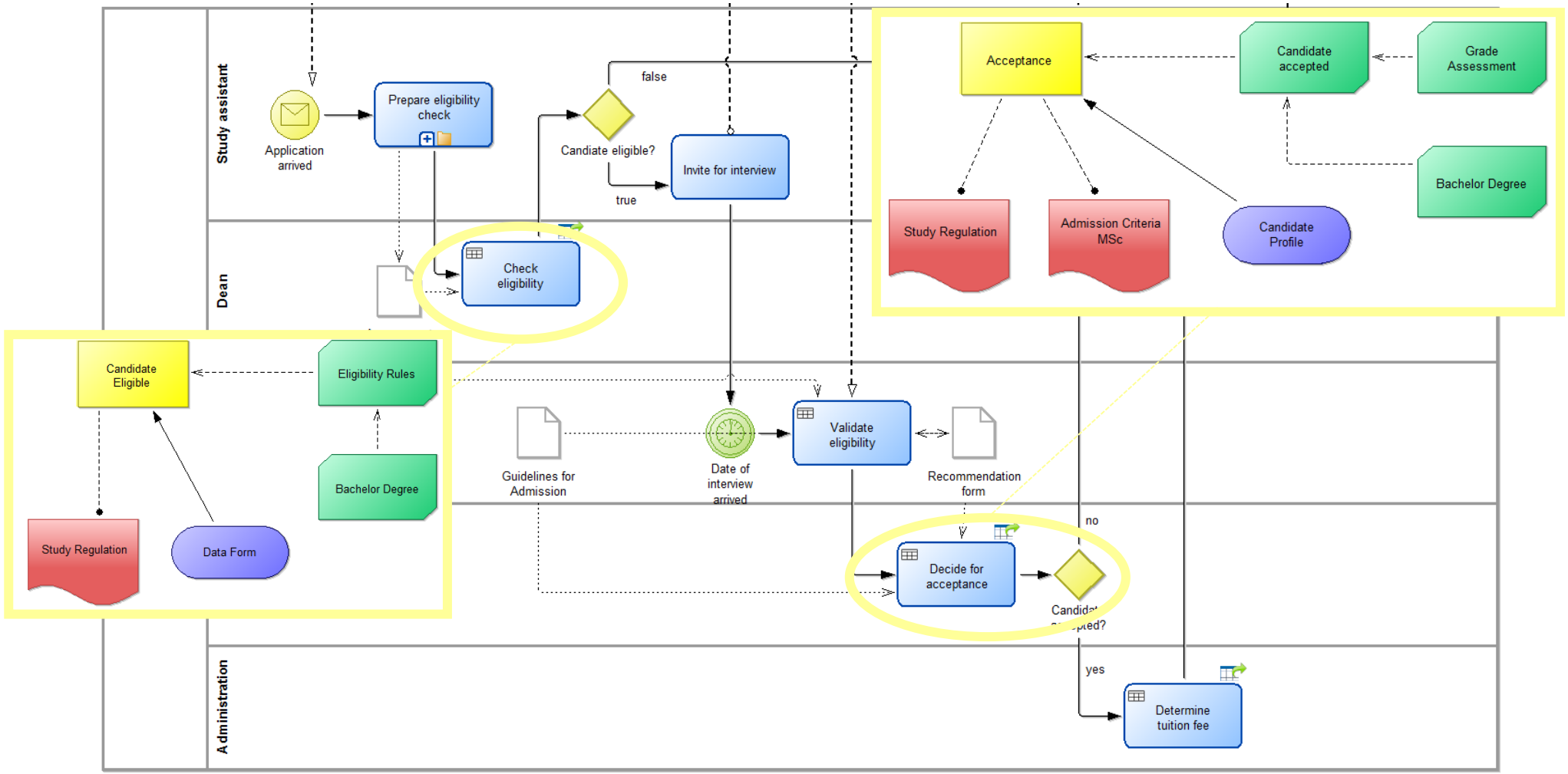
Candidate Eligible

FC	Bachelor Degree	University accredited	eligible
	yes, no	*yes, no, unclear*	*yes, no*
1	yes	yes	yes
2	no		no
3		no	no
4	yes	unclear	yes

Bachelor Degree

FC	Bachelor Degree in	Bachelor Degree
	Information Systems, Business Administration, Information Technology, other, none	*yes, no*
1	Information Systems	yes
2	Business Administration	yes
3	Information Technology	yes
4	other	yes
5	none	no

Using DMN to model Decision Logic

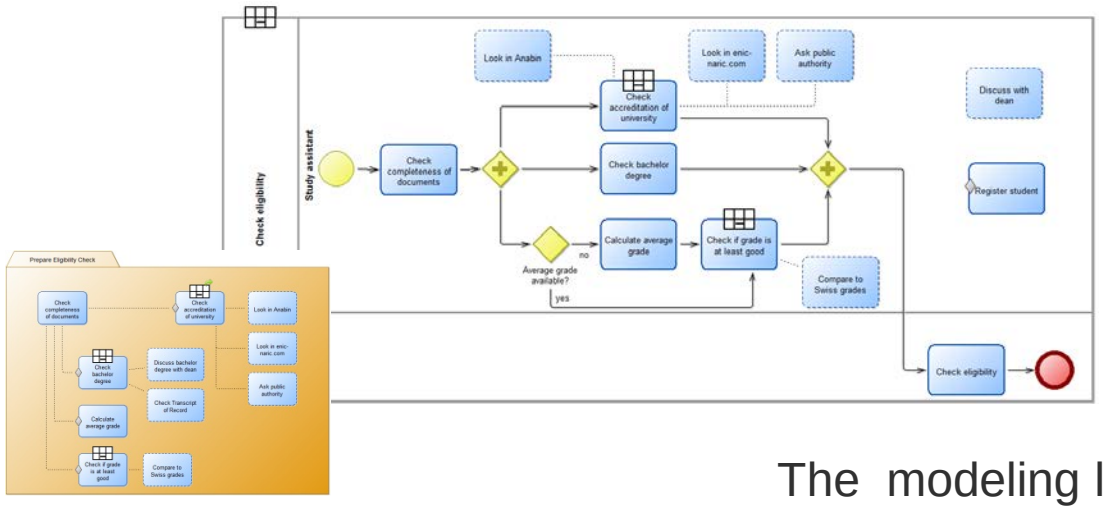


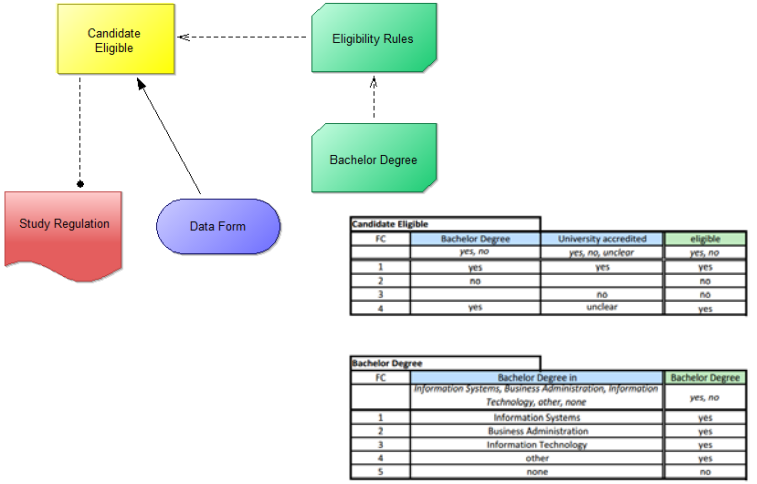
Conclusion

Modeling knowledge processes includes

- Model Process Flow → BPM
- Model Cases → ACM
- Modeling business logic → Decisions

in an integrated environment





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The modeling language was developed in adoxx.org

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