Processes and Organizations

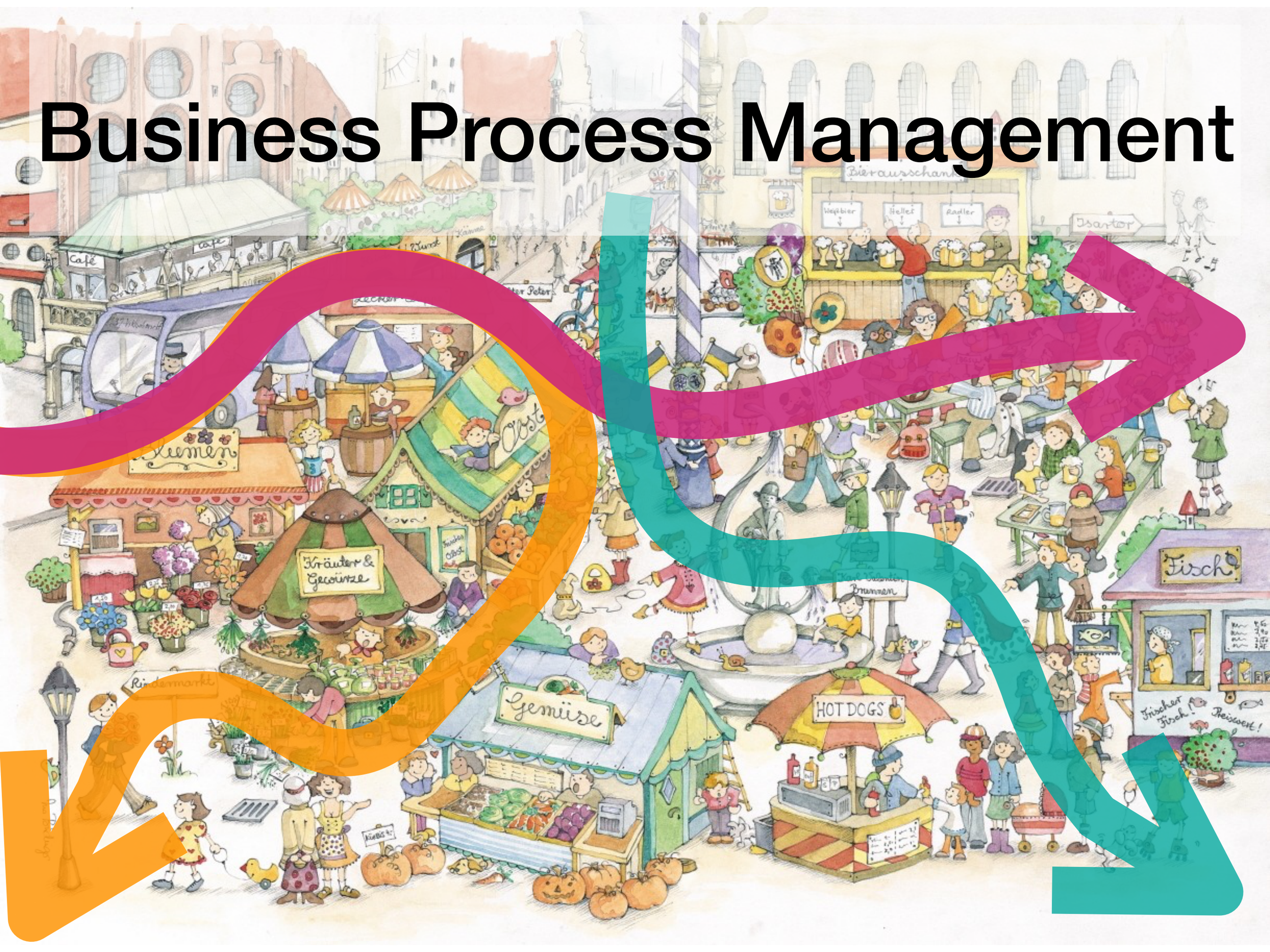
A look behind the paper wall

Marco Montali :: Free University of Bozen-Bolzano

Fit for Digital, 23/10/2019

Business Process Management

Business Process Management



digital

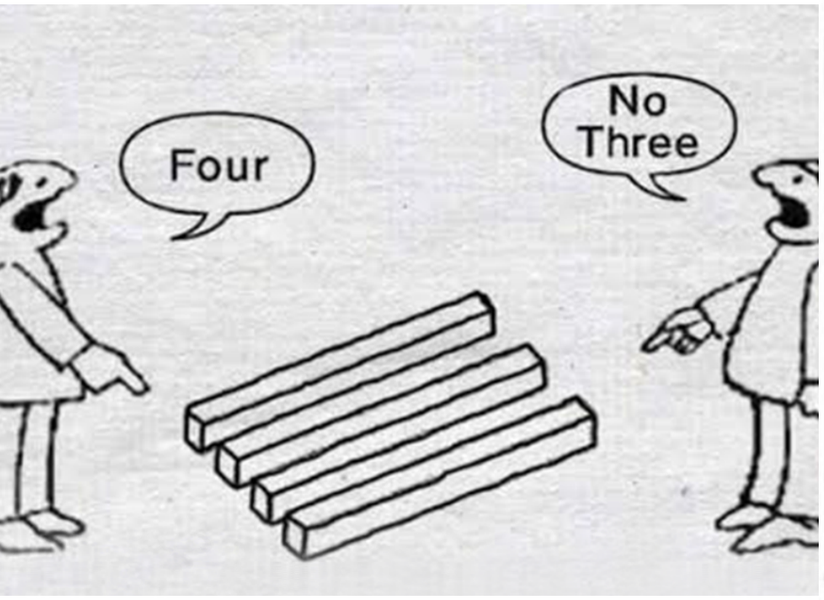
enterprise

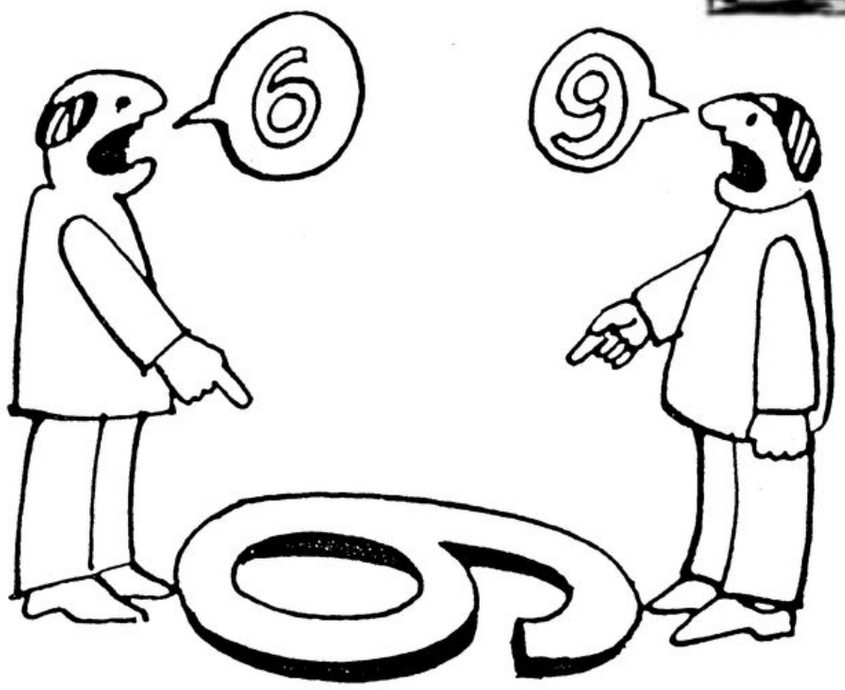
model-driven

digital

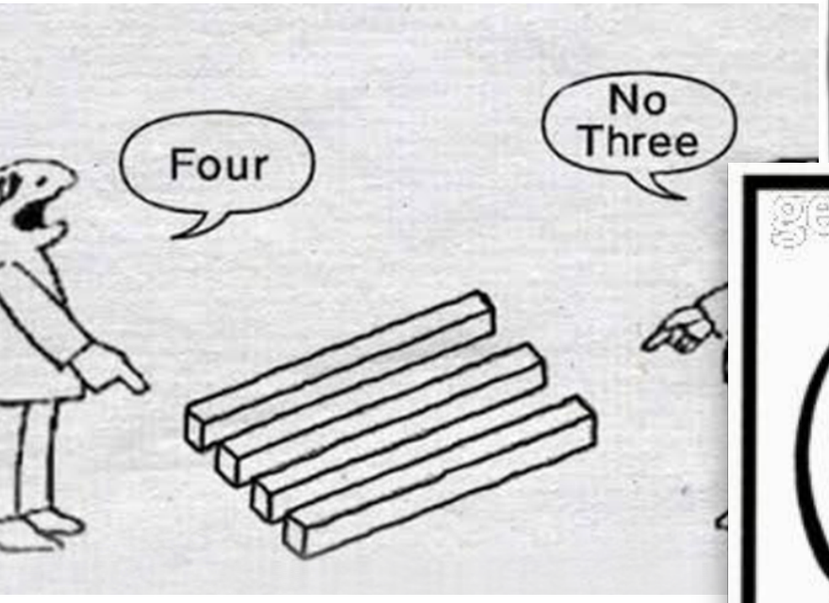
enterprise

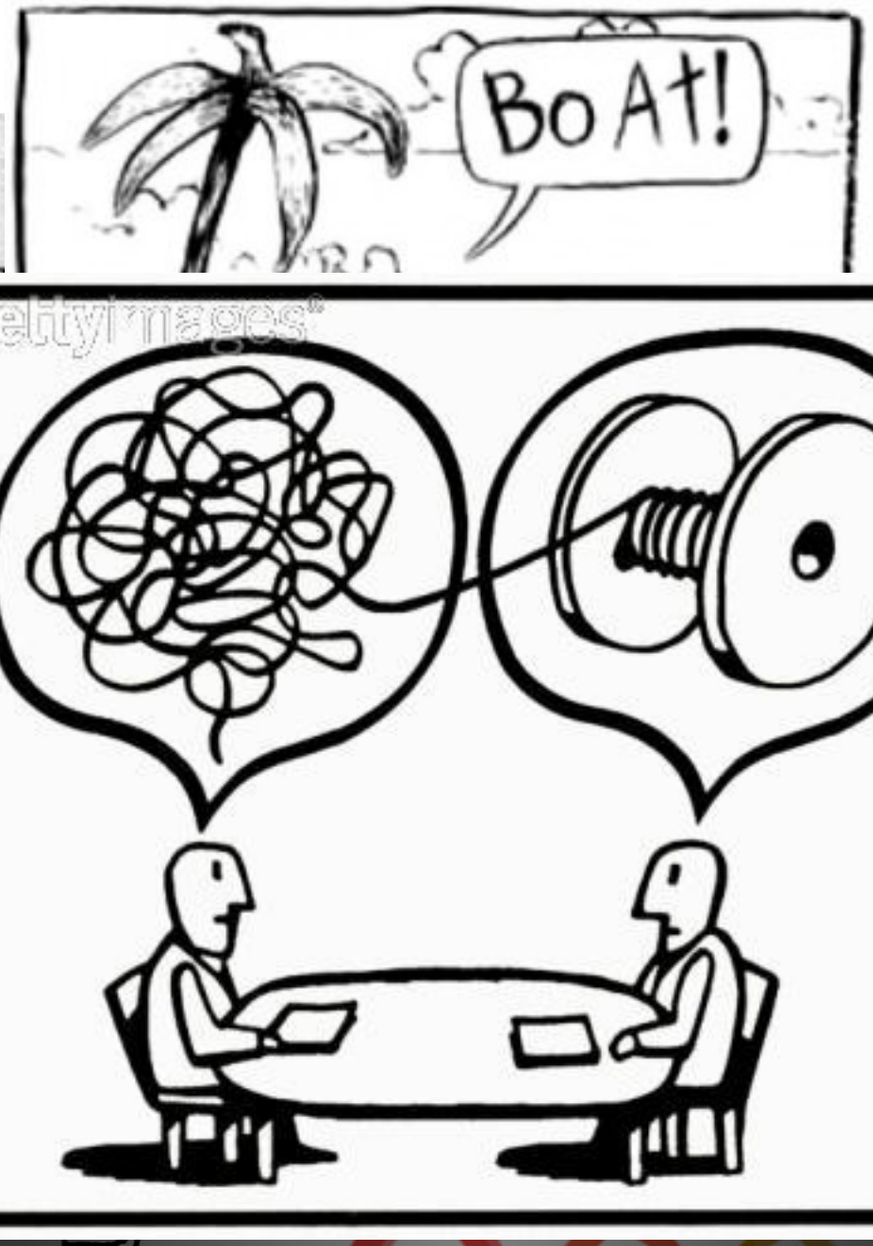
Conceptual modeling

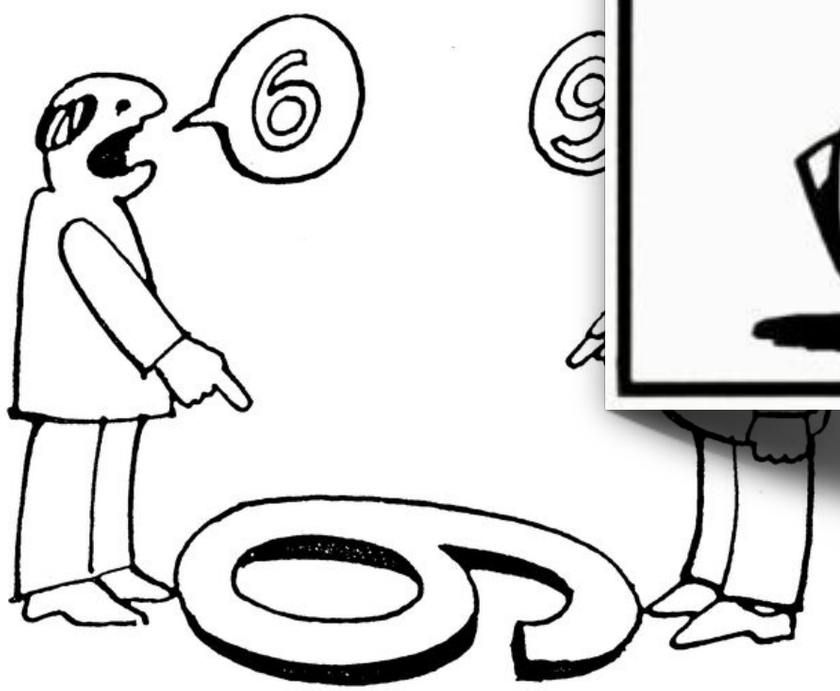




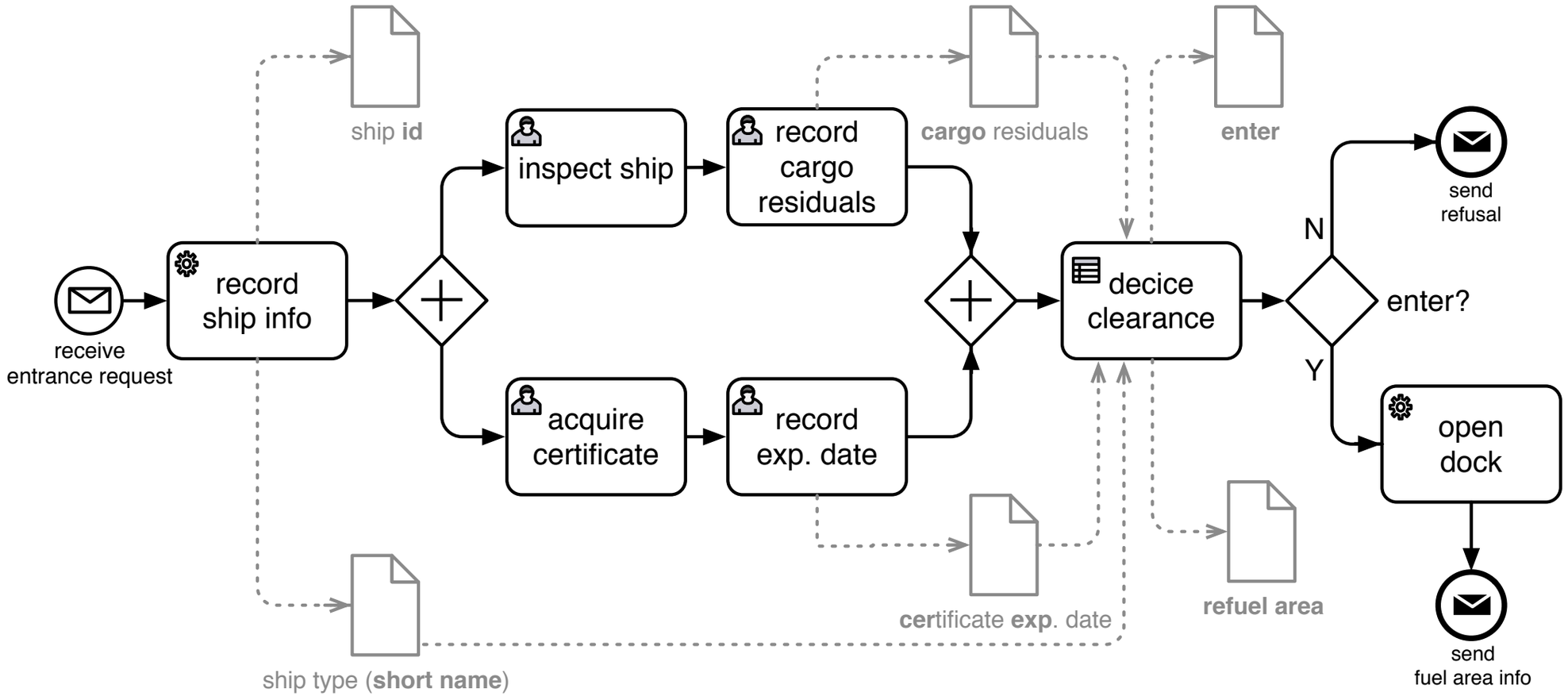
Conceptual modeling





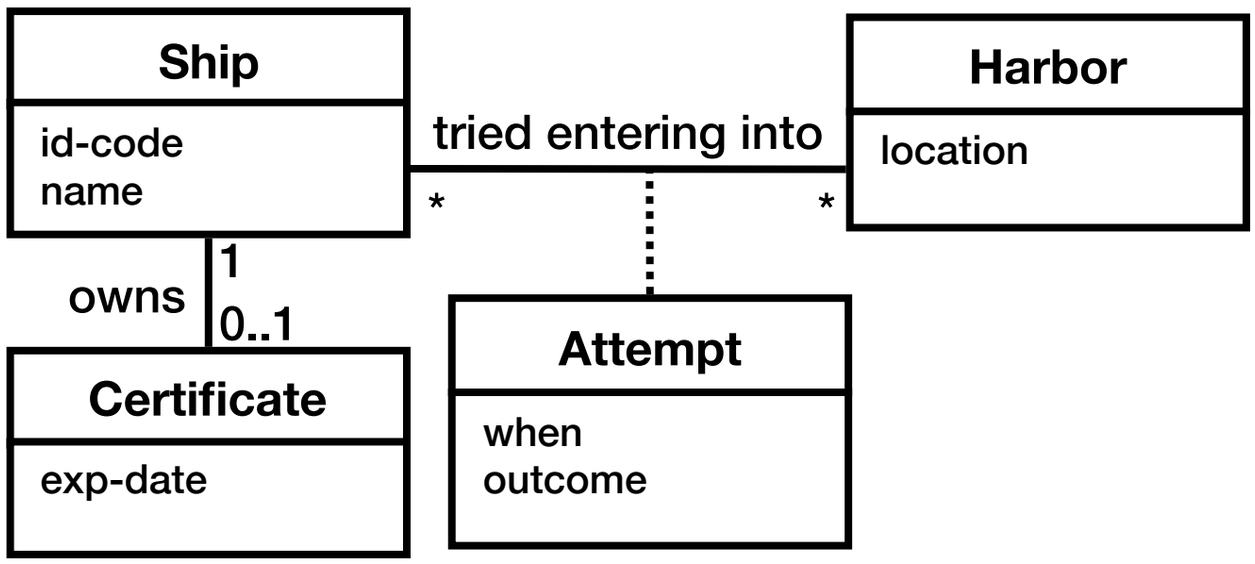


Understand, share, explain

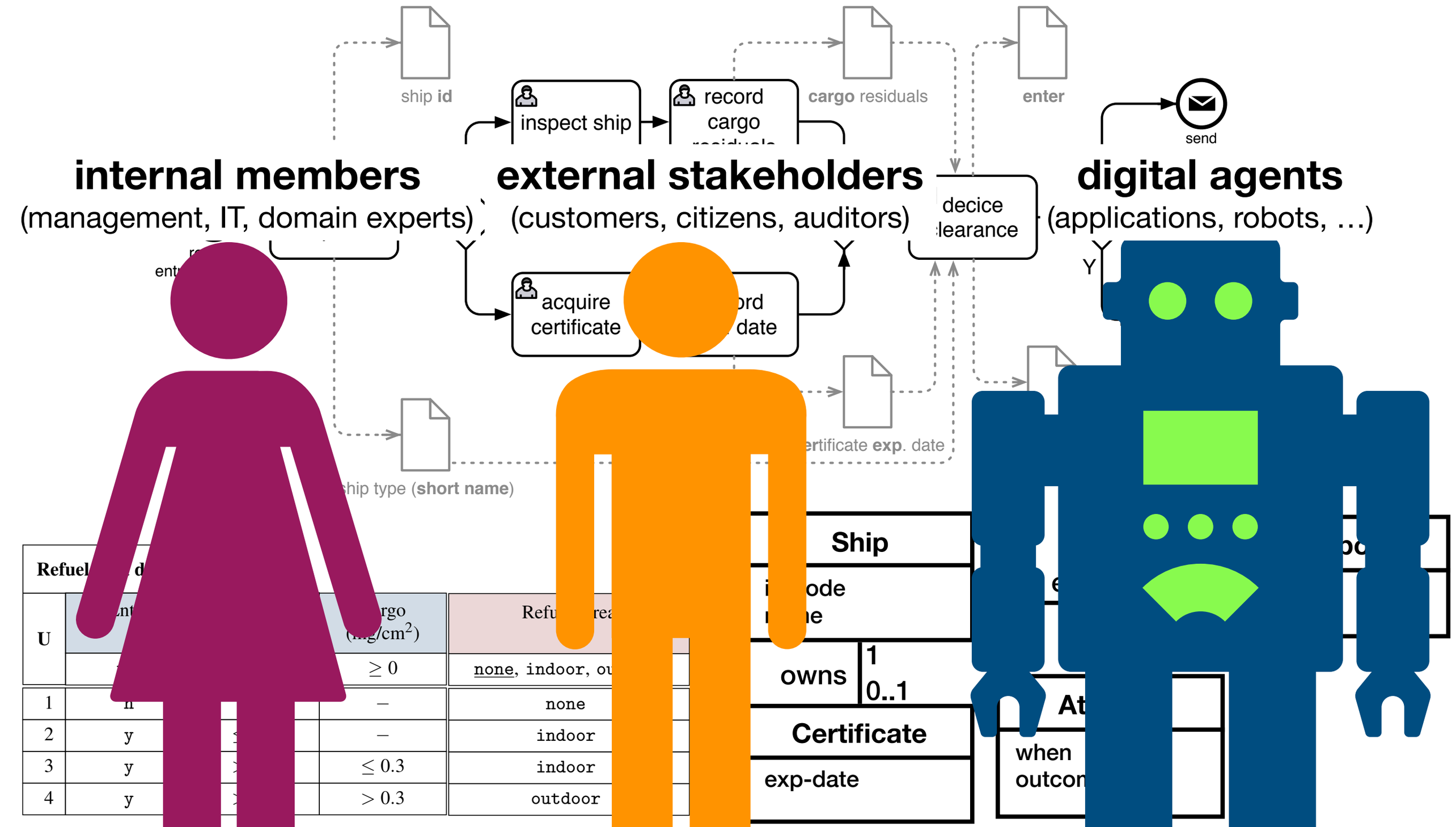


Refuel area determination

U	Enter	Length (m)	Cargo (mg/cm^2)	Refuel Area
	y,n	≥ 0	≥ 0	none, indoor, outdoor
1	n	–	–	none
2	y	≤ 350	–	indoor
3	y	> 350	≤ 0.3	indoor
4	y	> 350	> 0.3	outdoor



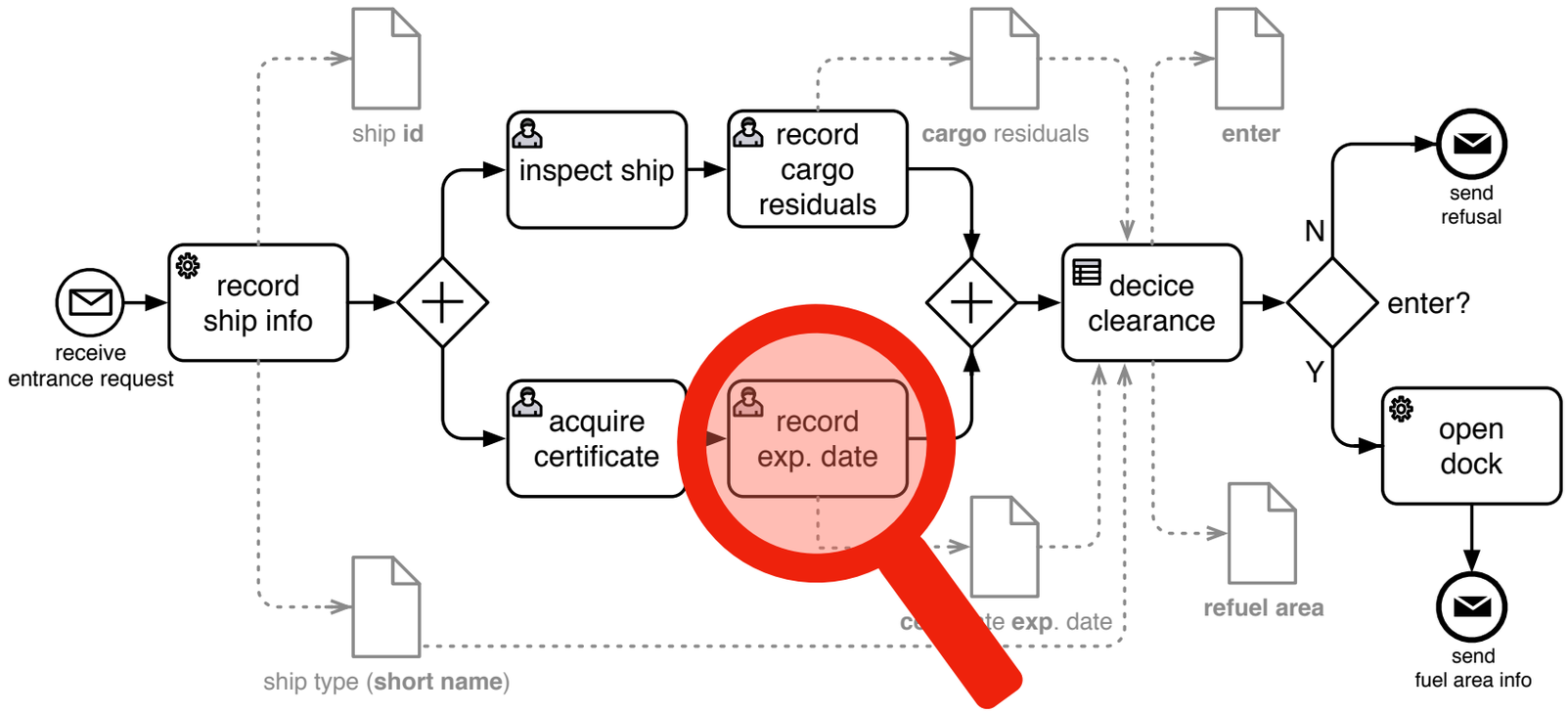
Understand, share, explain



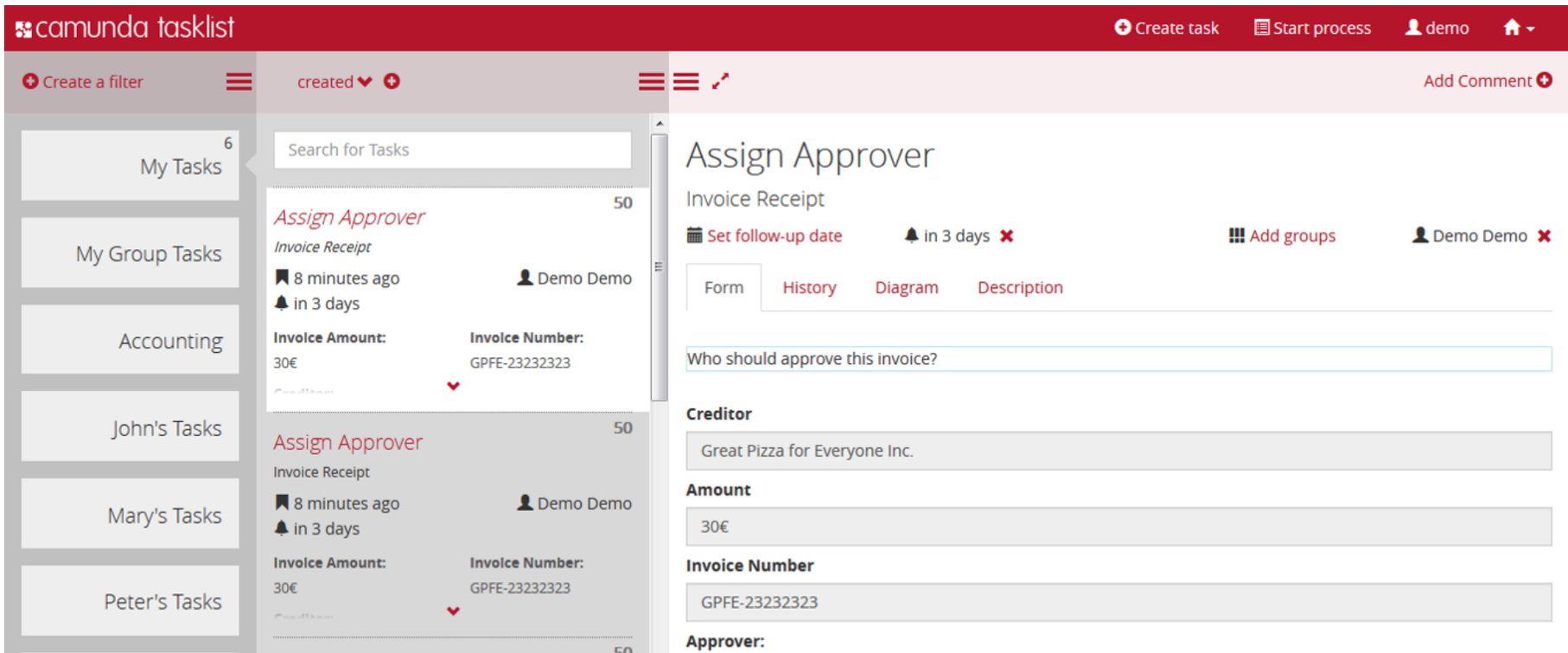
U			
		≥ 0	none, indoor, ou
1	n	–	none
2	y	–	indoor
3	y	≤ 0.3	indoor
4	y	> 0.3	outdoor

Machines can use models…

for automated analysis



for execution support



Do models reflect reality?

(Does management understand what is going on?)

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digital

enterprise

data-driven

Going digital

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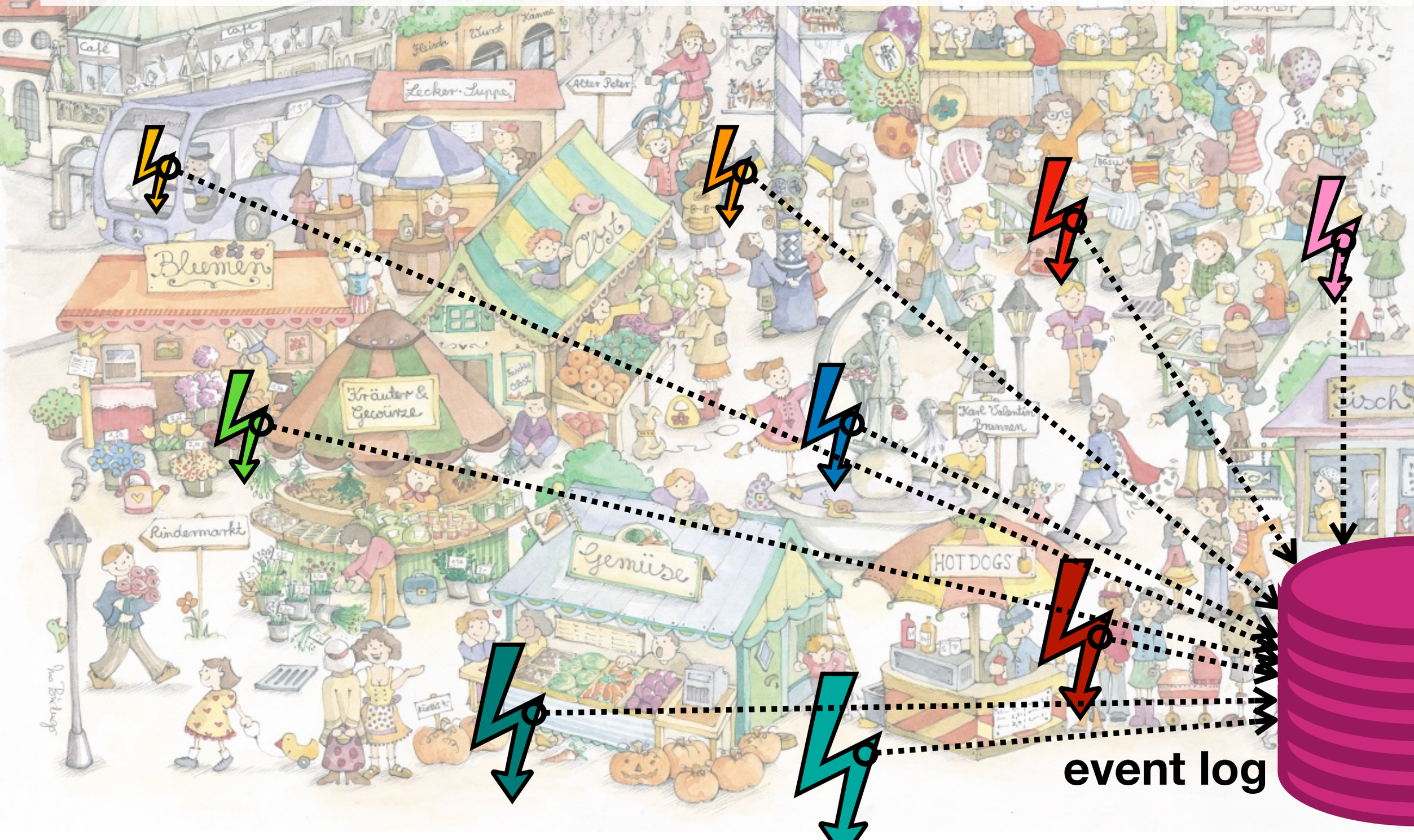
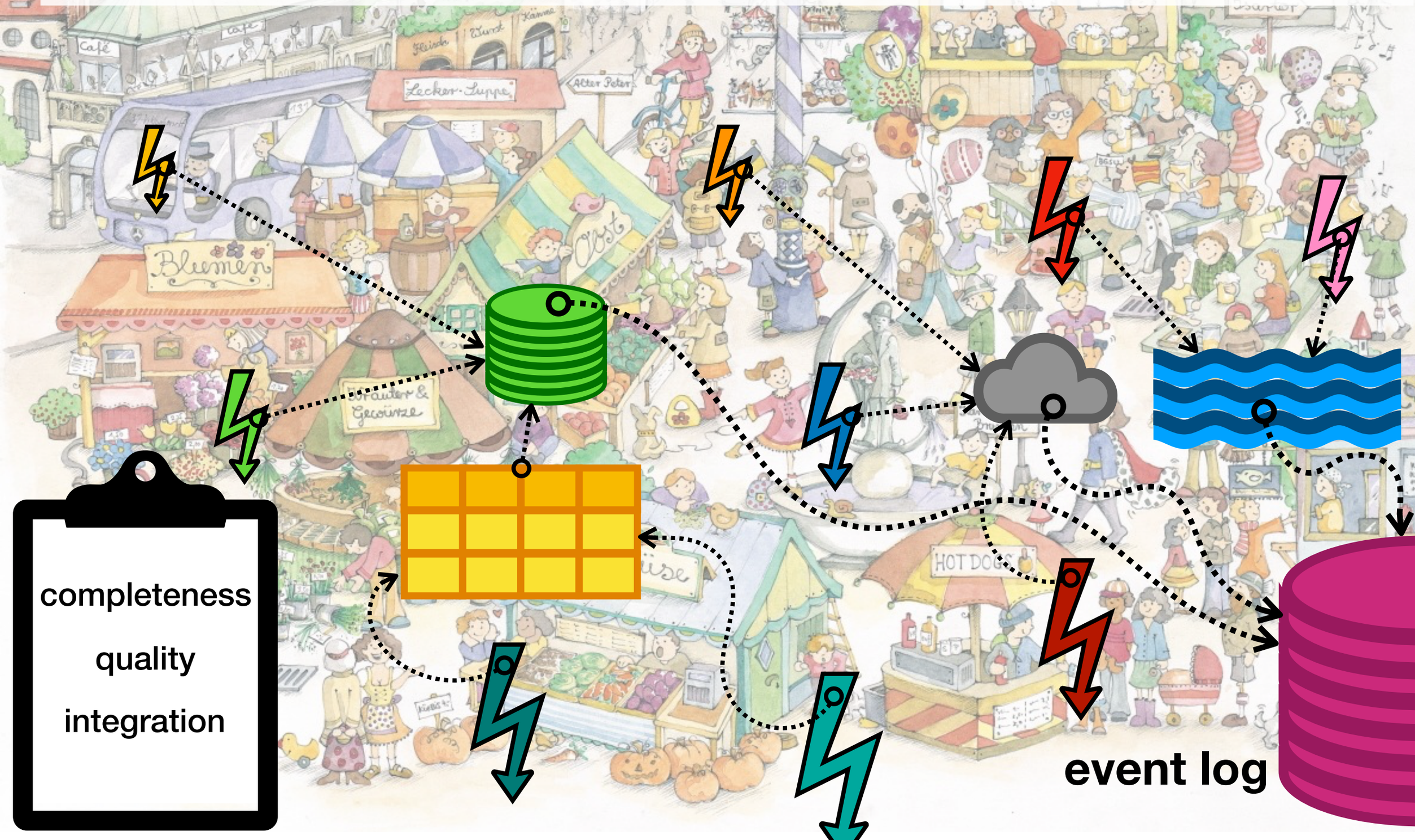
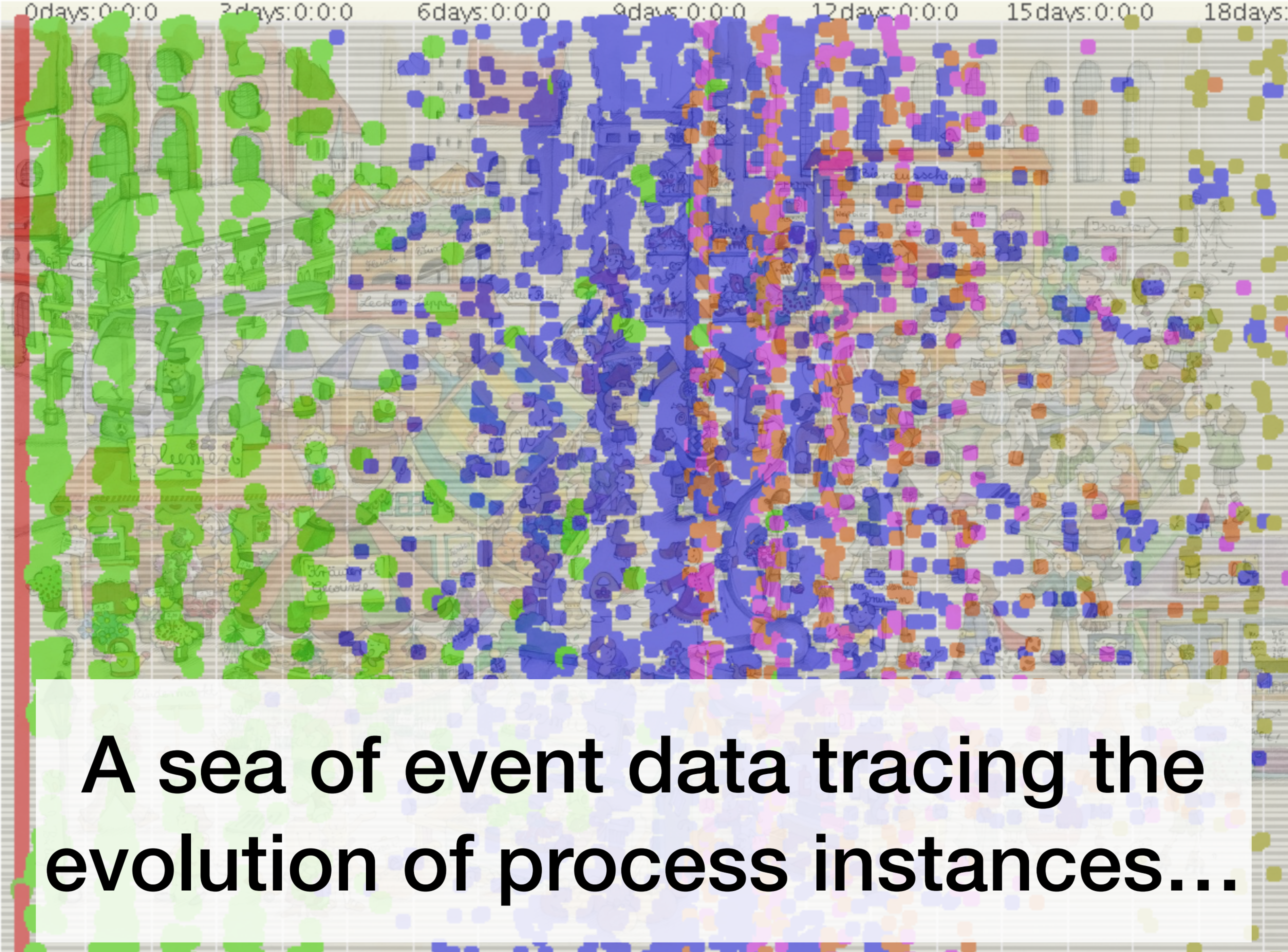


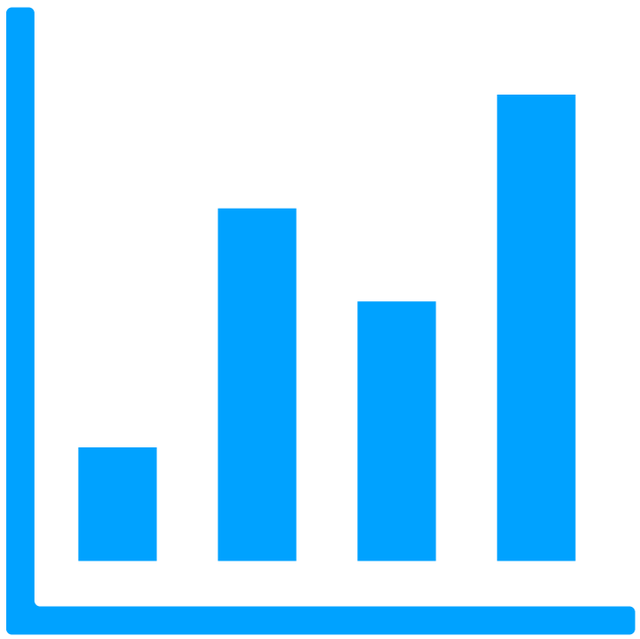
Going digital in reality





A sea of event data tracing the evolution of process instances…

... to compute indicators



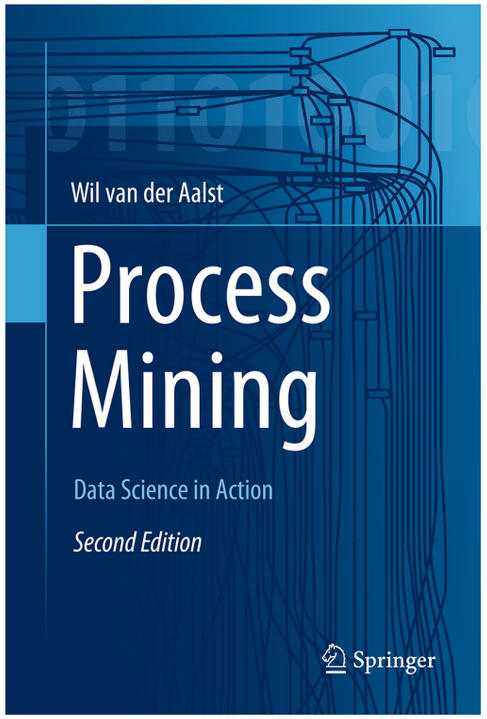
... to compute indicators

model-driven

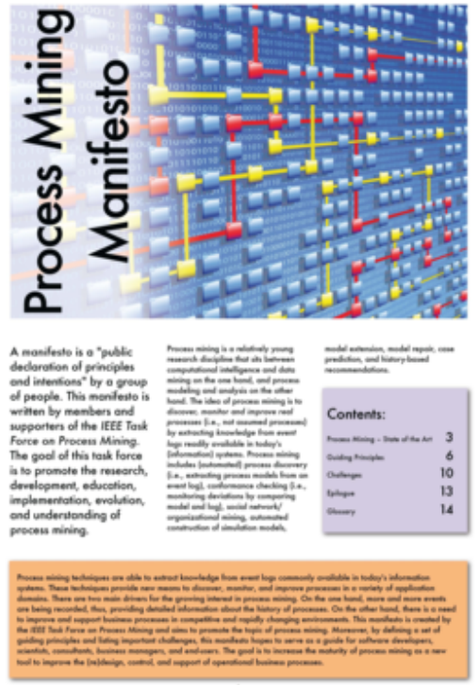
digital

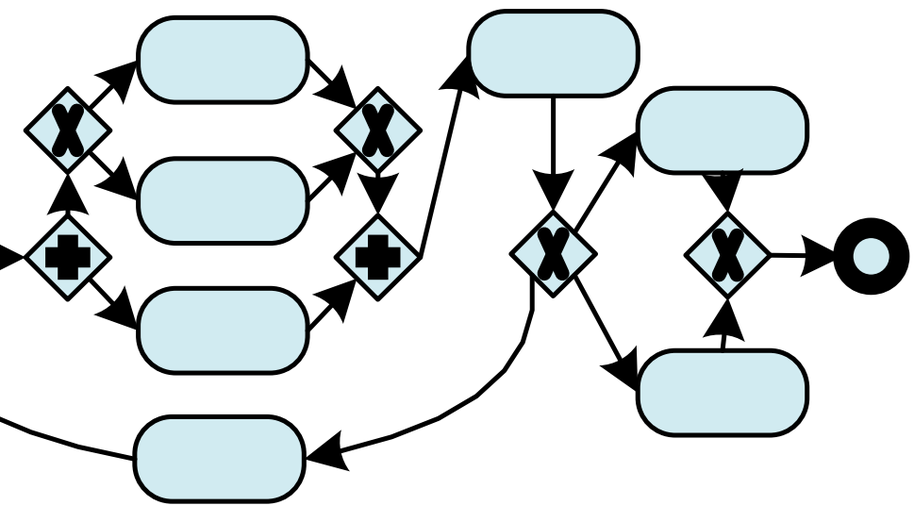
enterprise

data-driven



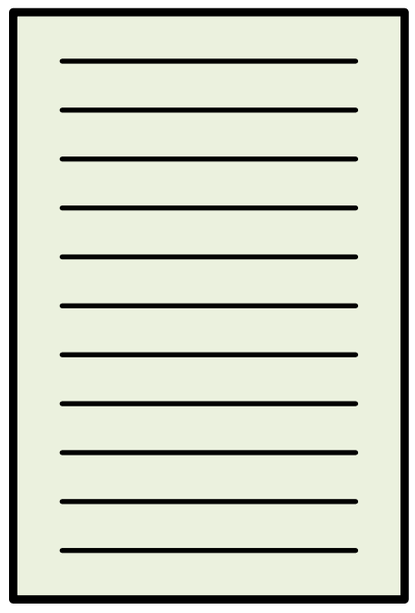
Process Mining





process model

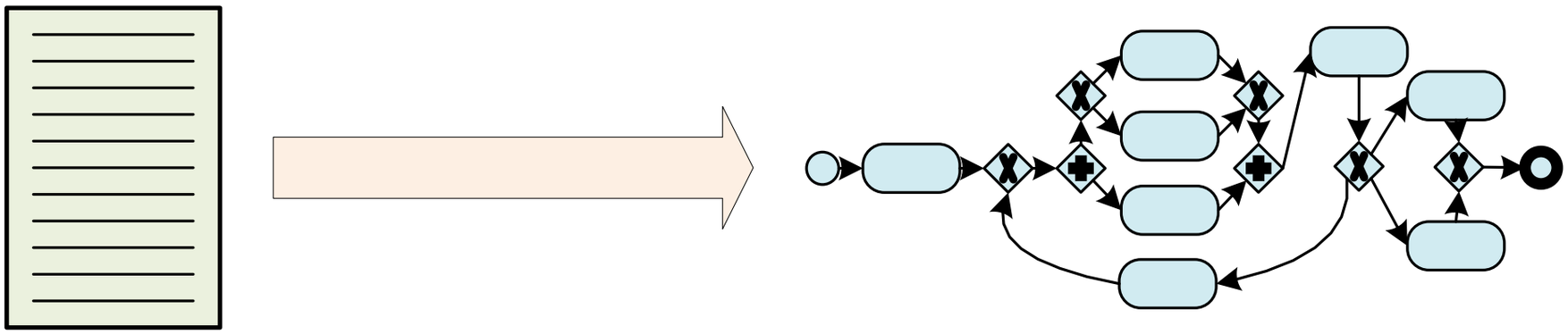
insights



event log

Process Mining

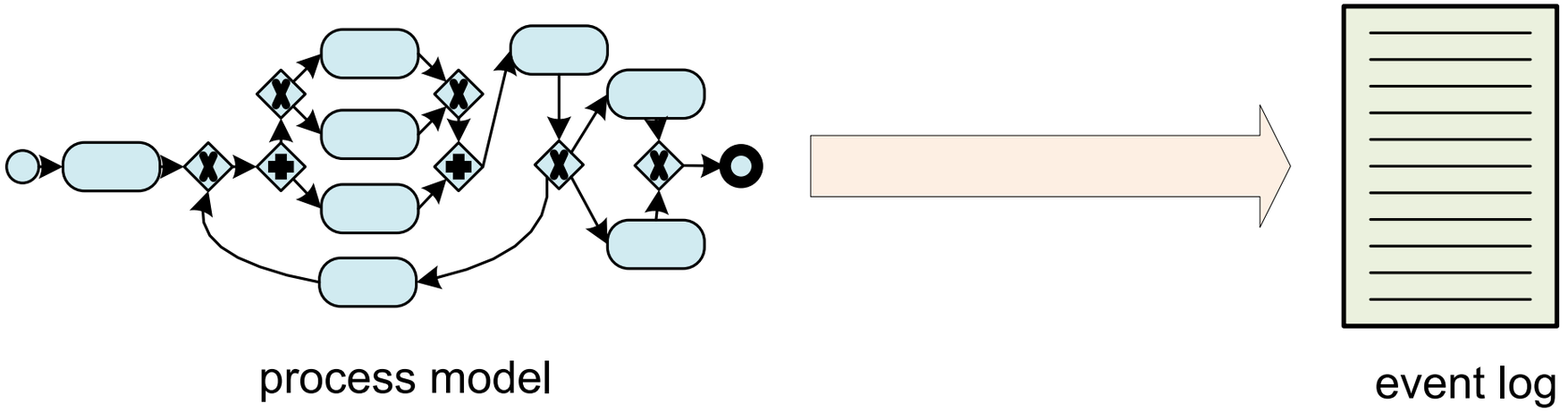
Play in



event log

process model

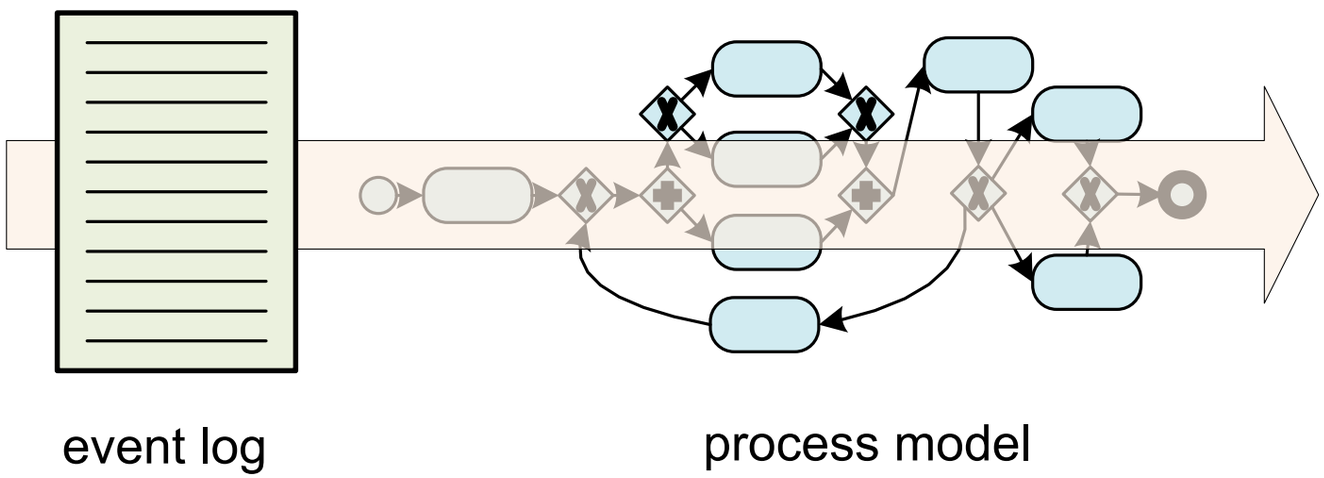
Play out



process model

event log

Replay

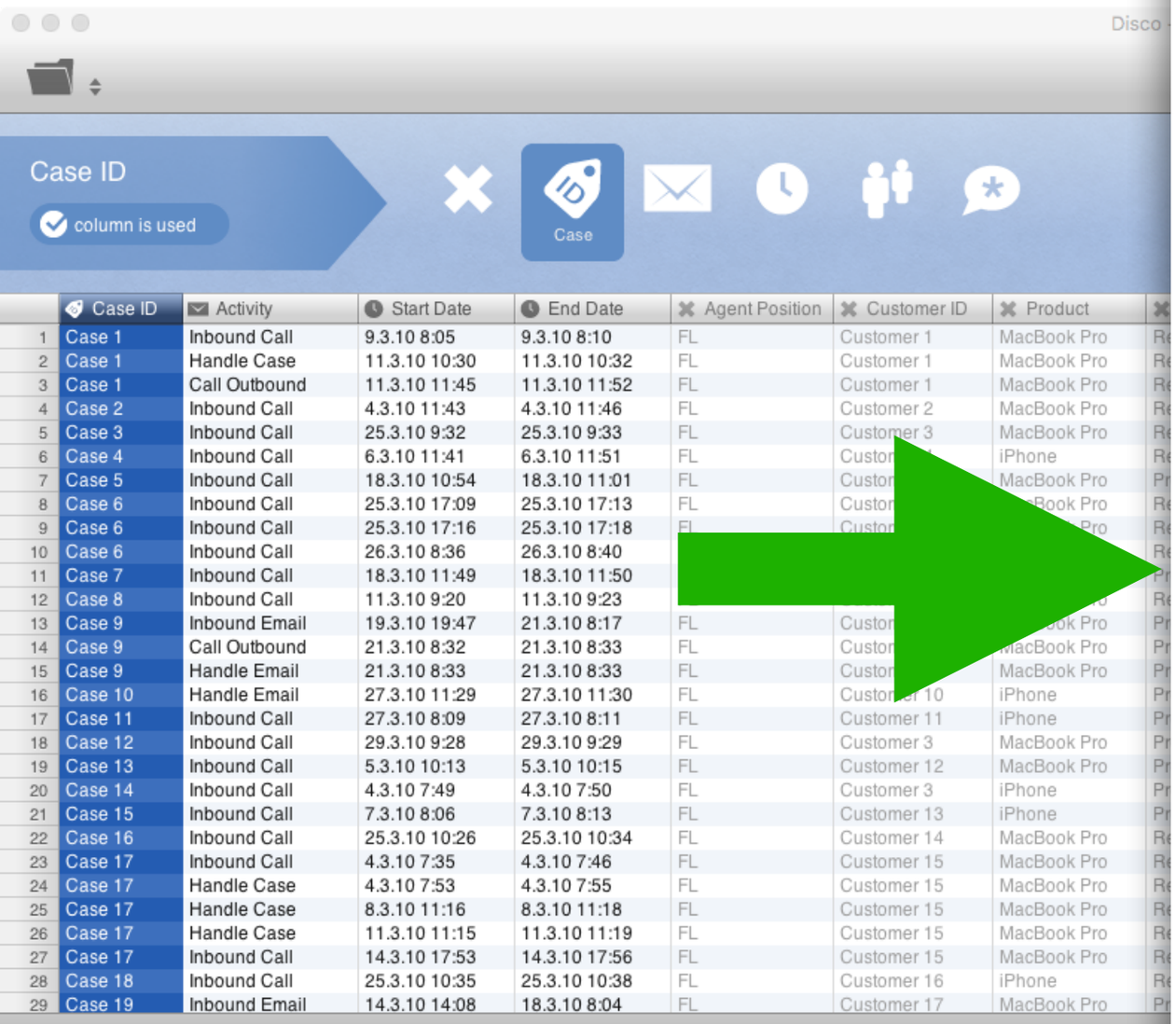


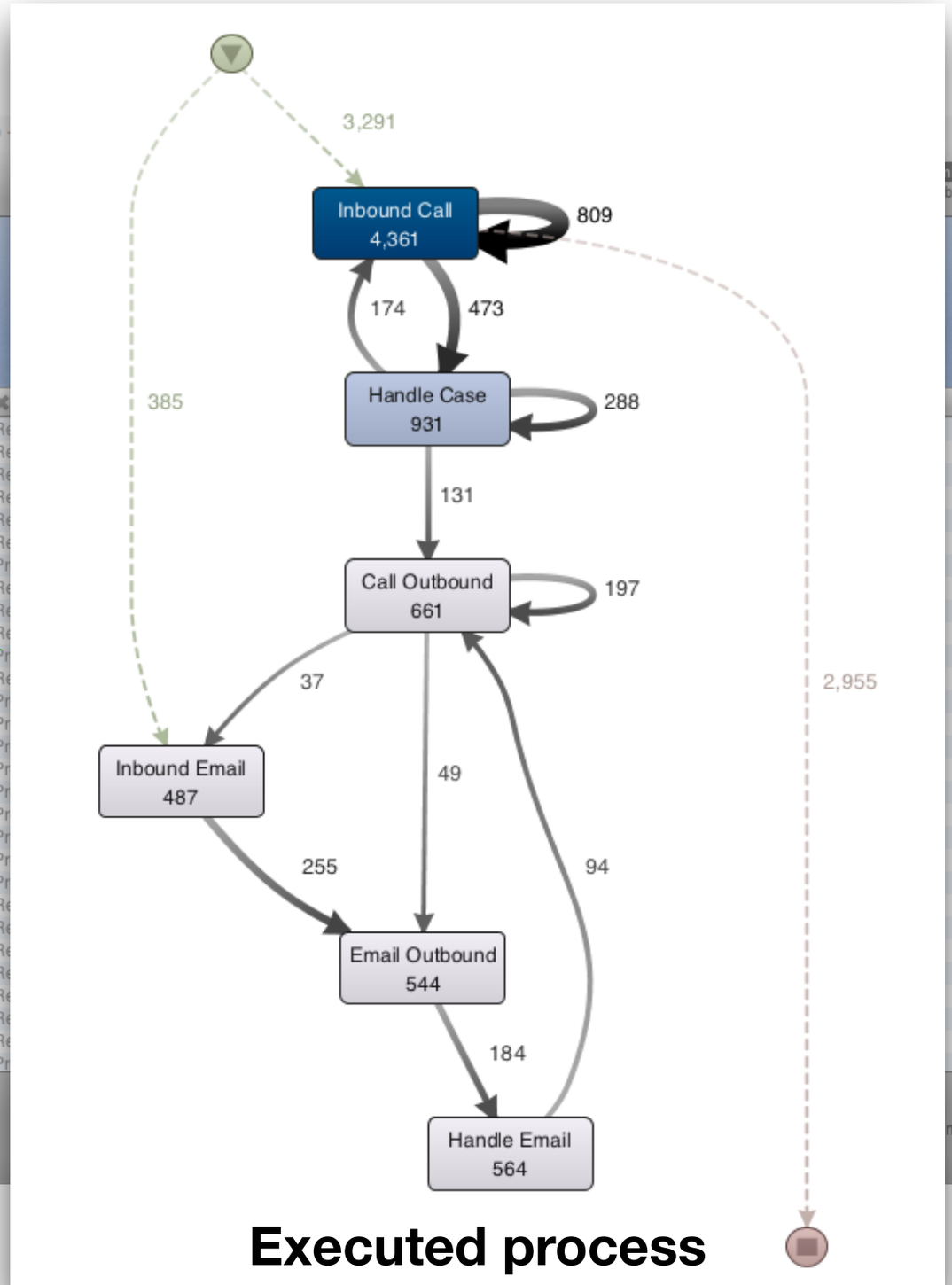
event log

process model

- extended model showing times, frequencies, etc.
- diagnostics
- predictions
- recommendations

Play in: process discovery

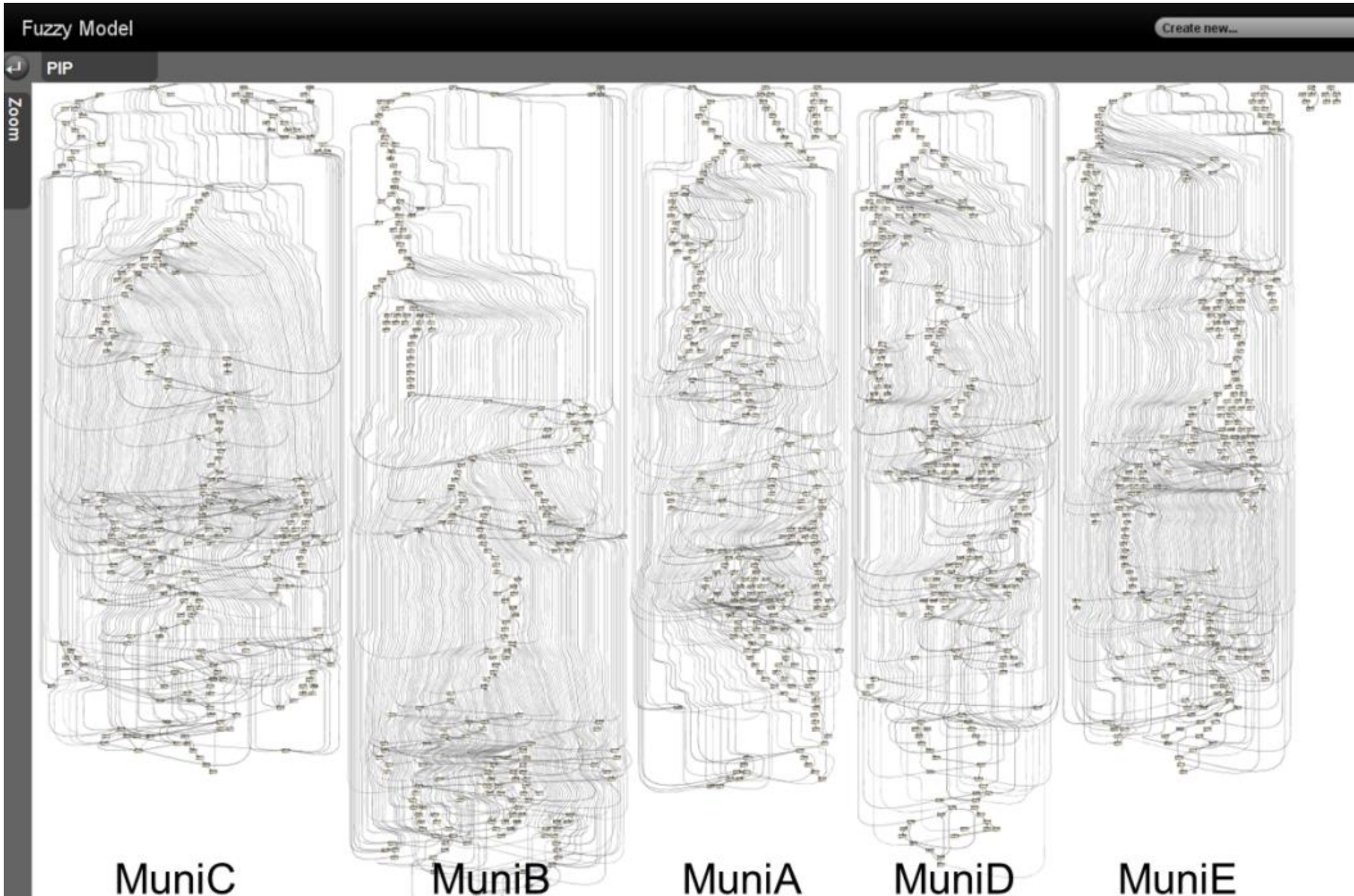




Disco
by Fluxicon

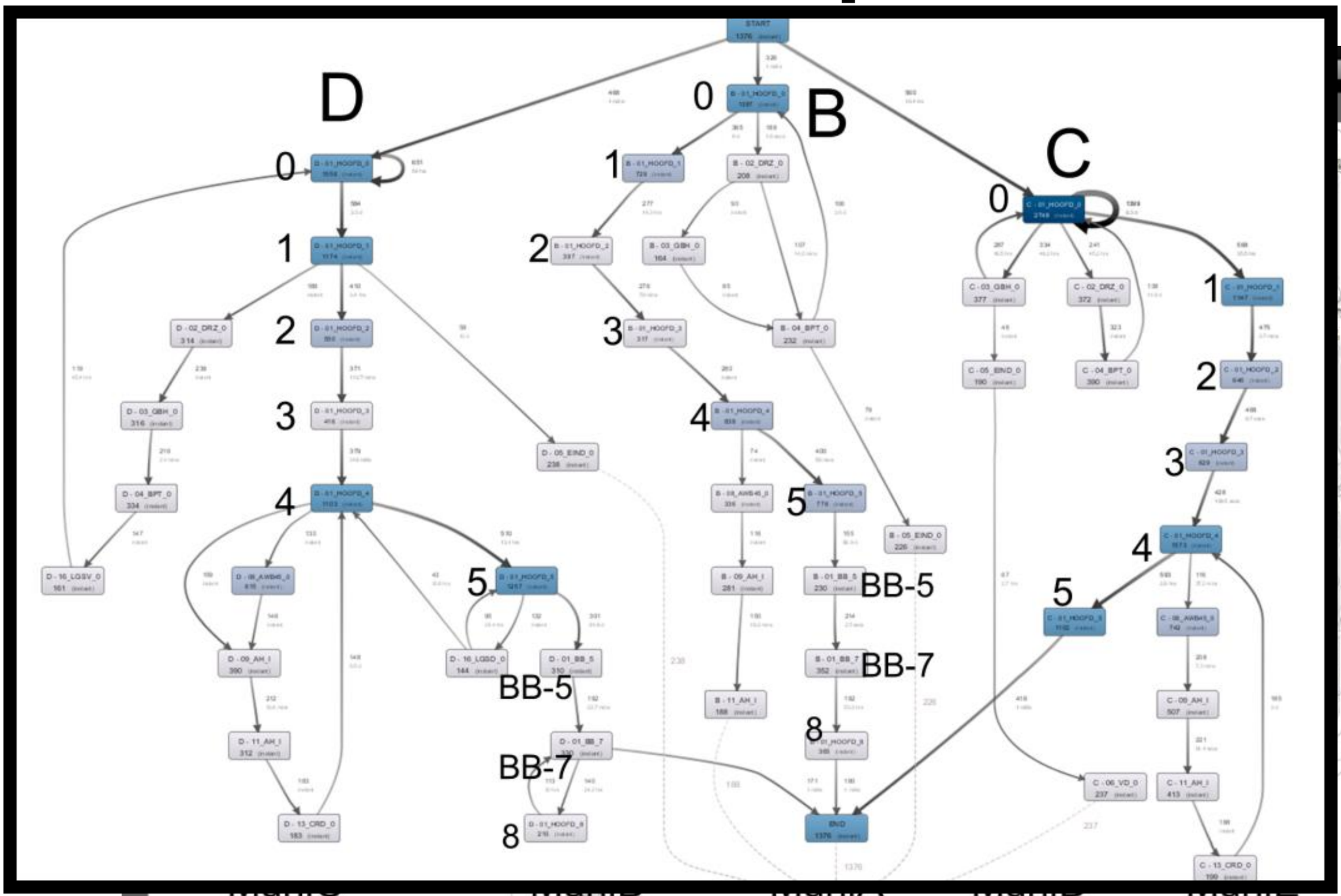
[van der Ham, BPI Challenge 2015]

Dutch Municipalities

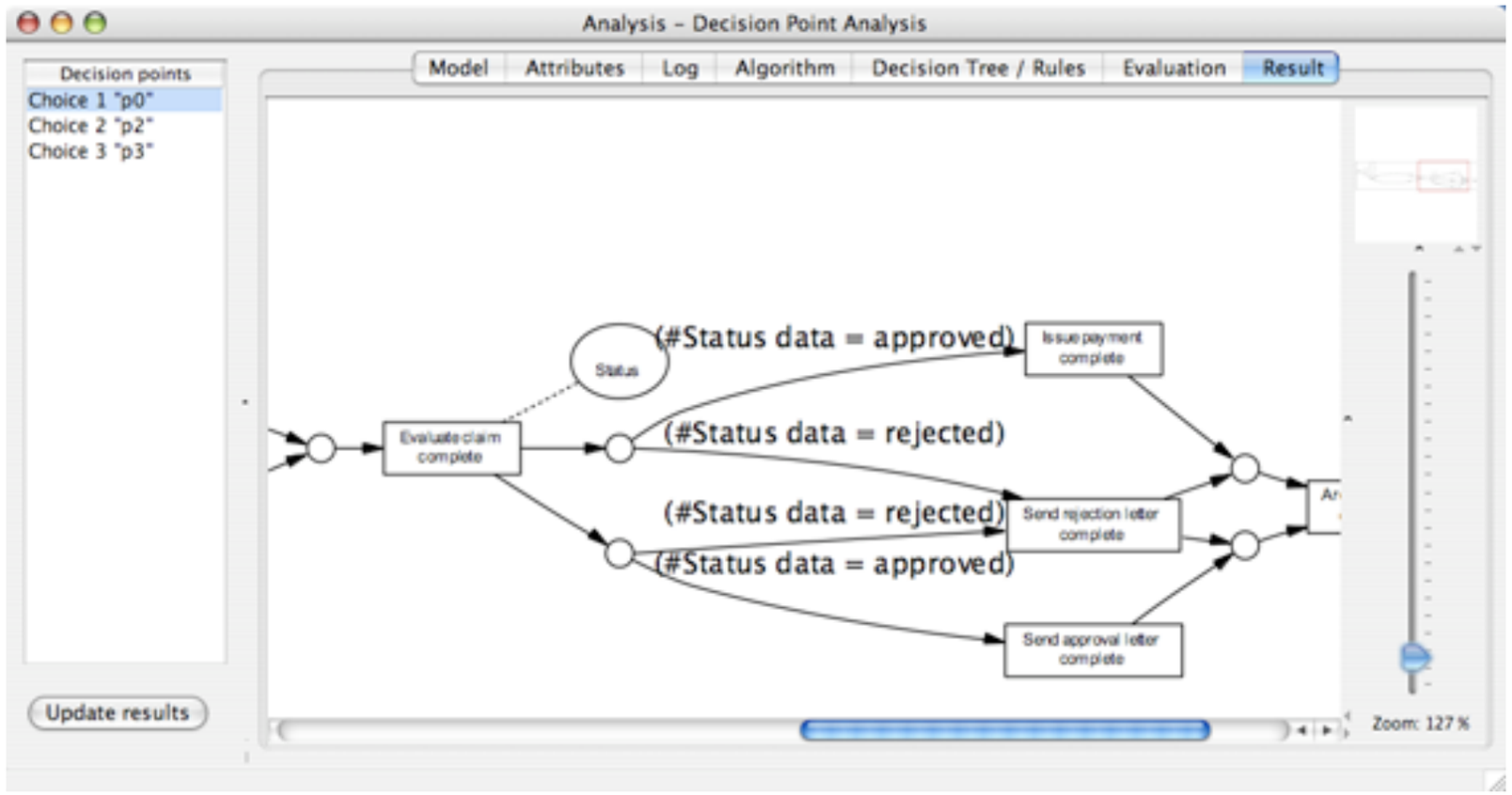


[van der Ham, BPI Challenge 2015]

Dutch Municipalities



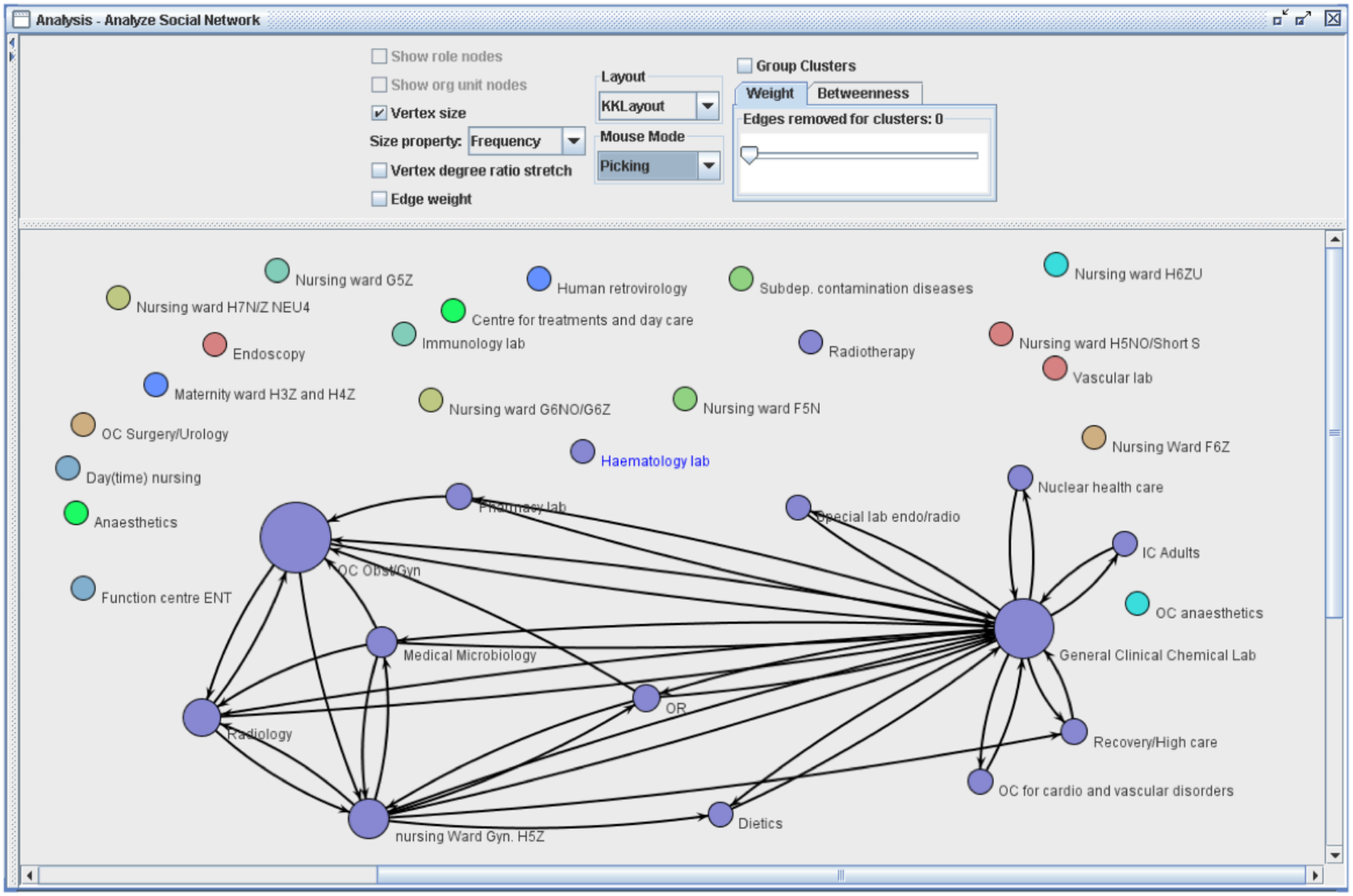
Play in: not just control-flow…



Decision mining: how do people route process instances?

ProM
process mining workbench

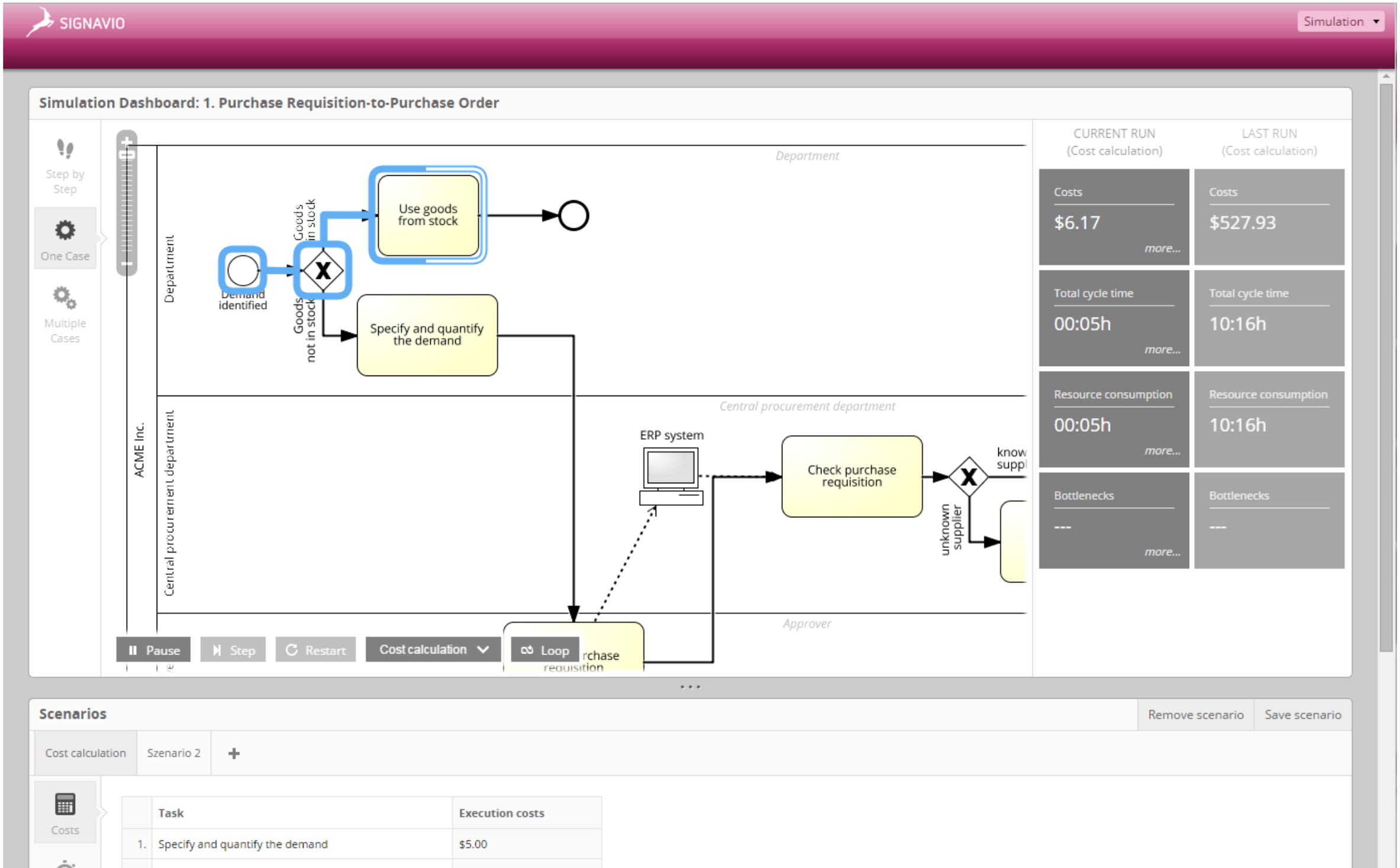
Play in: not just control-flow…



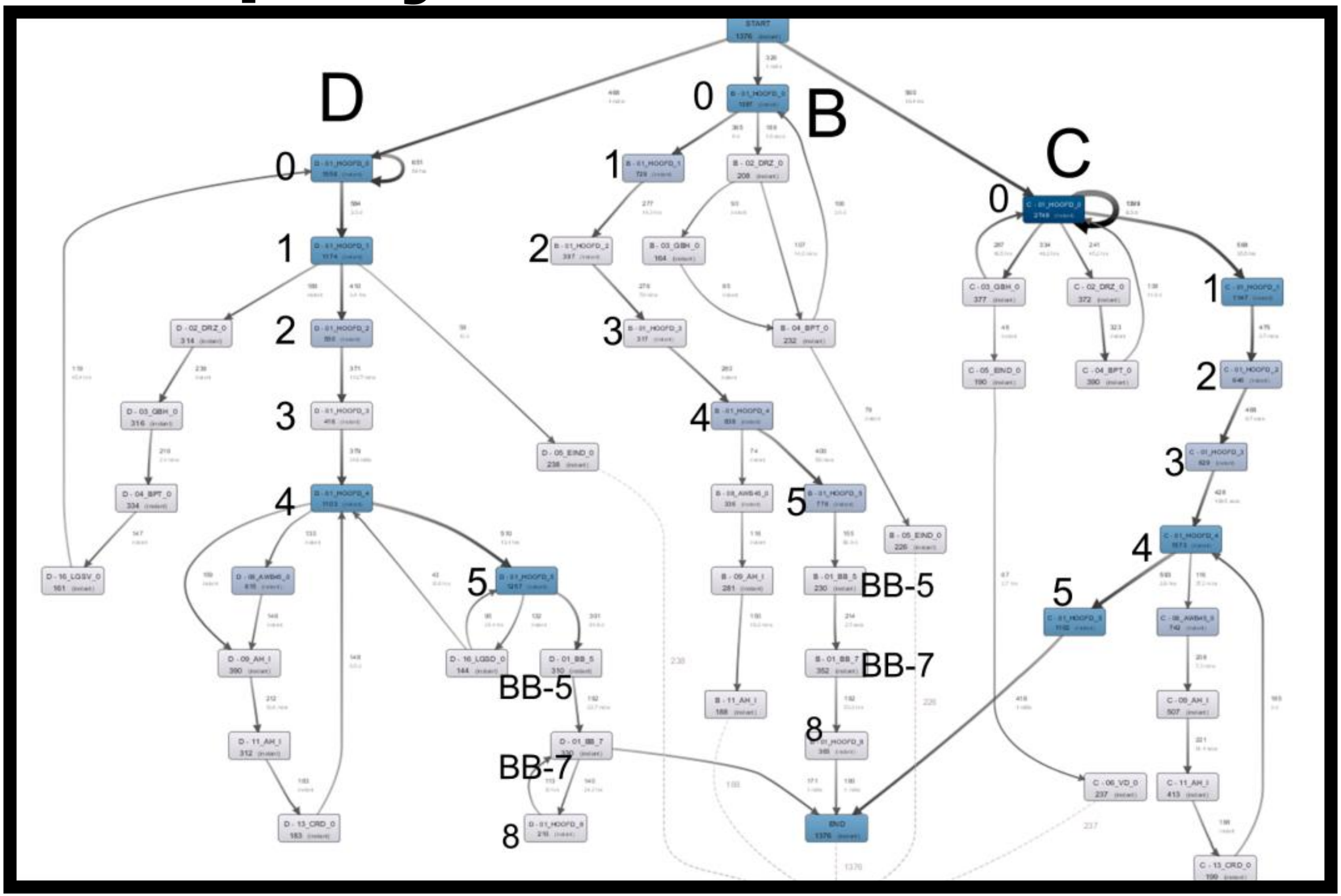
Social network mining: “real” organizational structure (handover of work)

ProM
process mining workbench

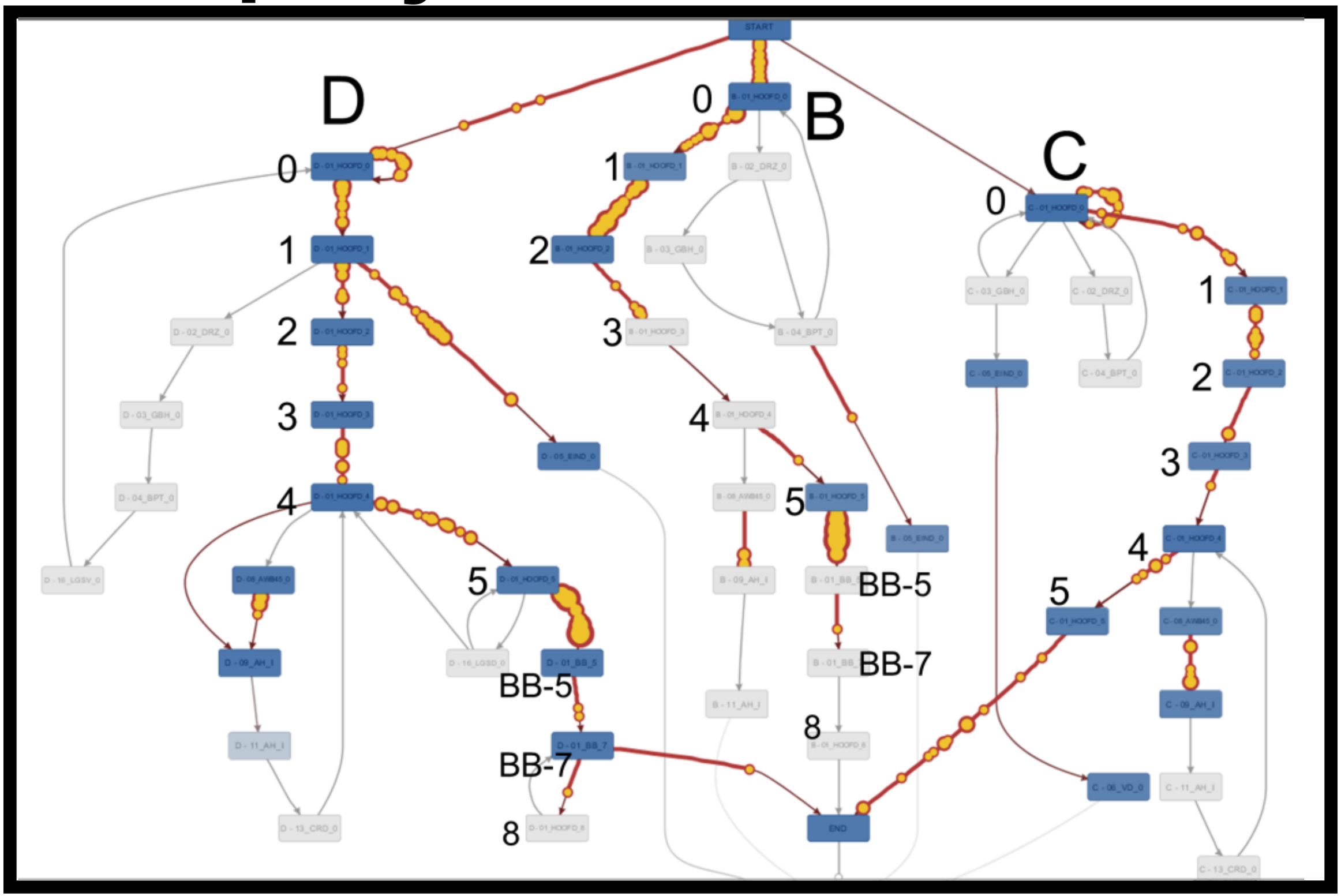
Play out: simulation



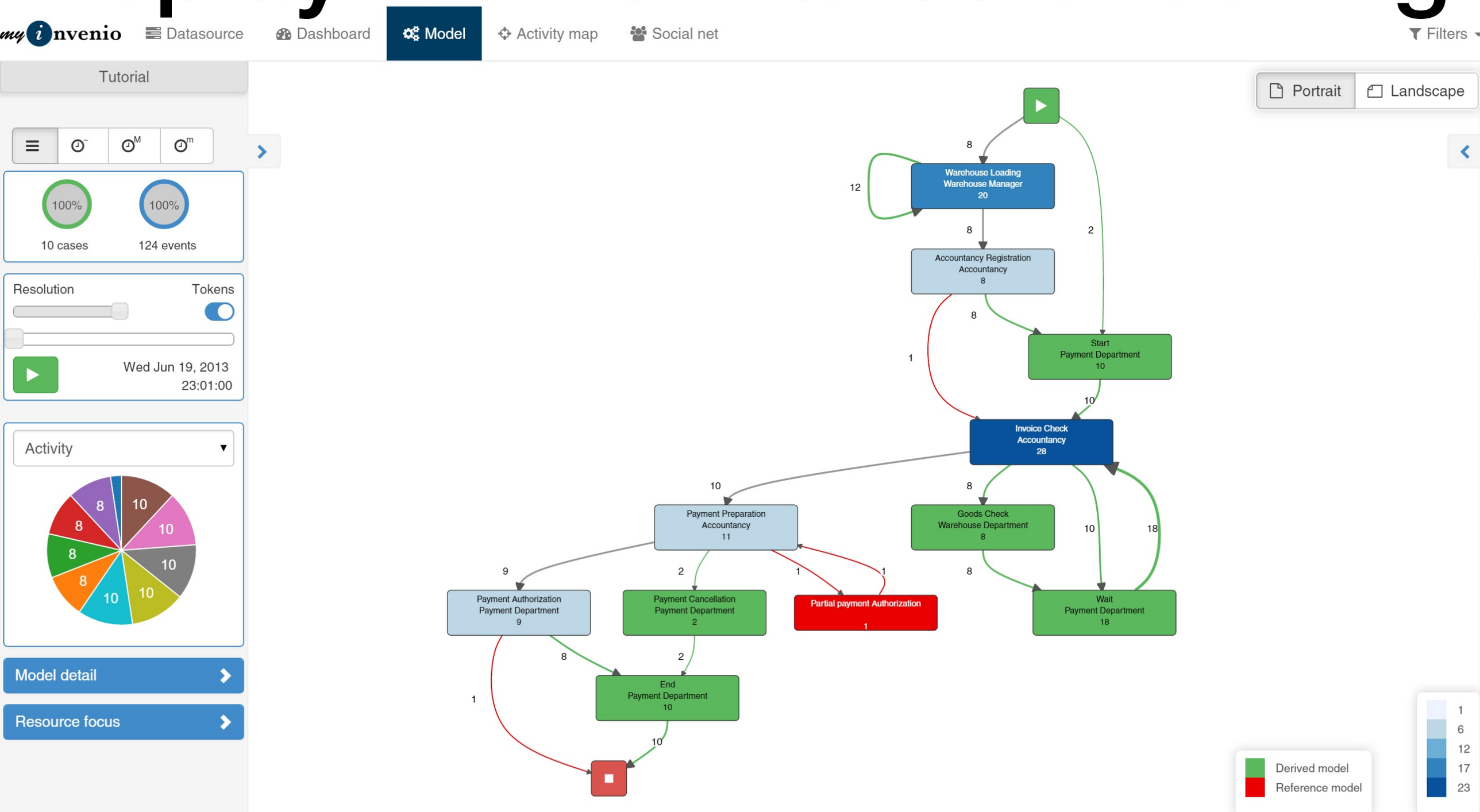
Replay: enhancement



Replay: enhancement



Replay: conformance checking



Detect deviations and align the actual with the expected behaviors

Replay: conformance checking

Replay: conformance checking

Runtime operational support

NIRDIZATI

Loan requests

RUNNING CASES	COMPLETED CASES	COMPLETED EVENTS	AVG CASE LENGTH	AVG CASE DURATION
208	3	1,568	9.33	21h 23m 40s

Detail view | Outcomes | Case duration | Remaining time | Case length

Search

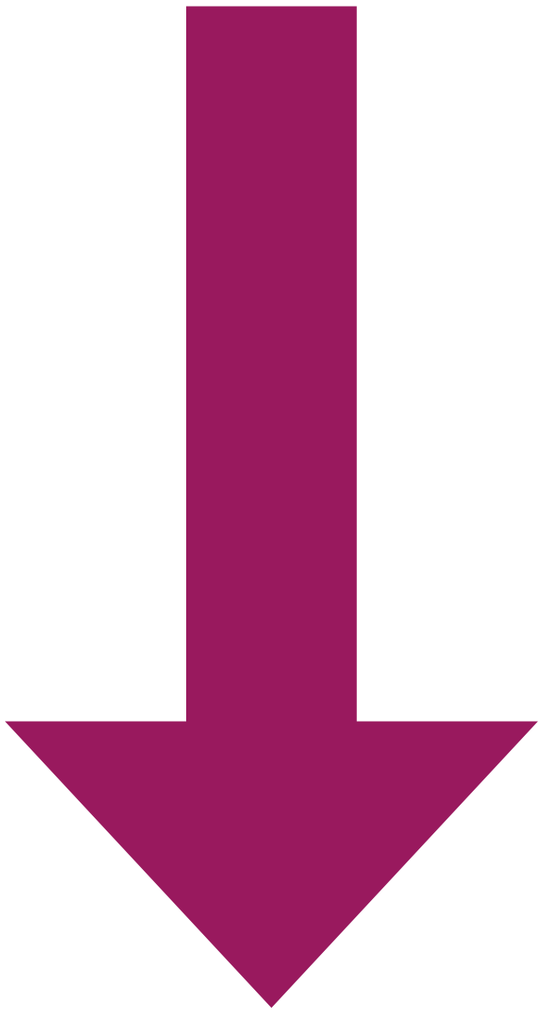
case ID	Completed	Events elapsed	Start time	Latest event time	Predicted/Actual completion time	Predicted/Actual duration	Probability to be slow	Probability to be rejected
c_2026841022	false	9	Oct 05 2016 09:07:17	Oct 06 2016 08:05:44	Oct 29 2016 11:49:42	24d 2h 42m	0.57	0.804
c_1243522820	false	8	Oct 01 2016 10:12:27	Oct 01 2016 10:19:56	Oct 22 2016 07:26:47	20d 21h 14m	0.354	0.201
c_1811993938	true	9	Oct 01 2016 10:22:34	Oct 01 2016 10:46:14	Oct 01 2016 10:46:14	0h 23m 40s	-	-
c_1080763304	false	9	Oct 01 2016 10:59:16	Oct 01 2016 13:59:36	Oct 26 2016 00:09:03	24d 13h 9m	0.597	0.277
c_1460054354	false	11	Oct 01 2016 11:36:27	Oct 01 2016 11:46:11	Oct 27 2016 02:46:51	25d 15h 10m	0.662	0.227

Showing 1 to 5 of 210 rows 5 rows per page

‹ 1 2 3 4 5 ... 42 ›

Predictive monitoring: what will likely happen to my process instance?

This is for us to take, and manage wisely



Not to control…

…but to continuously improve!

Thanks!