

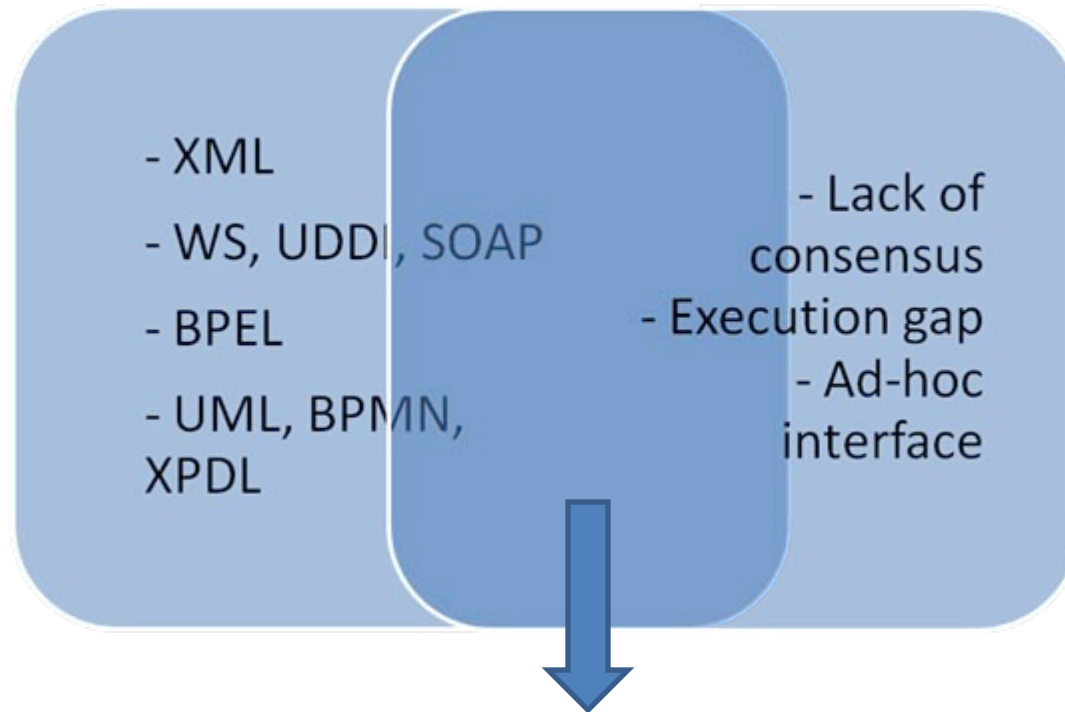
A design science approach to modelling and facilitating clinical workflow and decision making

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eCommerce meets eHealth



A SOA modelling framework
to facilitate decision making

The Framework

BPEL

- Guideline (clinical workflow) execution

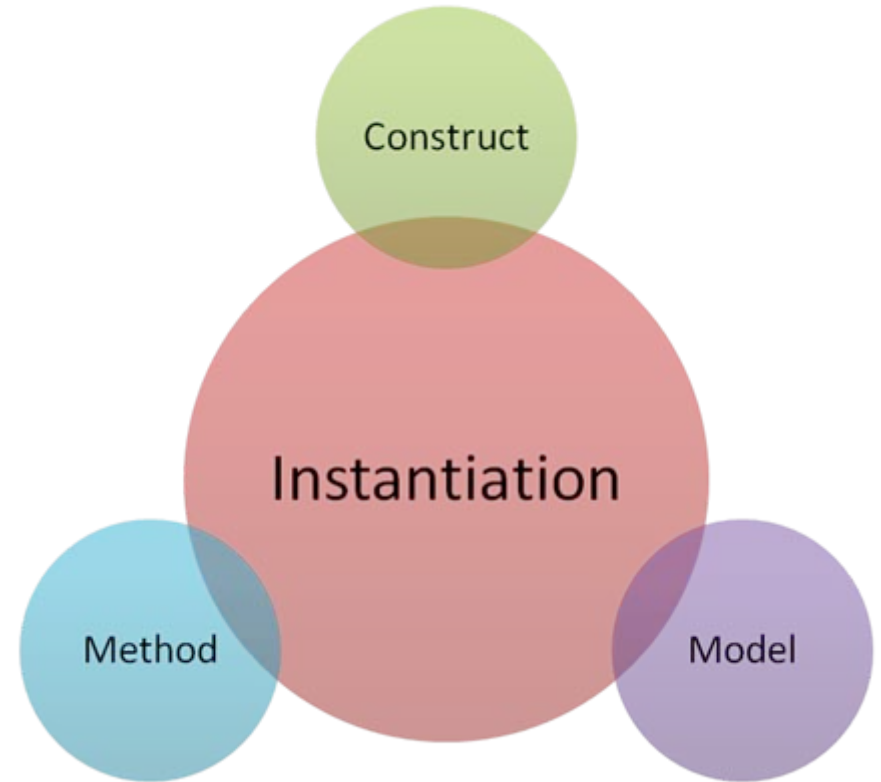
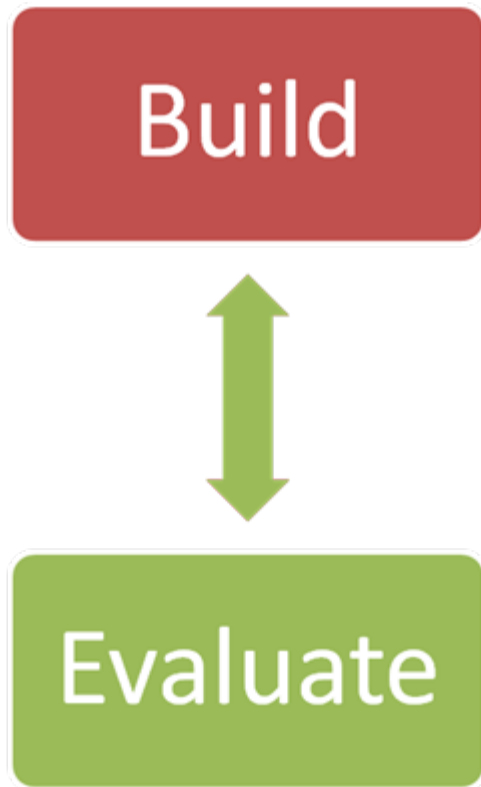
WS

- Facilitate linkage to clinical resources

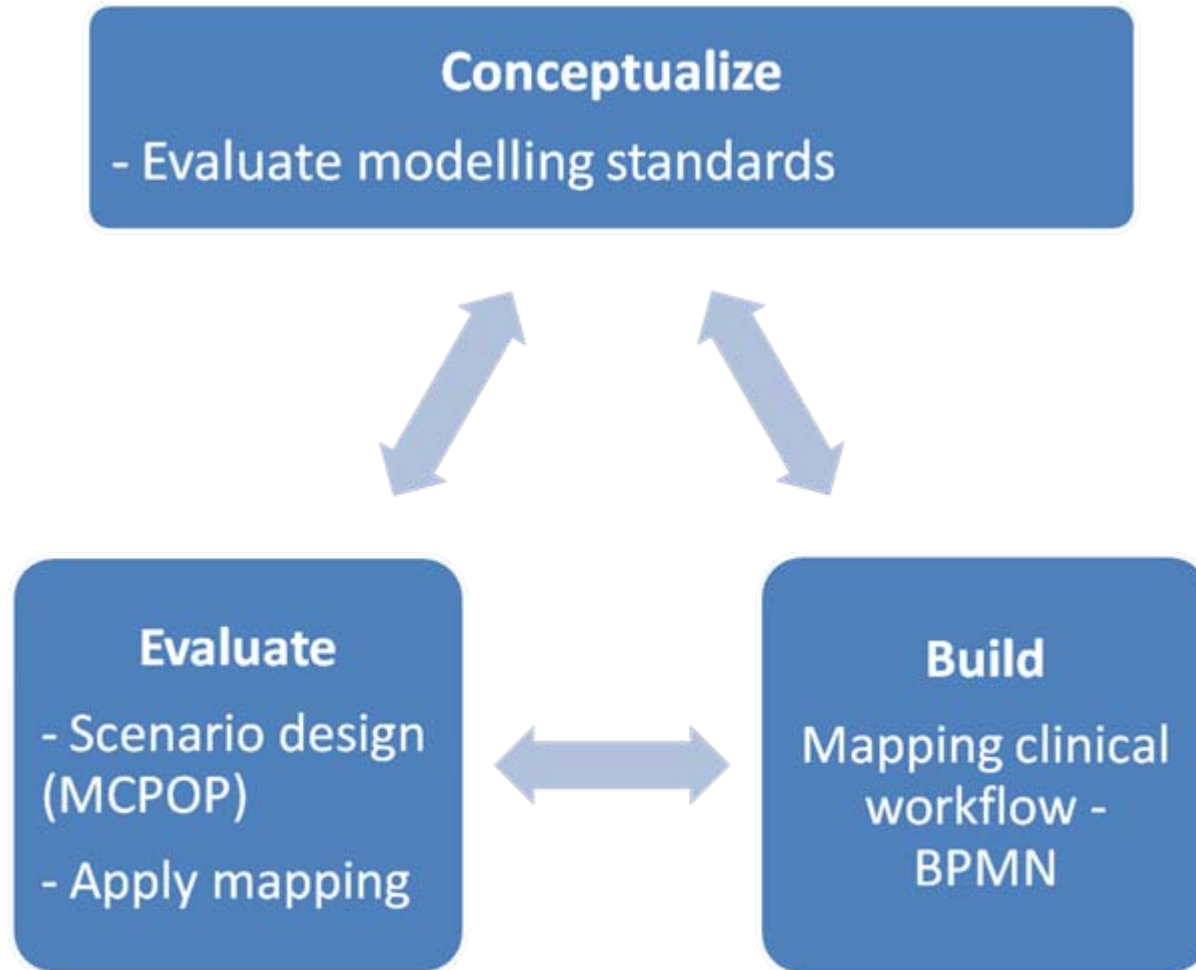
UML, BPMN,
XPDL???

- Modelling guideline

Design Science



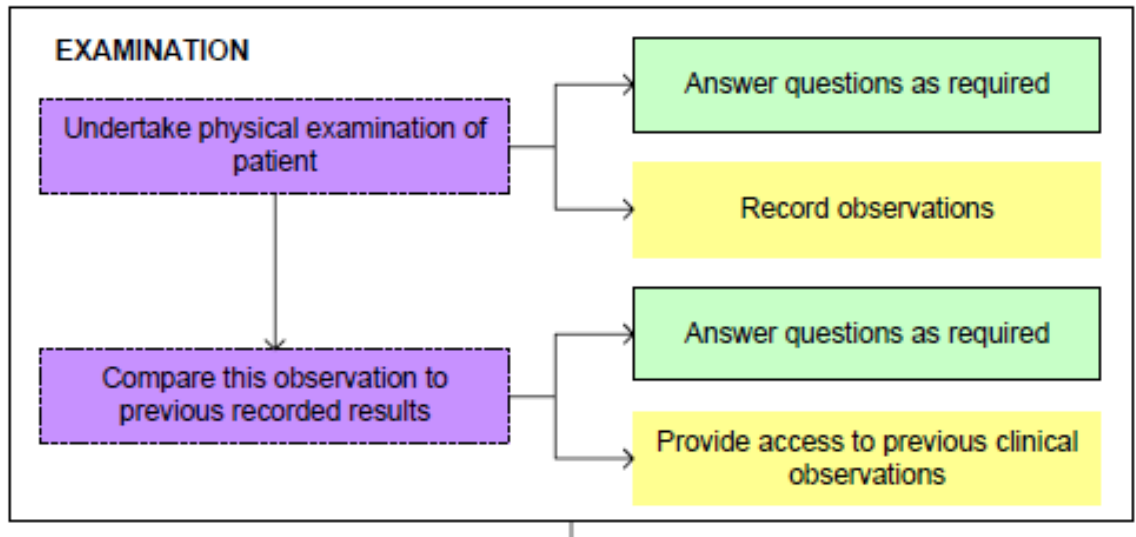
Research Process



Asthma Guideline - Narrative

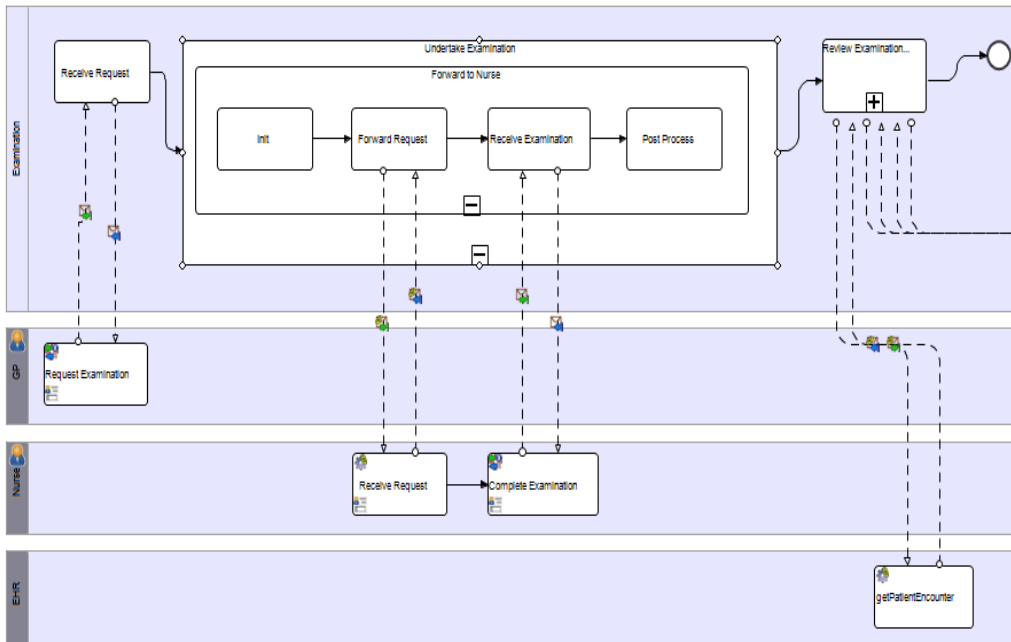
(Source: MCPOP Final Report, 2004. Siaw, Teng-Liaw, et. al)

Workflow		
Patient	GP	Computer
Answer questions as required	Undertake physical examination of patient	Record observations, in particular pulse rate, respiratory rate, blood pressure, peak flow and spirometry
	Compare these observations to previous recorded results	Provide access to previous clinical observations



Asthma Guideline

BPMN (modelling)



BPEL (execution)

Tasks Notifications Processes

Task State	Description
READY	AsthmaWorkflow - Examination Review

	Current:	Previous:
Blood pressure	<input type="text" value="80/130"/>	<input type="text" value="80/120"/>
Pulse	<input type="text" value="90"/>	<input type="text" value="90"/>
Peak flow	<input type="text" value="40%"/>	<input type="text" value="60%-70%"/>
FEV	<input type="text" value="50%-89%"/>	<input type="text" value="50%"/>
Weight	<input type="text" value="BMI 20"/>	<input type="text" value="BMI 22"/>

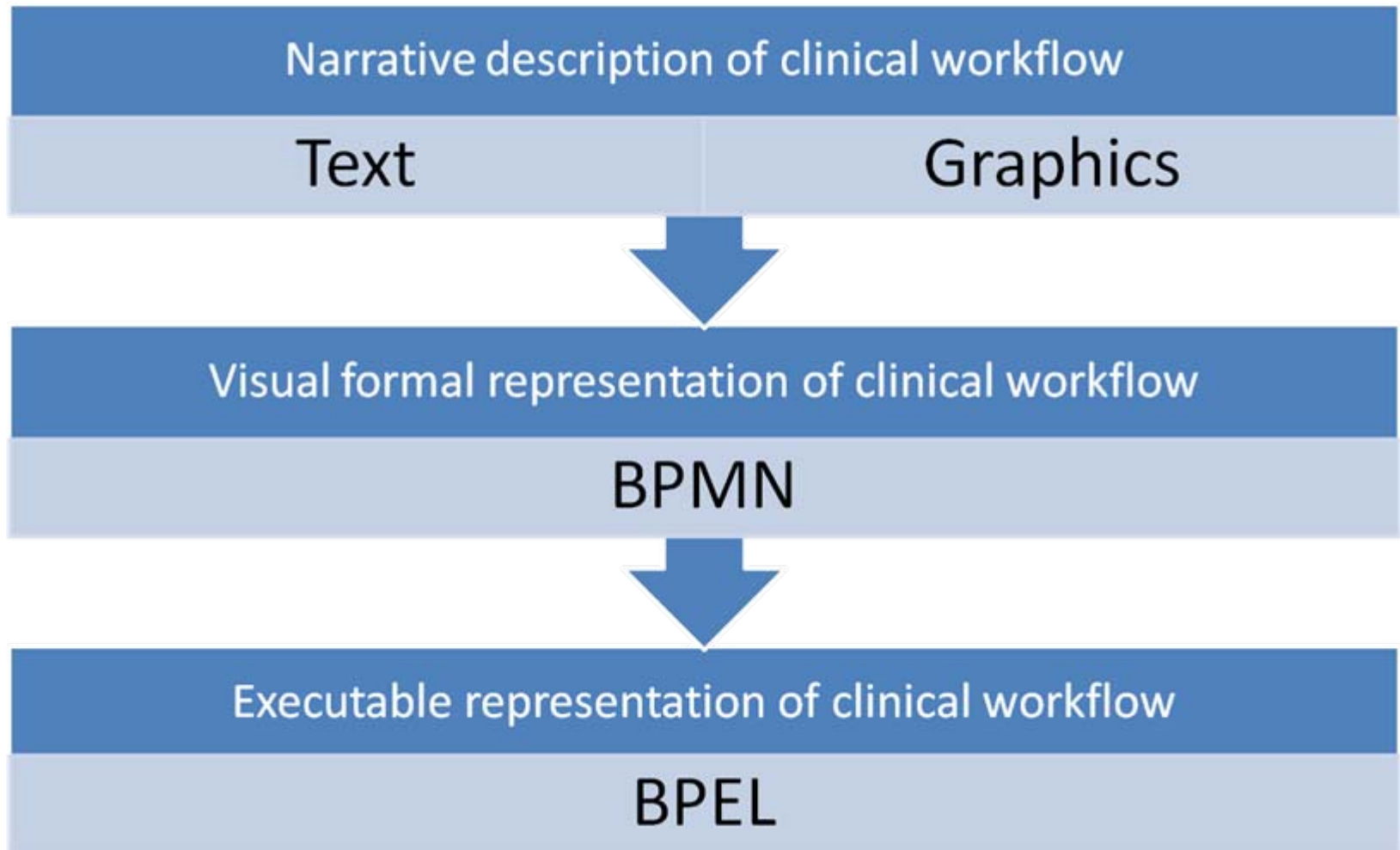
Tasks Notifications Processes

Task State	Description
READY	AsthmaFlow - Examination Request

Items required:

Blood pressure	<input type="text" value="70/140"/>
Pulse	<input type="text" value="90"/>
Peak Flow	<input type="text" value="30%"/>
FEV	<input type="text" value="40%-70%"/>
Weight	<input type="text" value="BMI 23"/>

Level of Representations



Conclusion

- BPMN allows a descriptive and executable of a clinical workflow
- BPMN representation provides better abstraction for clinical expert
- BPMN model can form the basis for transferable and re-usable clinical models