

Content

- ABM (Agent based modelling)
 - ML (ML algorithms)
 - ABM + ML $\rightarrow$ bring transparency (ML is black box)
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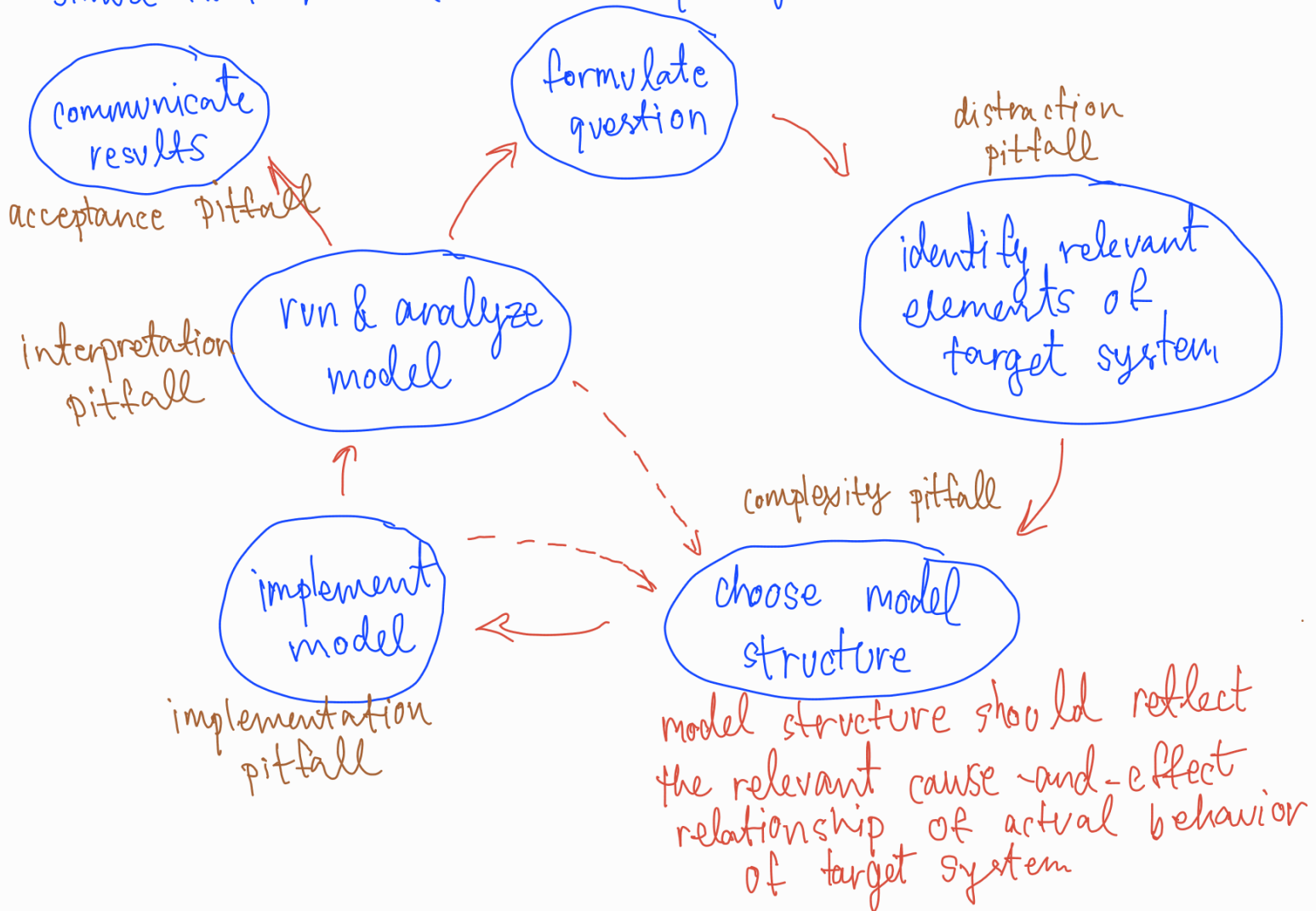
Project

- tick bites in NL
 - no. of ticks depends on weather/season
 - Lyme disease
- * data from VBI might not reliable
 - over time, people tend to forget to report
 - people behavior in different age group/area
- * tick need host ex. deer, animals
- * there might be some pattern/cycle in the data

Typical Pitfalls of simulation modelling

- 5 typical pitfalls → will be illustrated in military and managerial decision making

simulation method → 6 steps cycle



Pitfalls

① Distraction pitfall
- expanding the original question

↓
more part of reality that we need to model

↓
model getting complex!

- the factors that lead to this pitfall are involvement of other stakeholders, over confidence (can tackle several issue within one model), lack of understanding question

② Complexity pitfall

- model becomes too complex bec. you want to go for exact representation

③ Implementation pitfall

- unsuitable software for implementation
- main factor that lead to this pitfall is "cost considerations". Time constraint → short time period to learn new tools.

④ Interpretation pitfall

- wrong conclusion from model result from losing critical distance.
- factors → time constraints, model result support our hypothesis, more attach to model that we spend time & effort to create.

⑤ Acceptance pitfall

- model result doesn't match third-party / stakeholder expectation → model might get reject
- stakeholders aren't familiar w/ simulation method & not involving in design process.

Suggestion to prevent pitfalls

- ① Distraction pitfall
 - clearly defined the question & stay focus on it
- ② Complexity pitfall
 - look for possibilities to simplify the model
 - ↳ reduced to only key elements and relationships
- ③ Implementation pitfall
 - the conceptual model simulation should determine the IT implementation choice.
- ④ Interpretation pitfall
 - analyze simulation behavior
 - quality / reliability check
- ⑤ Acceptance pitfall
 - consider expectation of the audience
 - simulation model & underlying logic can be explained