L. Alberto Franco & Raimo Hamalainen

WHAT IS BEHAVIOURAL OR?

Behavioural OR: Orientation

- Commitment to *empirically* examine what people do:

  - within a system or problem domain;

  - when engaged in OR–supported processes

- Two streams of work:

  - Modelling behaviour.

  - Evaluating how behaviour affects, or is affected by OR–supported processes.

Drawing from practice theories

- Practice theories (e.g. Whittington 2003, 2006, 2011) address three questions relevant to BOR:

    - ***What*** guides behaviour?

    - ***Whose*** behaviour counts?

    - ***How*** behaviour is enacted?

- Answers to these questions can provide explanations of impacts achieved (or not) from the application of OR.
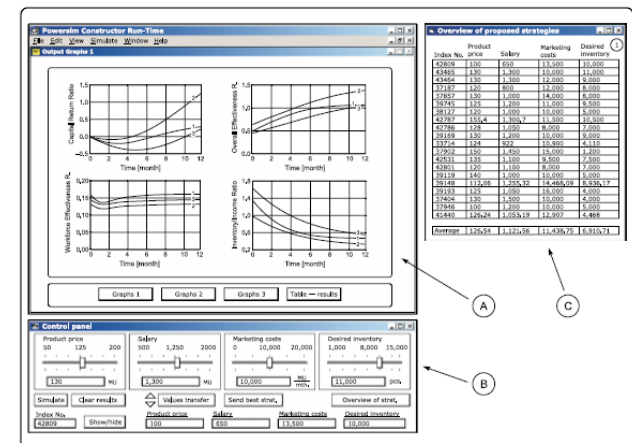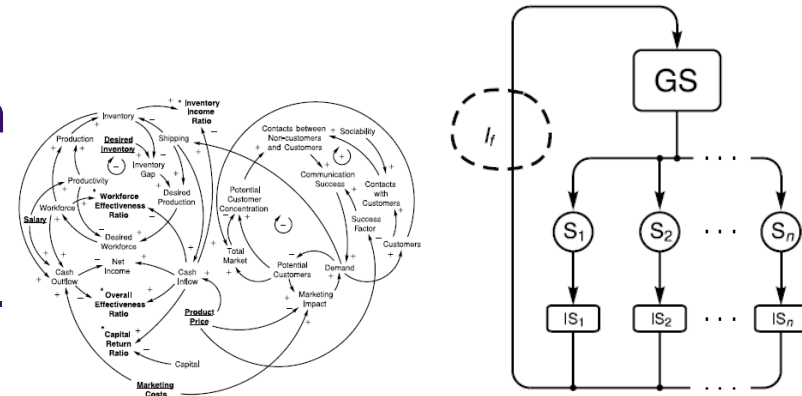
What guides behaviour: OR *methods*

- OR intervention approaches, techniques and tools.

Illustration (1)

- Skraba et al.'s (SDR 2003) study of the effect of feedback information on a SD-supported group process:

- Task was to determine best strategy.

- The use of group feedback information, in addition to using the SD model:

  - positively influenced convergence of the decision process;

  - contributed to higher (individual) performance.

Illustration (2)

- Joldersma & Roelofs (EJOR 2004) quasi experimental study of the impact of OMT:
  - 2-day simulation task.
  - Control vs experimental groups comprised of Dutch managers.
  - Impact variables: differentiation, integration, participation, communication.
  - Little impact when high conflict about task or interests
  - More impact when modelling focused on information exchange.

What guides behaviour: OR *methods*

- OR intervention approaches, techniques and tools.

- Other 'methods' also included, e.g.:

  - routines/scripts;
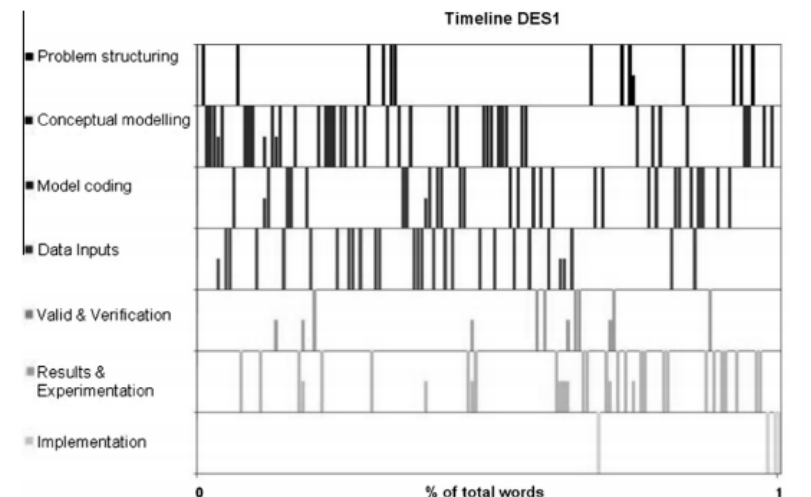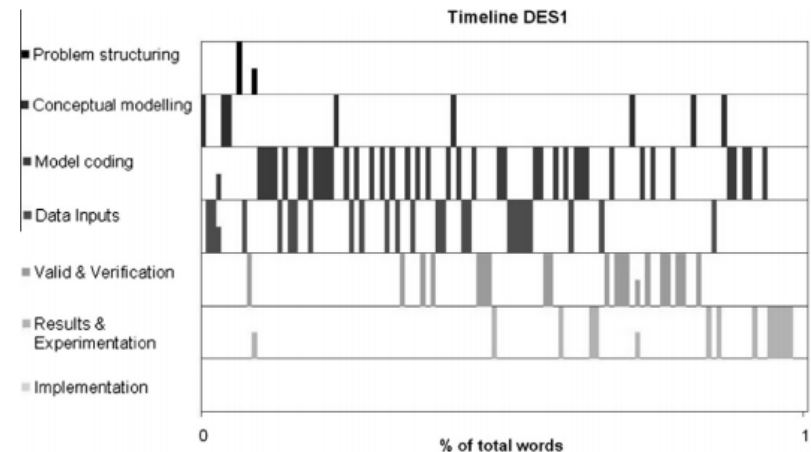
  - communication strategies;

  - norms and procedures.

Whose behaviour counts: OR *actors*

- Individuals who, individually or as part of a team, design, implement or engage with OR-supported processes:

  - OR practitioners.

Illustration

- Tako & Robinson's (EJOR 2010) study of expert DES and SD modellers:
  - ***Seven modelling stages*** identified.
  - All modellers switch between stages, BUT…
    - ***DES modellers*** follow a more ***linear progression***.
  - ***SD modellers*** focus more on ***conceptual modelling***
  - ***DES modellers*** focus more on ***model coding*** and ***V&V***.

Timeline DES1

Problem structuring
Conceptual modelling
Model coding
Data Inputs
Valid & Verification
Results & Experimentation
Implementation

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Whose behaviour counts: OR *actors*

- Individuals who, individually or as part of a team, design, implement or engage with OR-supported processes:

  - OR practitioners.

  - OR clients, OR sponsors, OR users.

- Impact of actors' behaviour and methods are intertwined.

How behaviour is enacted: OR *praxis*

- What OR actually do with OR methods *in situ*.

- Streams of actual OR-supported activity happening at different organisational levels.

  - Most visible within specific 'episodes'.

Illustration (1)

- Tavella & Franco's (GDN 2015) study of facilitated modelling processes:

  - ***Generative model-supported conversations*** (e.g. inviting, proposing, clarifying, building) lead to new or shared knowledge.

  - ***Assertive model-supported conversations*** (e.g. challenging, reiterating, undermining, deploying authority) lead to recycling existing knowledge.
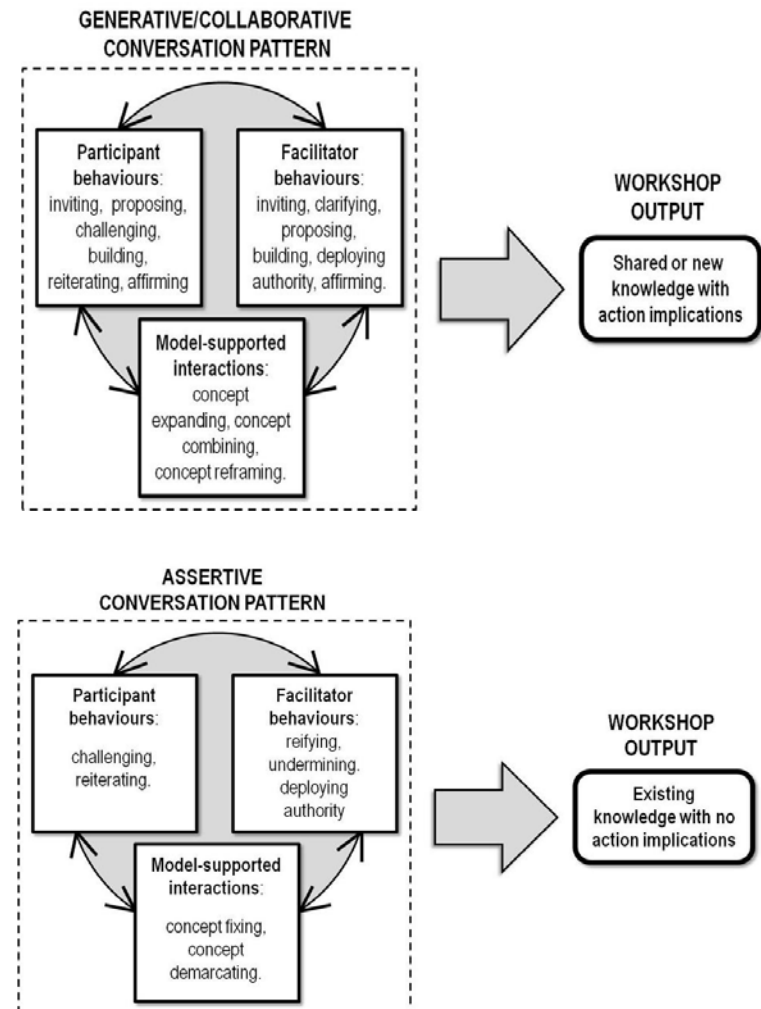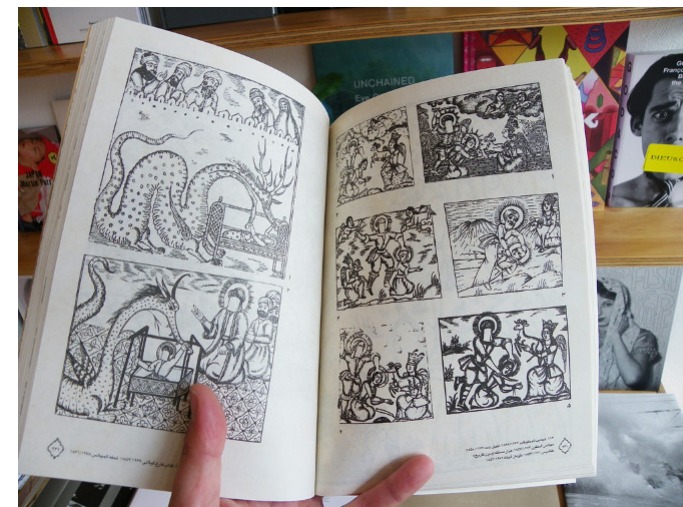
Illustration (2)

- Ormerod's (JORS 2013) study of an OR project with UK NCB during 1970s-1980s:
    - used the concept of 'mangle' (Pickering 1995) to examine intervention;
    - showed how complex intertwining of material and social factors affected the intervention's design, deployment and outcomes.

How behaviour is enacted: OR *praxis*

- What OR actually do with OR methods *in situ*.

- Streams of actual OR-supported activity happening at different organisational levels.

  - Most visible within specific 'episodes'.

- Focus on praxis can highlight gap between 'textbook' OR and 'actual' OR on the ground.

The argument so far

- To achieve a holistic picture of the role and impact of behavioural issues in OR, we need to:

  - investigate a wide range of OR methods;

  - attend to who engages with them;

 - closely examine how they are actually used in practice.

OR praxis

OR methods

OR actors
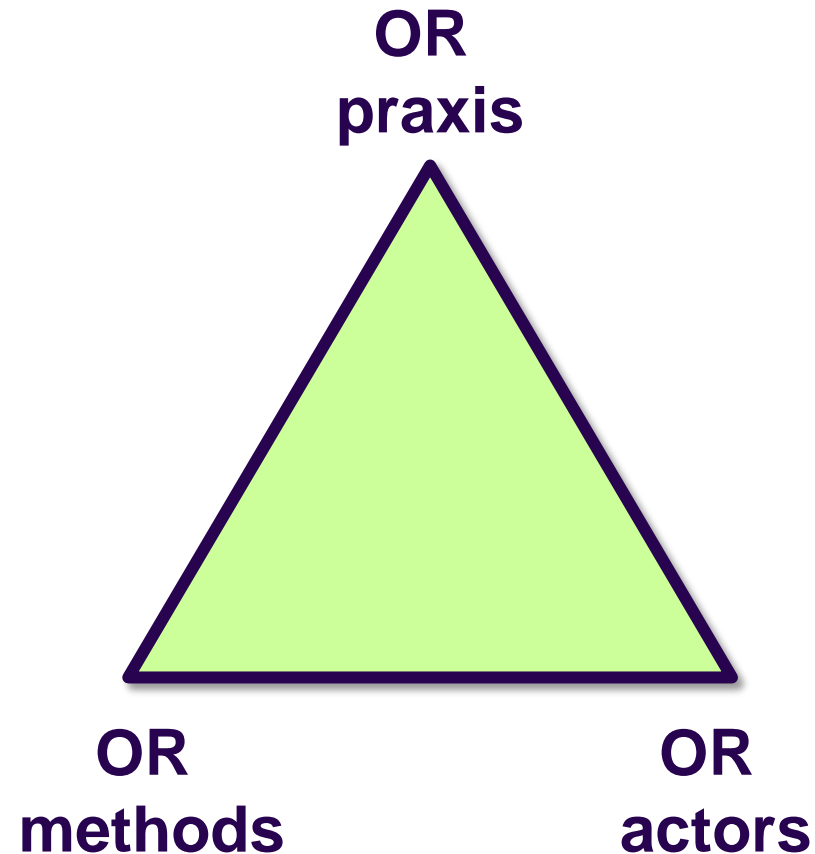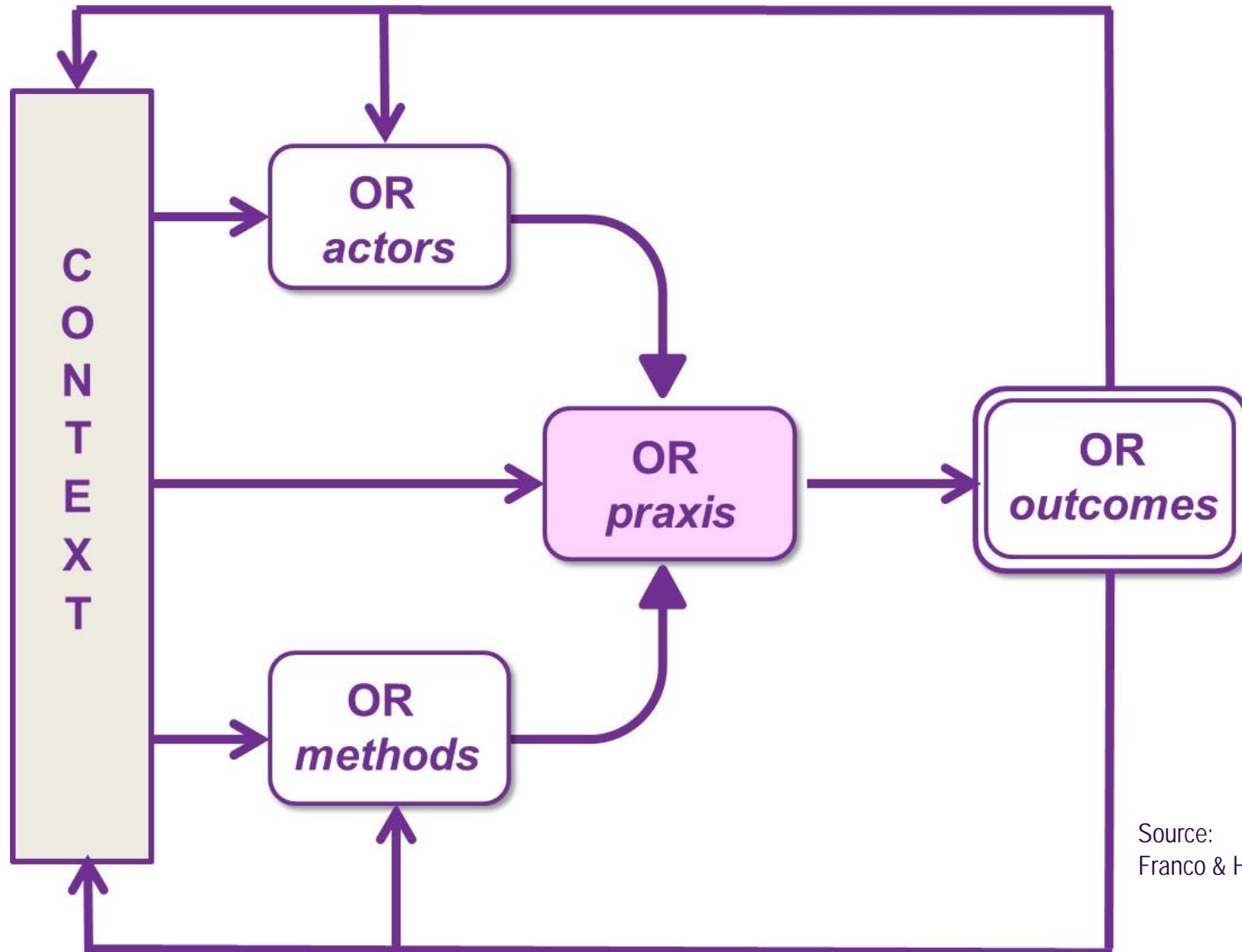
Source:
Franco & Hamalainen (2016)

Focus on OR methods

- Behavioural-related outcomes of models/modelling:
  - Results from simulations.
  - Changes in cognition, attitudes or interactions.
- Behavioural-related impacts of data elicitation protocols.
  - De-biasing effects.
- Under-researched methods:
  - Routines/scripts.
  - Communication strategies.
 - Norms/procedures.
  - OR teaching methods
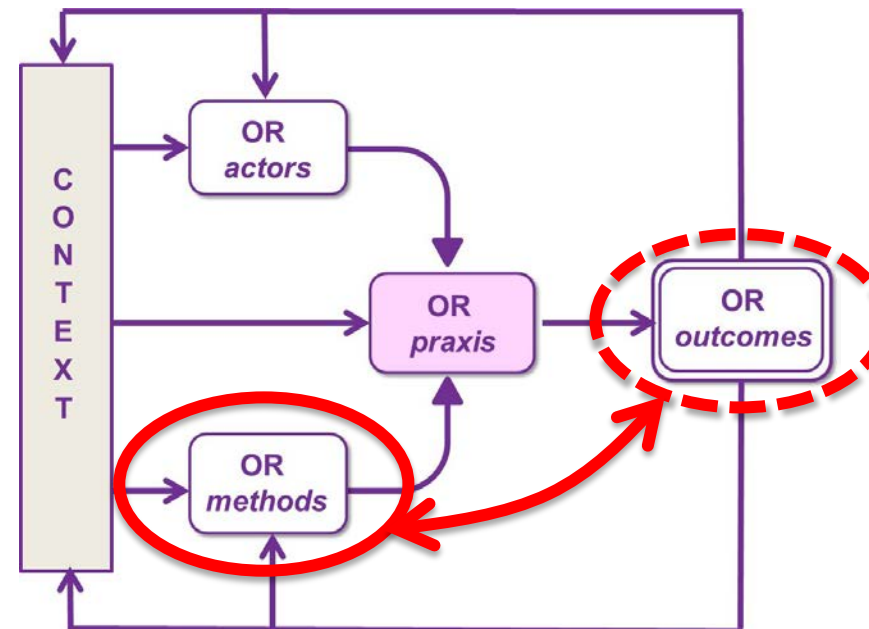
Focus on OR actors

- Expert/novice modellers and/or user studies doing simulation, forecasting, decision analysis, strategy.

- Same method can lead to different outcomes depending on actors' characteristics, e.g.:

  - Competences.

  - Cognitive style.

  - Consulting approach.

  - Status/authority.
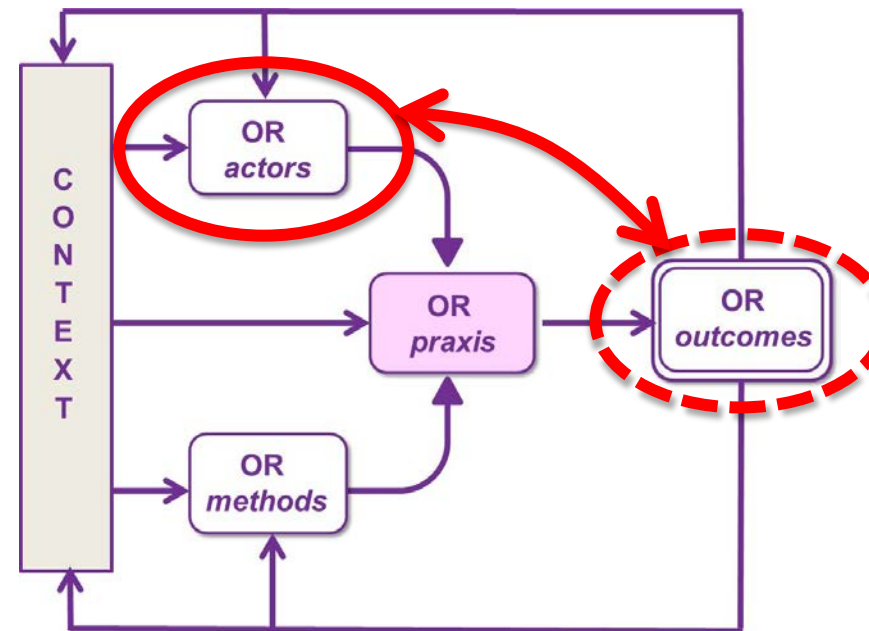
Focus on OR praxis

- Pays attention to the *situated* nature OR method use.

- Still relatively underexplored, particularly in the field, with few exceptions.

- Observed deviations from expectations of method use may or may not imply bad OR praxis.
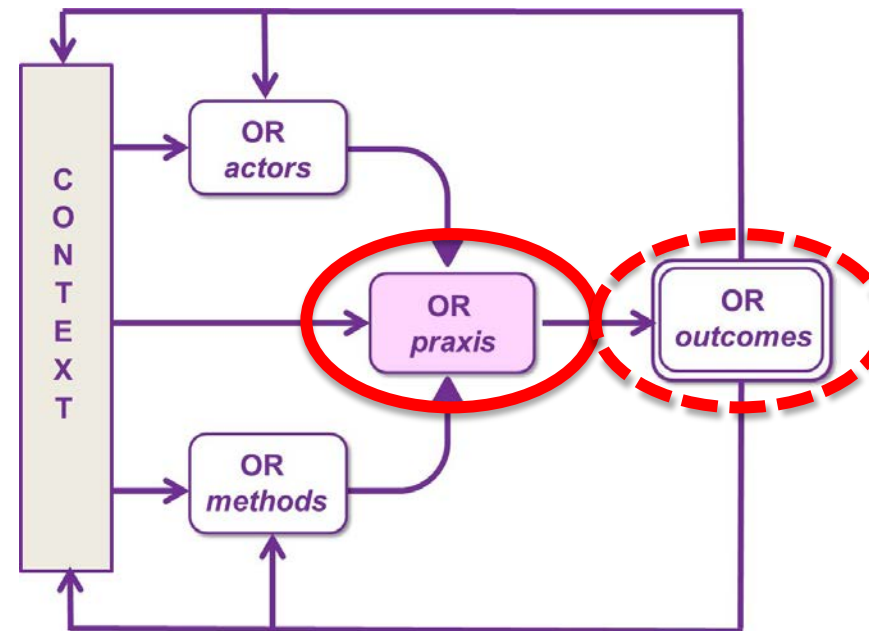
Methodological issues

- There is not one single way to conduct BOR studies.
- We can learn from how change has been studied in the social sciences and organisation studies (e.g. Poole and Van de Ven 2010):
  - Causal studies.
  - Sequence studies.
  - Sociomaterial studies.
  - Modelling studies.

	Substantive ontology	Processual ontology
Variance approach	Causal studies	Modelling studies.
Process approach	Sequence studies	Sociomaterial studies

Based on Poole & Van de Ven (2010)

Implications of adopting the BOR perspective

- Foregrounding OR praxis in academic papers.

- Evaluating impact of diverse OR actors.

- Developing different competences in OR.

- Grounding BOR studies in relevant theories.

Conclusion

- OR is never just about modelling and models, but also about people.

- Eclecticism implied by current published BOR studies should be embraced, not discouraged:
  - Alternative analytical foci and entry points possible
  - Alternative research methodologies possible.

- What BOR studies can offer:
  - empirically-grounded explanations of how OR actors use OR methods in their praxis to produce outcomes;
  - a theory of effective OR practice, i.e. better methods, improved praxis, and increasingly competent actors.

Thank you!

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