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# Making OR practice 'visible': Using ethnomethodology to analyse facilitated modelling workshops

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## Background

- Unpacking the ‘black box’ of OR practice.
- Engaging with what OR practitioners and users actually do.
- What do we know about OR practice?
  - Surveys of particular OR approaches.
    - Mostly *about*, rather than *of*, OR practice.
  - Descriptive case studies of OR practice.
    - Mostly introspection, anecdotal evidence, interviews.
- Scarcity of real-time OR studies, with some exceptions, e.g. Velez-Castiblanco et al (2016); White et al (2016).

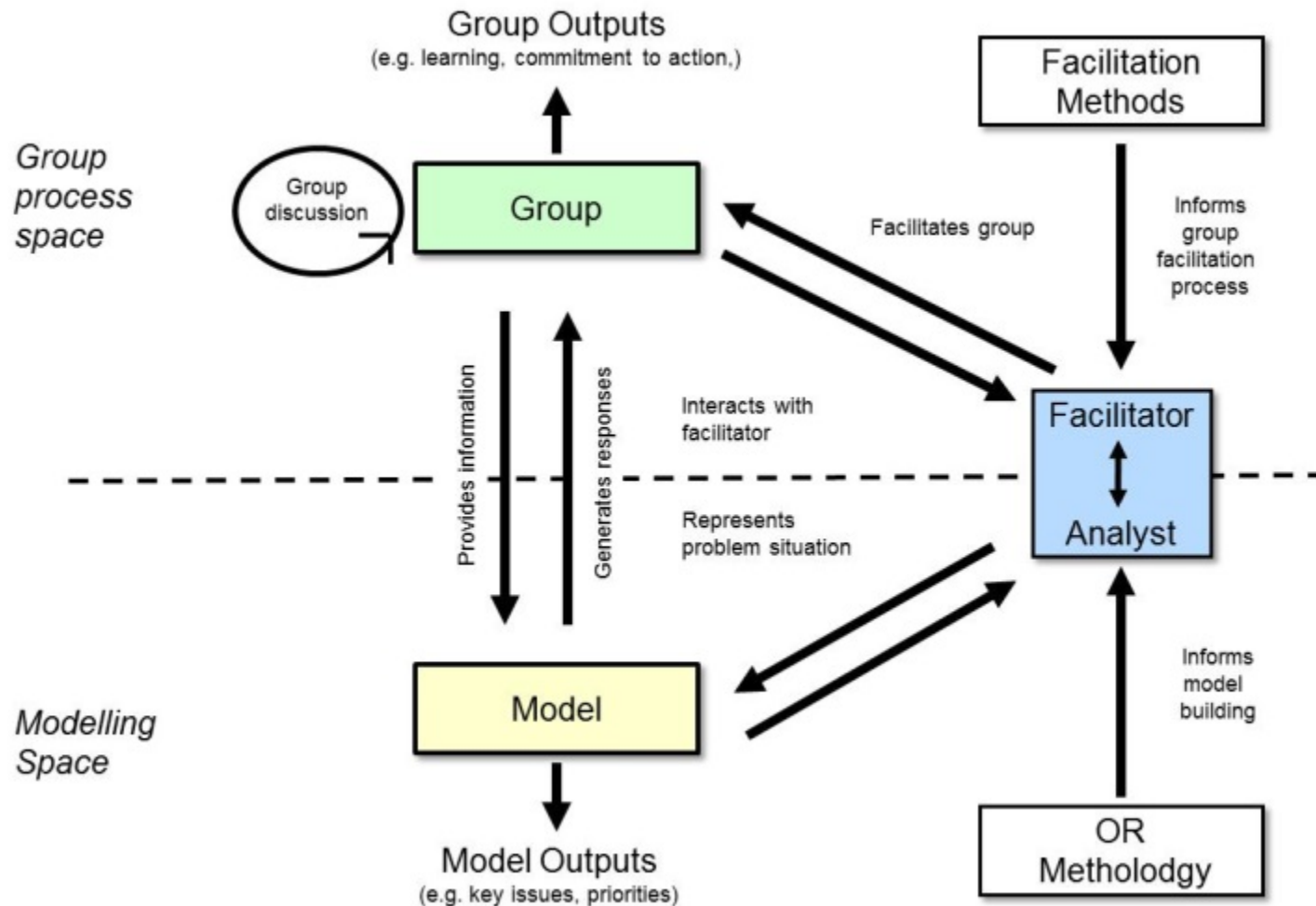


## Our intended contribution

- *Ethnomethodology* (Garfinkel 1967, 2002) as an approach to empirically examine OR practice *in situ*.
  - Reveal how people orient their conduct to both:
    - OR-supported activity;
    - each other.
  - Highlight potential gaps between ‘textbook’ OR and what actually happens on the ground.
    - Design/deploy effective OR-supported processes;
    - Inform/deliver effective OR education and training.



## Facilitated modelling workshops (Franco & Montibeller 2010)

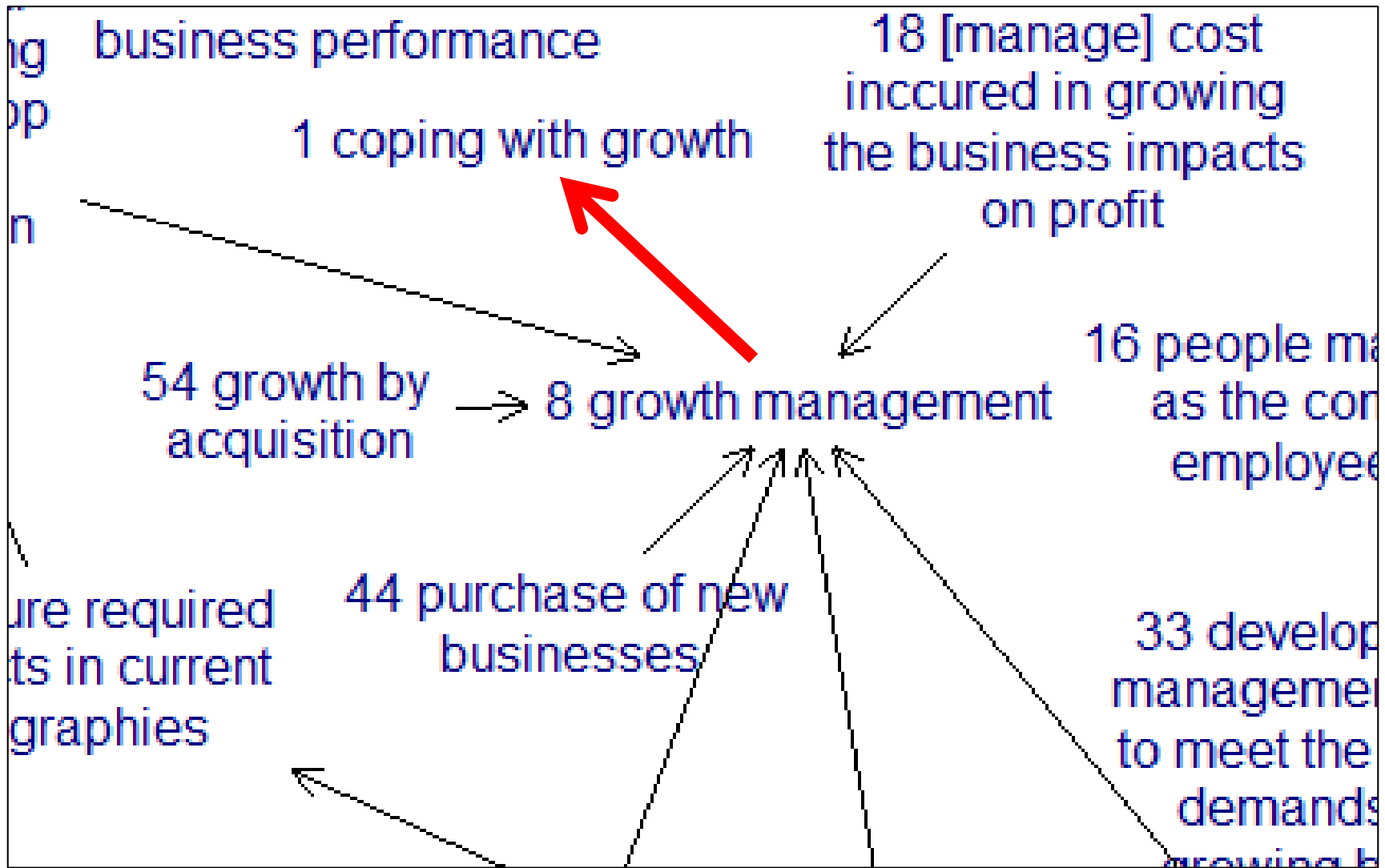




## Empirical vignette

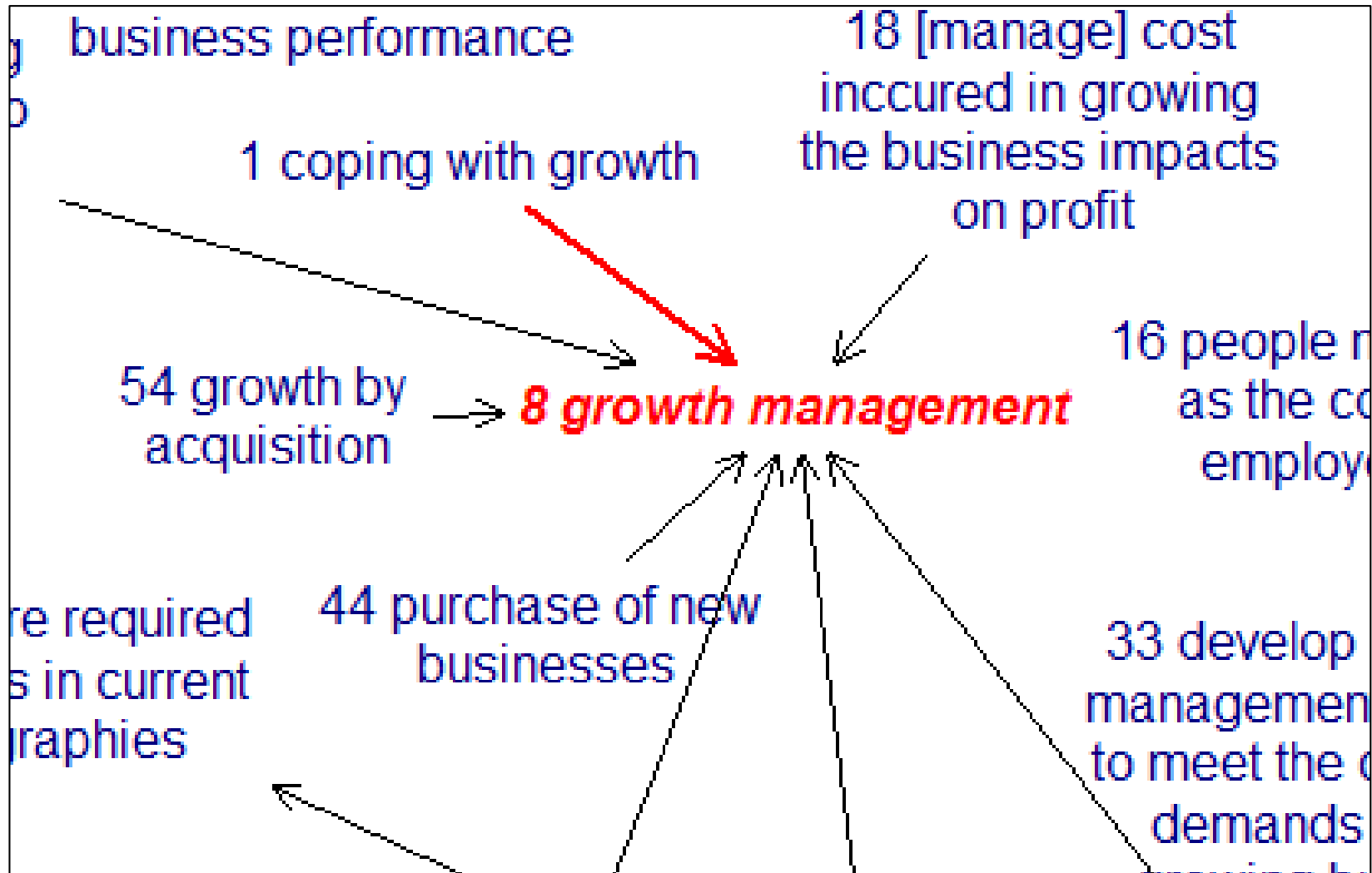
- FM workshop, part of a strategic review project at Back2Work (pseudonym) in 2007.
- Top Management Team.
- **Causal Mapping** supported by **Group Explorer** technology.
- Fine-grained analysis of 'linking' as a core modelling activity.







1 Greg: Growth management is the issue here  
2 F: ((looks at Greg, then at map))  
3 Greg: 1 is the- >one of the symptoms ((tilts head to  
4 ((left shoulder to signal direction of link))  
5 F: ((looks at Greg, then at map)) Yesss, okay  
6 Greg: → The arrow is the other way round  
7 (3.0)  
8 F: Wh- wh- ((looks at G)) which?  
9 Greg: 8 to 1 should be 1 to 8  
10 (1.0)  
11 F: So, it's actually, yeah okay, so the label is  
12 actually 'growth management' ((looks at Greg))  
13 Greg: Yeah  
14 F: ((looks at map)) 'coping with growth' is the issue  
15 Let me just uhm ((changes direction to 1 -> 8,  
16 and also style of item 8 to red italics))  
17 (7.0)  
18 ◦There you go◦ 'Coping with growth' is one of  
19 the issues.







## Segment 1: Analysis

- A very typical example of what can happen during the exploration of links in a CM workshop; participants are:
  - looking at the model;
  - thinking about whether the current links make sense to them; and if not suggesting ways of changing them.
- Greg formulates a proposal, nobody challenges it, F accepts it and changes the model.
- Proposal is not just formulate verbally, but uses gesture and material resources (number tags) to highlight direction of link.
- Move from a simple verbal proposal to an actual change in the model takes effort...



1 Greg: **Growth management is the issue here**  
2 F: ((looks at Greg, then at map))  
3 Greg: **1 is the- >one of the symptoms ((tilts head to**  
4 **((left shoulder to signal direction of link))**  
5 F: ((looks at Greg, then at map)) Yesss, okay  
6 Greg: **→ The arrow is the other way round**  
7 (3.0)  
8 F: Wh- wh- ((looks at G)) which?  
9 Greg: **8 to 1 should be 1 to 8**  
10 (1.0)  
11 F: So, it's actually, yeah okay, so the label is  
12 actually 'growth management' ((looks at Greg))  
13 Greg: Yeah  
14 F: ((looks at map)) 'coping with growth' is the issue  
15 Let me just uhm ((changes direction to 1 -> 8,  
16 and also style of item 8 to red italics))  
17 (7.0)  
18 ◦There you go◦ 'Coping with growth' is one of  
19 the issues.



### Segment 2



1 Bob: ((looking at display))  
2 What does it mean to 'coping with growth'?  
3 (3.0)  
4 Sam: Depends on what you view to be the issue?  
5 (1.0)  
6 Bob: ((looks at Saul, then at display))  
7 Sam: You see, I think management is a thing that  
8 you do in order to address a particular issue  
9 (4.0)  
10 Bob: Can't you say 'coping with growth' for 'growth'?=  
11 Kai: =Growth itself (.) is the issue, isn't it?  
12 (1.0)  
13 F: Is- Is 'coping with growth' the issue then?  
14 [  
15 Ali: (inaudible)  
16 F: ((looks at Saul))  
17 Sam: It is for me.  
18 F: ((scanning the room))  
19 (1.5)  
20 What do you think, huh?  
21 (1.5)  
22 Bob: ((gazing at Saul while looking at model))  
23 Growth management enables you to cope with  
24 growth  
25 Sam: >Absolutely!  
26 (0.7)  
27 So, it is something that comes out of it ((moves hands in  
28 north west direction)) for- >in the way I see it



## Segment 2: Analysis

- We can see that decision to revert direction of the link (segment 1) prompts another participant to interrogate the meaning of one of the nodes.
- Various participants make suggestions of how they understand the two nodes and the direction that the link should go:
  - Participant's *individuality* becomes salient in the ways they express their expertise, wisdom and experience
- In contrast to example 1, interaction in this segment is mainly 'verbal':
  - Different understandings are left standing beside each other.





## Segment 3



1 Sam: (We've talked-) ((points at prompt displayed on laptop screen))  
2 >You have to go back to the original statement.  
3 What's your original statement?  
4 (3.0)  
5 F: So basically  
6 ((looks at map, then highlights node 1 on map))  
7 Bob: ((looks at Sam))  
8 F: ((turns to Sam)) you are saying that that's basically the issue?  
9 Sam: That is for me, but- [((opens arms to rest of group))]  
10 F: [((nods whilst looking at Sam))]  
11 F: okay  
12 ((looks at participants to his left side))  
13 (5.0)  
14 ((looks at participants to his right side))  
15 Is that the issue then?  
16 Sam: ((reads prompt question on laptop))  
17 >We are saying *[if you were to be as successful*  
18 F: [((looks at S and nodes))]  
19 Sam: *as you are being today, what are the key strategic*  
20 *challenges/issues that [Back2Work will be facing=*  
21 F: [((turns to look at map))]  
22 Sam: *=over the next three to five years?*



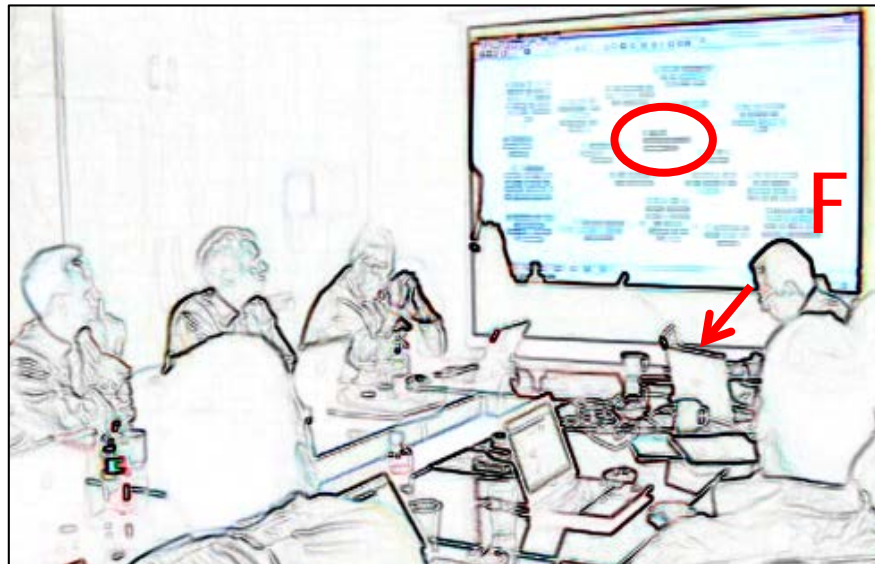
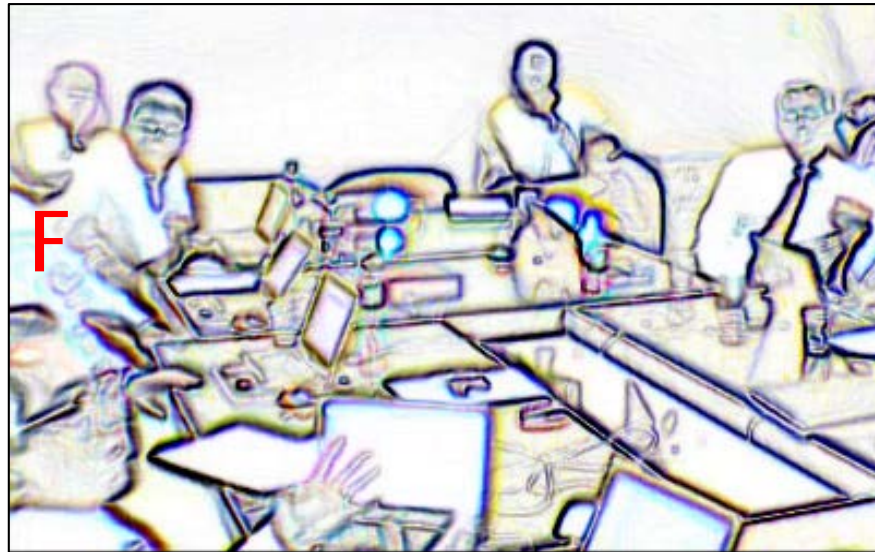
## Segment 3: Analysis

- Development of the whole sequence so far:
  - Somebody questions direction of a particular link.
  - This then led participants to interrogate the meaning of two nodes.
  - As a result of them not being able to resolve their questions, a participant brings back the original prompt question.
- All of the above is ‘participant-driven’, rather than ‘facilitator-triggered’.





# Segment 4



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1 F: ((looks at map and opens hands))  
2 So so (.) if if >if 1 is the issue then 8  
3 could become something like uhh (0.5)  
4 'ensure', you know?, [((looks at Sam))'successful growth  
5 management']?

6 Sam: [((nodding)) °Yeah

7 F: Something like that

8 Cam: °Yeah

9 F: So it's an enabler [on its own

10 Bob: [°But (inaudible)

11 Cam: [°Yeah

12 F: ((starts changing the wording in the node))

13 Bob: For me, 1 could be 'growth', like you were  
14 saying (it). We don't have to be careful  
15 with growth, it's growth

16 Sam: Yes, it could be (0.3) could be. And all the  
17 other things are (0.3) how do you cope with it?  
18 it's just- >it articulates the issue.  
19 [

20 F: ((moves to changing font style and colour of node 8 to red  
21 italics))

22 Bob: Yeah.

23 F: ((has finished changing font colour))



24 F: So::  
25 (4.0) ((selects the arrow from node 1 to 8, and deletes it))  
26 F: Is that? (one way the arrow goes?)  
27 (2.0)  
28 ((draws arrow from 8 to 1))  
29 ((looks at Sam))  
30 F: Yeah?  
31 (0.5)  
32 F: Does that make more sense?  
33 (1.5)  
34 So basically- >yeah? ((looks at Greg, Bob, Cam, Kai and Ali))  
35 Bob: Yeah.  
36 F: Okay.





## Example 4: Analysis

- F has critical role in bringing the whole discussion to a close:
  - seizing opportunity;
  - reframing;
  - gaging agreement.
- Facilitating is not just done ‘verbally’ but also ‘materially’.
- Agreement on model content is a temporal interactional accomplishment – *intersubjective alignment* temporally gained and constantly worked upon by F .



## Discussion (1)

- OR *actual* practice as ‘skilled accomplishment’:
  - a situated and concerted assembling of discursive and material resources.
- FM *actual* practice as a contingent, interactional and sequential accomplishment involving collaborative viewing of models:
  - issues ‘seen’ and understood through interplay between model (open to scrutiny), and ***discursive/emodied practices*** (*talking and looking, coding, highlighting*).
  - In and through these practices, participants ***display an orientation*** to both the model and the sequential character of the facilitated modelling activity.



## Discussion (2)

- ***Shared understanding*** in FM workshops as an interactional accomplishment, rather than purely cognitive process:
  - discursive/embodied practices provide framework within which people make judgements about their (indexical) understandings of a model.
- Current FM ‘scripts’ not close enough to actual practice:
  - scripts ***have to be accomplished*** and thus do not determine or prescribe what the facilitator (or participants) actually do in practice.
- Micro-level OR impacts matter and expand OR evaluation agenda.



## Future work

- Materials based on real OR-supported interactions for education and training.
- Design and development of new computer-supported technologies for supporting facilitated modelling in both face-to-face and virtual environments.





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**Thank you!**

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