

Knowledge Workers and Collaboration: The HR Agenda

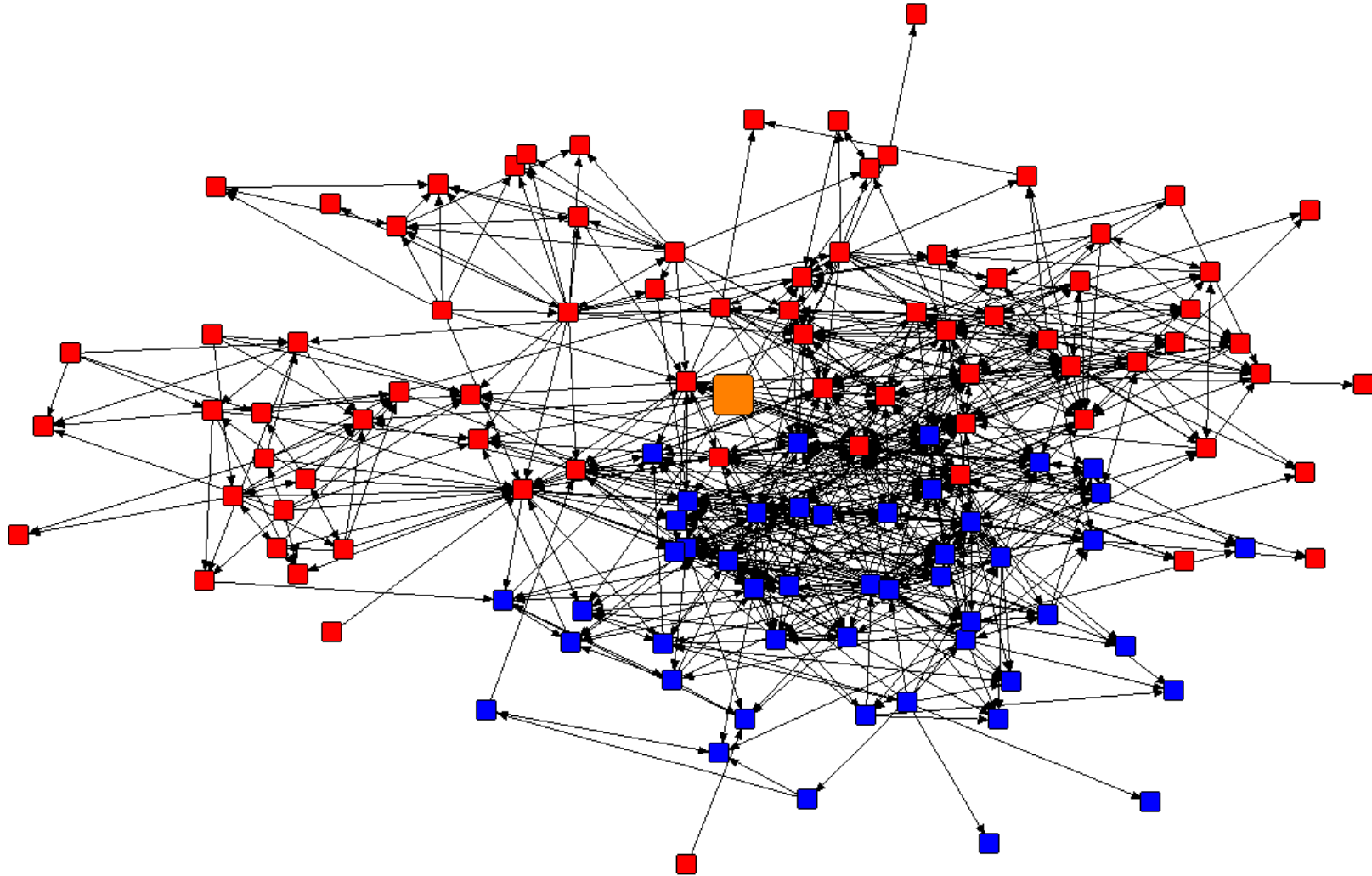
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Who shares with whom?



What makes people valuable as partners?

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Insights into collaboration in knowledge-based work

- Knowledge is individually held, but created through social processes
Crossan et al., 1999; Brown & Duguid, 2001; Lee & Cole, 2004; Nonaka 1994
- Knowledge-based advantage renewed through project-based work
Lampel et al., 2008; Newell et al. 2008; Arthur et al, 2001
- Knowledge workers maintain arrays of knowledge sharing relationships
Allen 1977; Reagans & McEvily, 2003; Cross et al. 2001

How we see it

- Choice of partner and decisions to initiate/sustain are discretionary
- Relationships at work carry multiple benefits (“multiplex ties”)
Ibarra, 1993; Higgins & Kram, 2002
- At the dyad level (individual to individual), heterogeneity in motivation is unobserved

We could usefully know more about reasons for choosing and sustaining knowledge sharing relationships at the person to person level

Questions about collaboration in knowledge work

What can we learn from examining heterogeneity at the person-person (dyad) level?

- Why some partners are preferred to others (especially important under constraints)
- Factors making some relationships more valuable than others (questions of efficiency)
- How to fine-tune incentives to promote certain types of knowledge sharing

We could usefully know more about reasons for choosing and sustaining knowledge sharing relationships at the person to person level

Method

Research design

- Grounded theory: no *a priori* theories for why relationships are chosen
- Qualitative – get at underlying logics

Sample

- 40 academic and industrial scientists (small and large firms)
 - Group 1 – inventors on patents with > 1 inventor PLUS some of their collaborators
 - Group 2 – inventors in conducive localities or networks
- 130 collaborative ‘dyads’ identified
 - Both parties interviewed in 26 cases

We needed to know about relationships that **did not** form as well as those that did

Sources of value in collaboration

Intellectual dimension

- Architectural knowledge
- Component knowledge

Operational dimension

- Money
- Capacity
- Resources

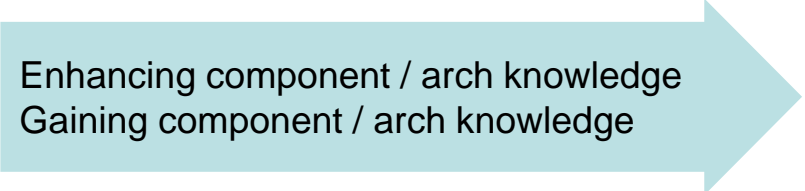
Relational dimension

- Instrumental
- Expressive

Judgements about collaboration partners are made on three dimensions

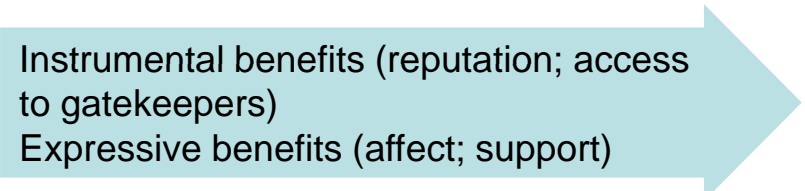
Dimensions of collaborative relationships

Intellectual dimension



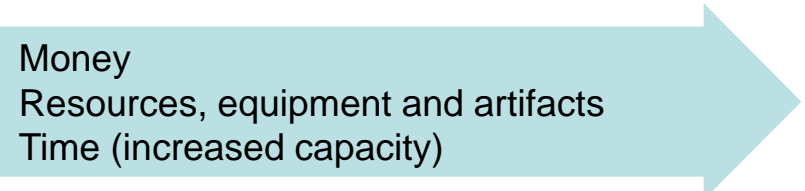
Enhancing component / arch knowledge
Gaining component / arch knowledge

Relational dimension



Instrumental benefits (reputation; access to gatekeepers)
Expressive benefits (affect; support)

Operational dimension



Money
Resources, equipment and artifacts
Time (increased capacity)



Judgements about collaboration partners are made on three dimensions

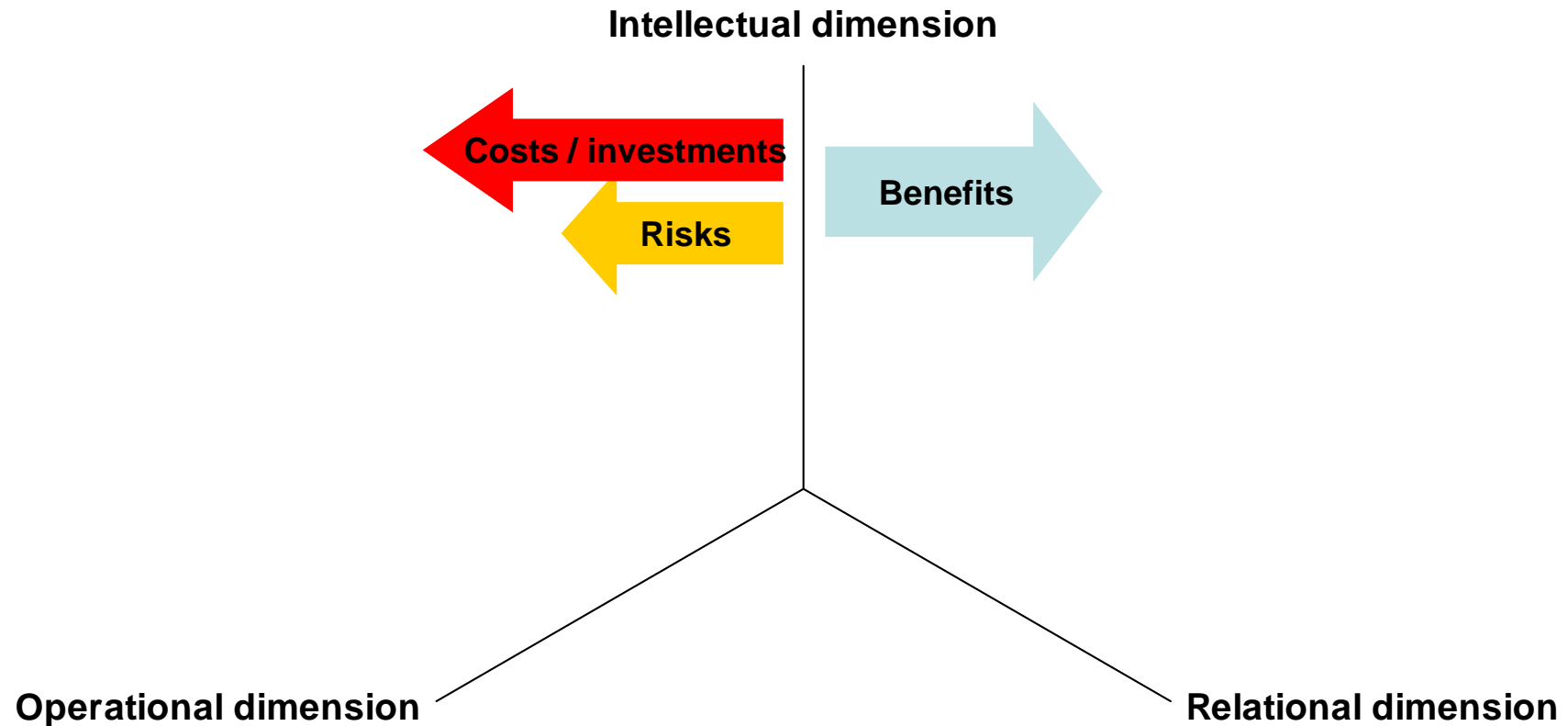
Intellectual dimension

Example of a physicist talking about the outset of a collaboration with a pharmacologist:

She has got things she wants to do to examine things biologically. Yes there're bits of equipment that are around that do it a bit. But on the other hand I am aware that I've got this toolbox of things. I am aware of this technology that's in astronomy. Can we take that, modify having understood what her real problem is from a physics point of view, from an optics point of view, can I take this technology, modify it, or even invent something new if it has to be, to solve the challenge that she has sent?

Applying different component knowledge to develop architectural knowledge of a new field (biophotonics)

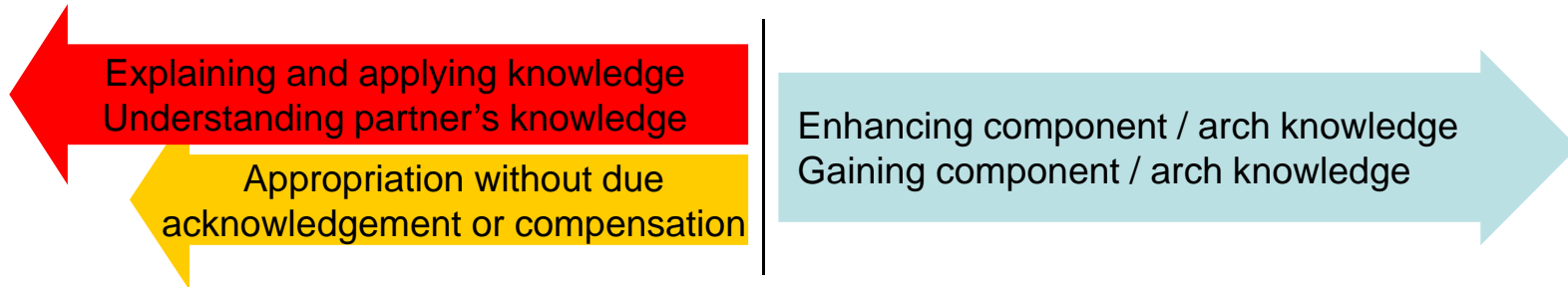
Sources of value in collaboration



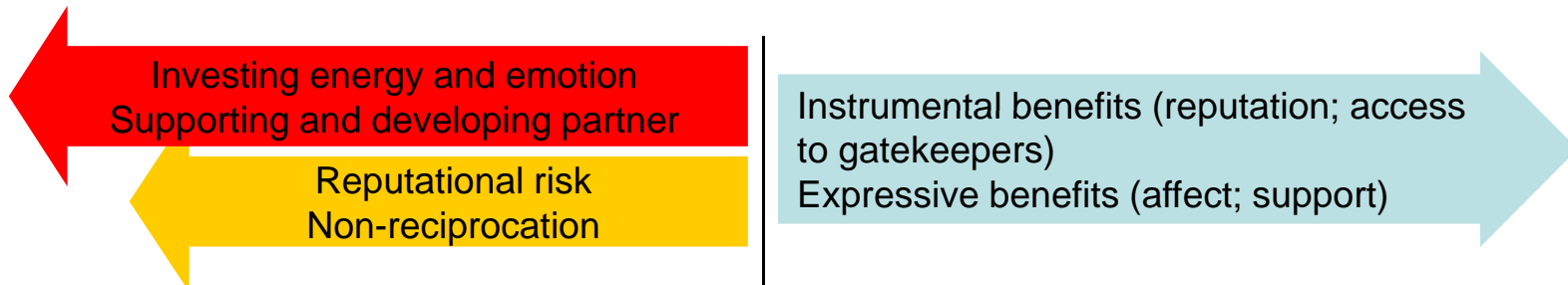
There are benefits, cost and risks to consider on each dimension.
Evaluation can be intuitive rather than precise

Dimensions of value in collaboration

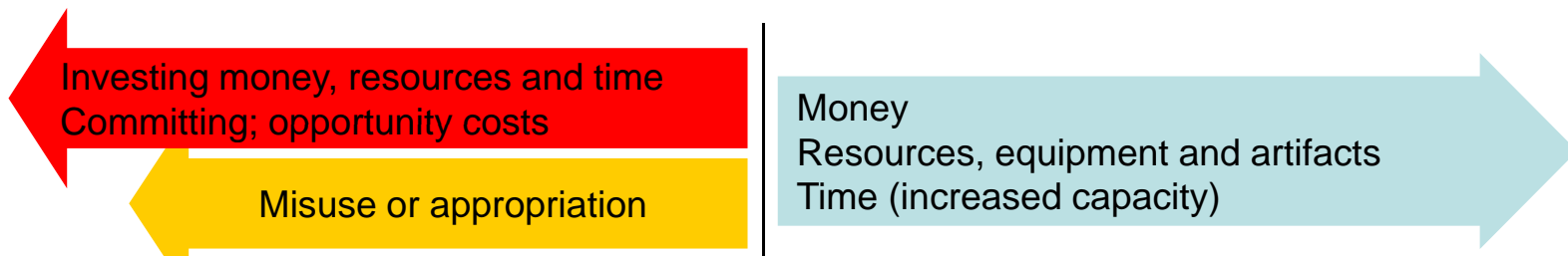
Intellectual dimension



Relational dimension



Operational dimension



Evaluation is intuitive rather than precise

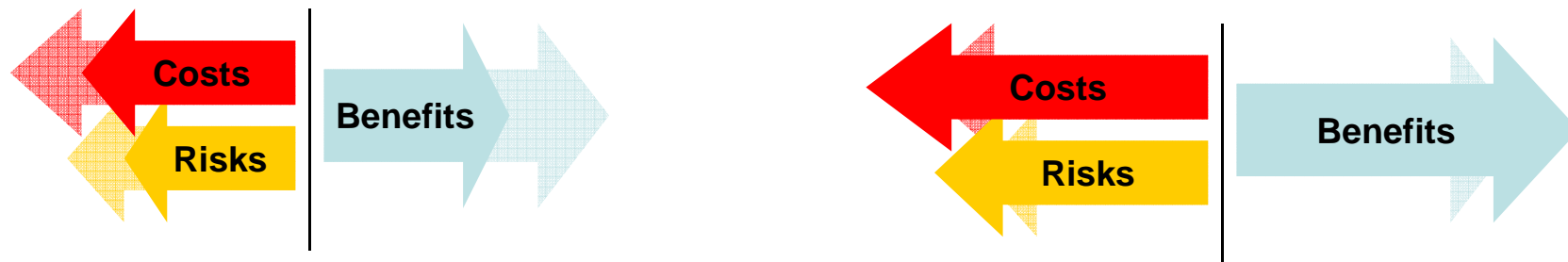
Factors affecting value

Supplementary characteristics

- Intellectual dimension
 - Shared component knowledge
 - Architectural knowledge underpinned by same component knowledge
- When it is **functional** to collaborate?

Complementary characteristics

- Intellectual dimension
 - Different component knowledge
 - Different architectural knowledge
- When it is **feasible** to collaborate?



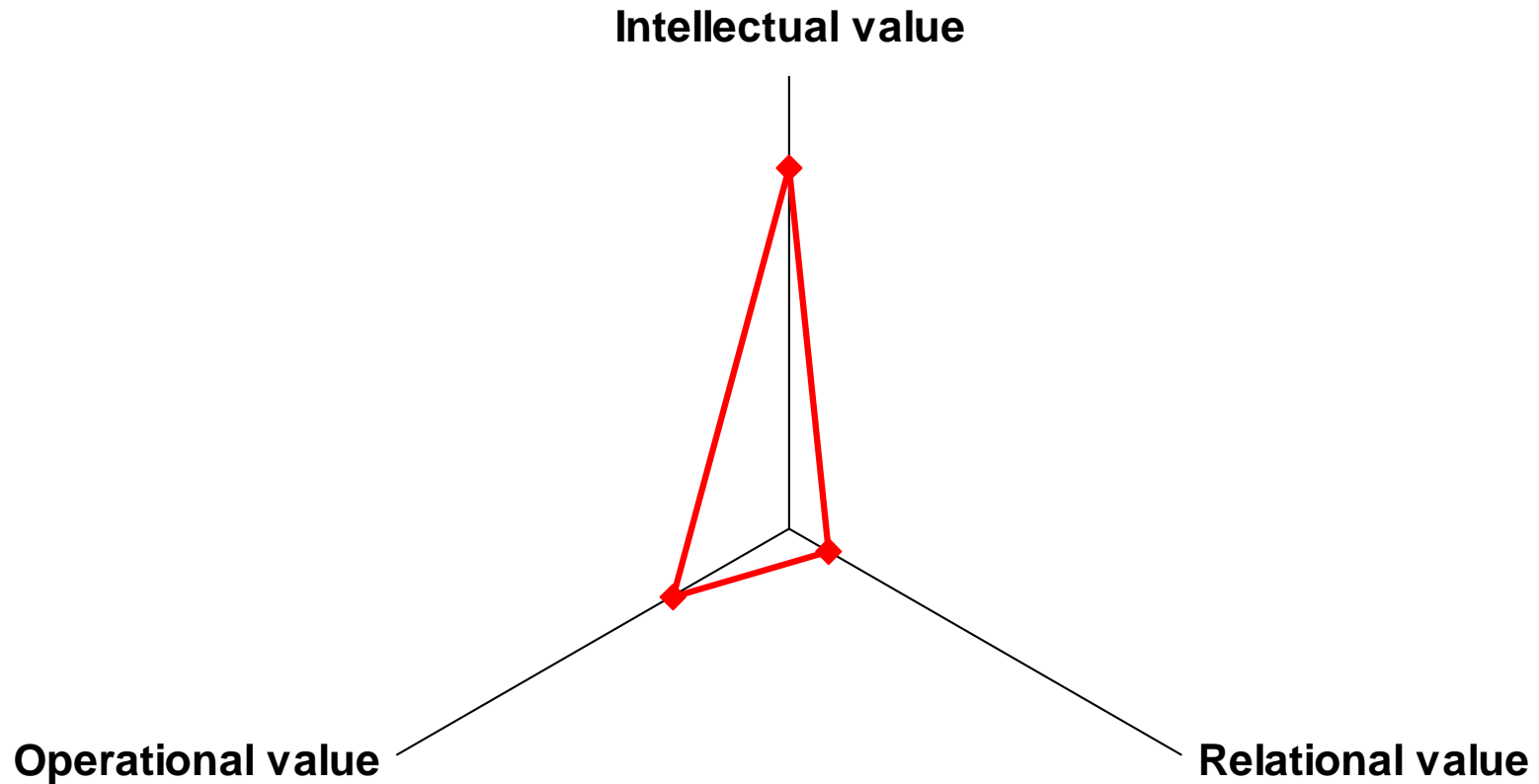
Extent to which partners are complementary/supplementary affects costs, benefits and risks on each dimension

Impact of complementary characteristics

Example of a collaboration in tissue engineering:

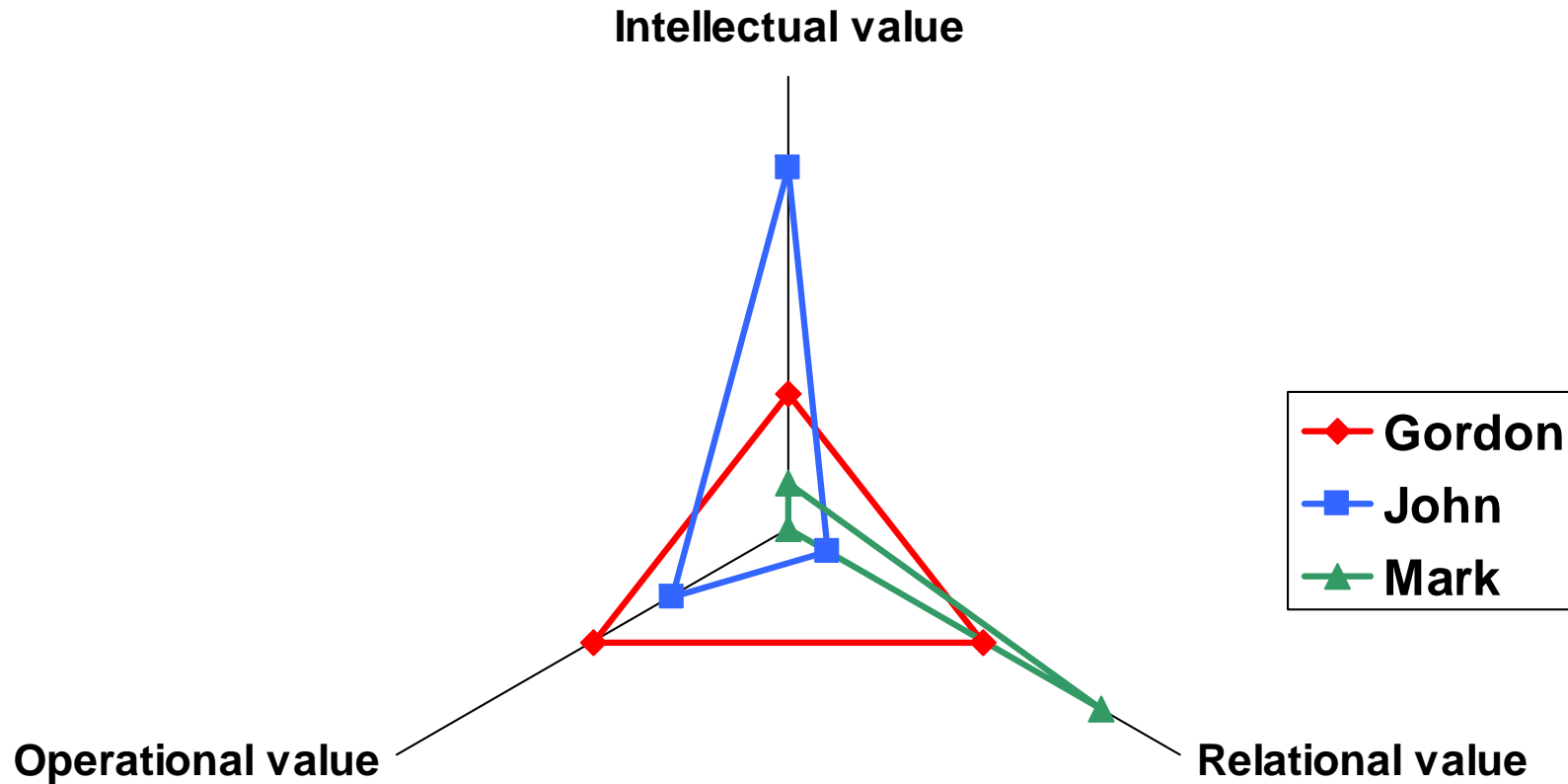
What was amazing was that even 18 months later we were still having to translate each other's language because the different terms in different disciplines mean different things. Things you think you understand you don't really understand and time after time we'd be sat at meetings. "Why didn't that work?" "Was it beyond the glass transition temperature." "Remind me what that is again!" Even when you have a term translated it doesn't mean much to you. What you have to do is you have to have a lot of patience and willingness not to just go round the house once, but several times!

Dimensions are compensatory



Benefits on one dimension offset costs on another.
One or more dimensions can be net negative (not shown)

Constellations of relationships



People build constellations of relationships for overall value.
Reasons for collaborating vary within a constellation.

Relationships evolve over time

Example of 'real options' thinking; Jim seeking help with insect expression

... initially the easiest way was just to contract it straight out. Supply the projects from stuff that Ivan could do for us at a price. That was fine. Then I am thinking well that worked quite well, let's give, *there's an option*, giving something back by giving Ivan a CASE award. But we also gained lots from that because that means we will increase our interface with them, *if I want to start up an insect group here, which we are starting now, then we've got a much bigger interface. We have got a foot in the door much more.* (Italics added.)

Early stage relationships can be construed as real options, providing an opportunity for experiential learning about the partner

Implications

For research

- A framework for examining heterogeneity at the person-person level; could be applied using SNA
- New ways of thinking about motivation for knowledge sharing
- Opportunity to look at tradeoffs between partner characteristics

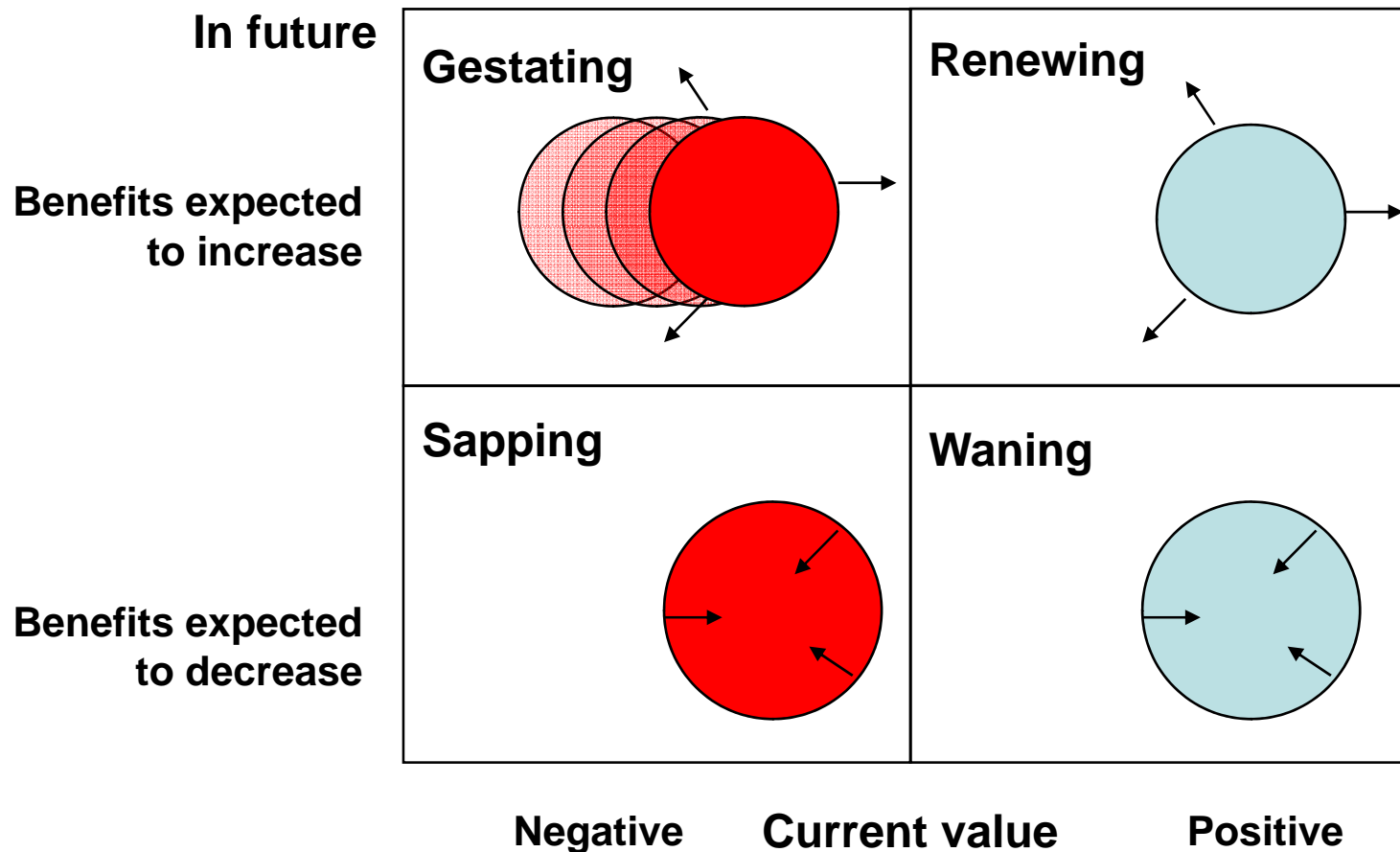
For management practice

- Tools for examining personal networks
- New ways of thinking about incentives in knowledge work

Limitations – what we don't cover

- Knowledge creation in larger collectives (Three's a crowd?)
- Prescribed relationships (as opposed to discretionary ones)

Relationships evolve over time



Marginal outcomes help determine when to 'say when'