

Reporting SNA Findings

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Consider

- **Who is your client?**
 - Style and format of the report
- **Who is your reader?**
 - Content and tone of the report
- **What is your research question/s – research objectives, hypotheses?**
- **What information needs to be included? Structure of the report**
 - Executive Summary
 - Introduction
 - Method
 - Findings
 - Discussion and Conclusion

Academic paper vs Industry Report

Article

Tacit Knowledge Sharing in Open Innovation Projects

Andrew Terhorst¹, Dean Lusher², Dianne Bolton²,
Ian Elsum³, and Peng Wang²

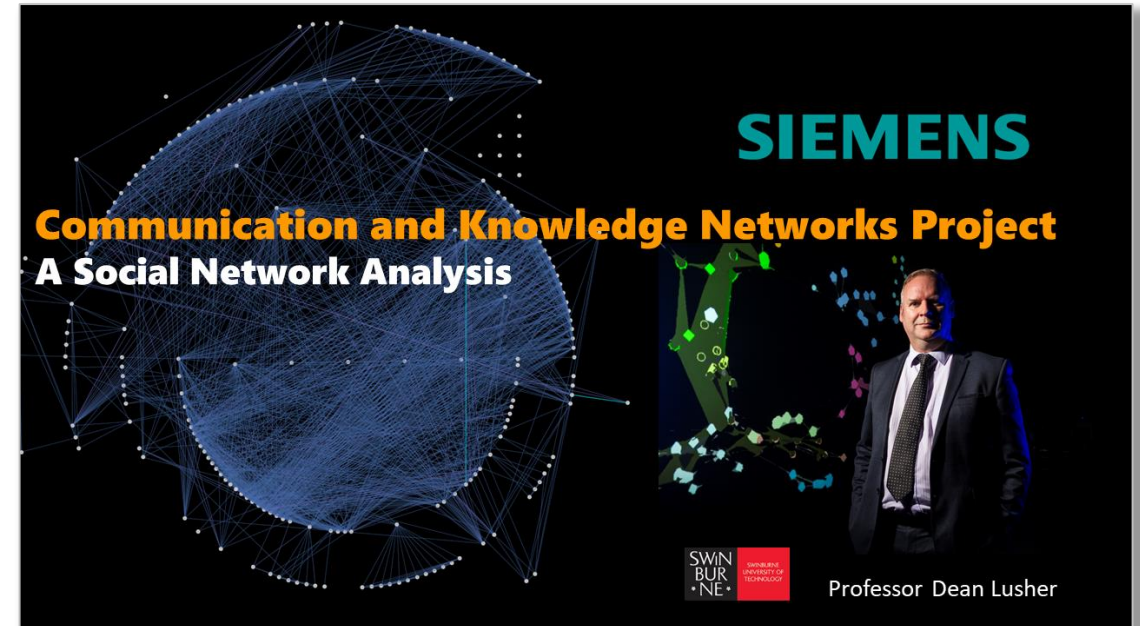
Abstract

Tacit knowledge is considered critical to the success of open innovation projects, yet little is known about the factors that promote or impede tacit knowledge sharing in such projects. This article uses exponential random graph modeling to examine both tacit and explicit knowledge sharing in two early-stage open innovation projects. Results indicate autonomous motivation predicts tacit knowledge sharing, suggesting that managers need to promote a team culture that satisfies members' needs for autonomy, competence, and relatedness. The modeling also suggests that brokerage is important in the early stage of a project to build the strong informal social structures needed to facilitate the exchange of tacit knowledge.

Keywords

exponential random graph models, open innovation, project management, social networks, tacit knowledge

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SAGE



ACADEMIC PAPER

You have a good
model, what next?



Reporting SNA results

Type	Effect	Parameter Significance	What does it mean?
Structural Effects – Model Parameters		Positive	There are more features than you would expect by chance
		Negative	There are far fewer than you would expect to see by chance
Binary attributes	Sender	Positive	Those people with the positive attribute send more ties. E.g. Gender, women are likely to send more ties
	Receiver	Negative	People with the attribute are less likely to receive ties.
	Interaction	Positive	Homophily
		Negative	Heterophily
Continuous attributes	Sender	Positive	People with higher values tend to send more ties
	Receiver	Negative	People with lower values tend to send more ties
	Difference	Negative	Homophily i.e. less of a difference between two values
		Positive	Large difference between two values
Categorical attributes	Match	Positive	Homophily
		Negative	Heterophily
Dyadic (non binary file e.g. distance)		Negative	Less distance is significant
		Positive	People select larger distances

Reporting your results - collaboration

Effects	Estimates	Stderr	
ArcA	-8.4259	0.702 *	←
ReciprocityA	-0.0906	0.276	
AinSA	1.0979	0.141 *	←
AoutSA	-1.0337	0.234 *	←
ATA-T	0.4886	0.083 *	
A2PA-T	-0.1598	0.032 *	
HUB_LEADER_SenderA	1.3885	0.377 *	←
HUB_LEADER_ReceiverA	1.3575	0.205 *	
HUB_LEADER_InteractionA	1.8661	0.497 *	
TENURED_RESEARCHER_SenderA	0.3881	0.237	
TENURED_RESEARCHER_ReceiverA	0.8097	0.156 *	←
TENURED_RESEARCHER_InteractionA	-0.9744	0.349 *	
ORG_TENURE_SenderA	-0.0363	0.011 *	
ORG_TENURE_ReceiverA	0.0031	0.009	
ORG_TENURE_DifferenceA	-0.0244	0.012 *	←
TECH_KNOWLEDGE_SenderA	0.117	0.104	
TECH_KNOWLEDGE_ReceiverA	0.469	0.075 *	
TECH_KNOWLEDGE_DifferenceA	0.0179	0.09	
ORG_ID_MatchA	4.1291	0.217 *	} ←
SCIENTIFIC.HIERARCHY_MatchA	0.4117	0.168 *	
NATIONALITY_MatchA	0.4692	0.114 *	

Like an intercept term in a standard regression and not usually interpreted

Positive effect – significantly more incoming ties than expected

Negative effect – significantly less outgoing ties than expected

Positive sender effect – significantly more likely to send ties

Positive receiver effect – significantly more likely to receive ties




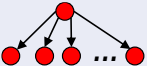
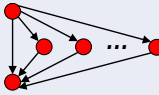
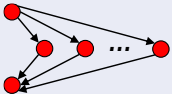
Negative effect – homophily

Positive effect – homophily

Can change output names and order

Focus on your parameter of interest (research question)

Use of diagrams and descriptions

Structural Effects	Effects	Configuration	Estimates	Std Err	
Collaboration	ArcA		-7.4017	1.878	*
	ReciprocityA (mutuality)		0.9598	0.691	
	AinSA (popularity)		0.4172	0.247	
	AoutSA (activity)		1.341	0.179	*
	ATA-T (path closure)		0.0584	0.249	
	A2PA-T (multiple 2 paths - connectivity)		0.0408	0.062	

Goodness of Fit

- “GOF t-ratios for all included (fitted) effects were <0.1 , and for all non-included (non-fitted) effects were <2.0 . As such, this model fits our data well and the combination of network structures specified in the model is a good representation of how this particular network could have been formed.”
- No need to have a GOF table.
- If some parameters did not fit, simply say which ones or how many.

In summary,

- What is your research question, your research objectives?
- You don't need to include every significant attribute when reporting your findings
- Link your findings back to your research question
- Include a discussion and conclusion
- Most importantly, answer the “So What?”

INDUSTRY REPORT

Reporting begins at the beginning

- What you promise in your first project pitch will dictate to a strong degree what you report back
- Be careful what you promise early on!
- Non-identification of individuals?

Other reporting issues

- Timing?
 - Often takes ages to analyse the data, by which time the organisation may have moved on
- “Who is this really connected person?”
 - Clarifying up-front that you will not identify individuals back to the organisation (which is separate to not identifying them to the public)
- A picture
 - Fancy analyses are good, but pictures that tell the same story are better
- ‘So what?’
 - What does this mean for the network?
 - What can they do about it?

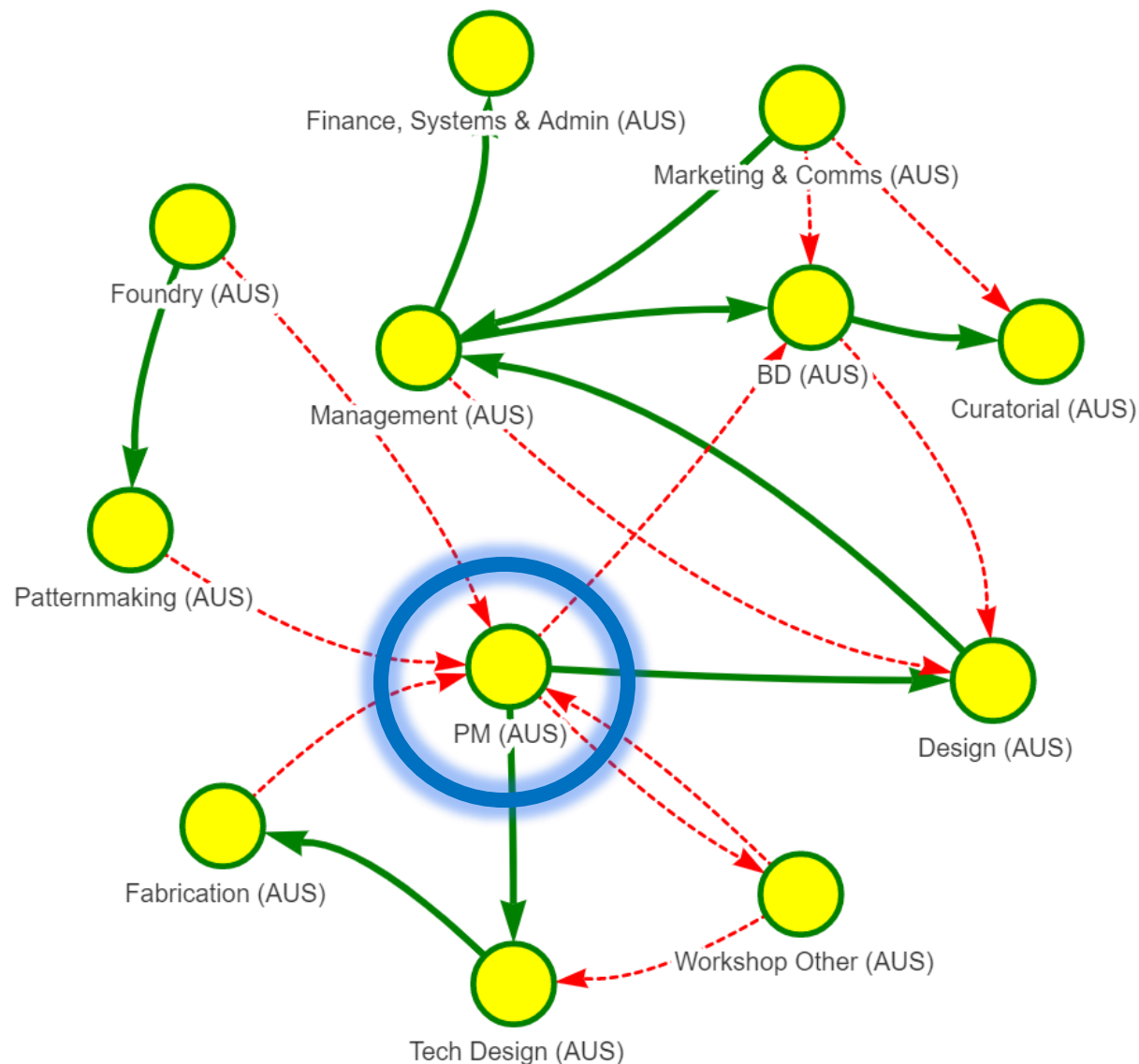
Timeliness of Feedback



- Clients move on quickly
 - Many projects I did not feed back information, or did so 6-12 months later
 - This is too late for most clients/partners; things change quickly
- Getting a dialogue going, quick feedback to partner
 - Margaret Hellard, Joe Labianca
- **Challenge:** We need to think of other ways of more rapid feedback to clients/partners
 - Data speed, analytical speed, reporting speed

Quality information sharing

Workflow and information sharing (department level)



Legend

Receives quality
information



Requires better
quality information



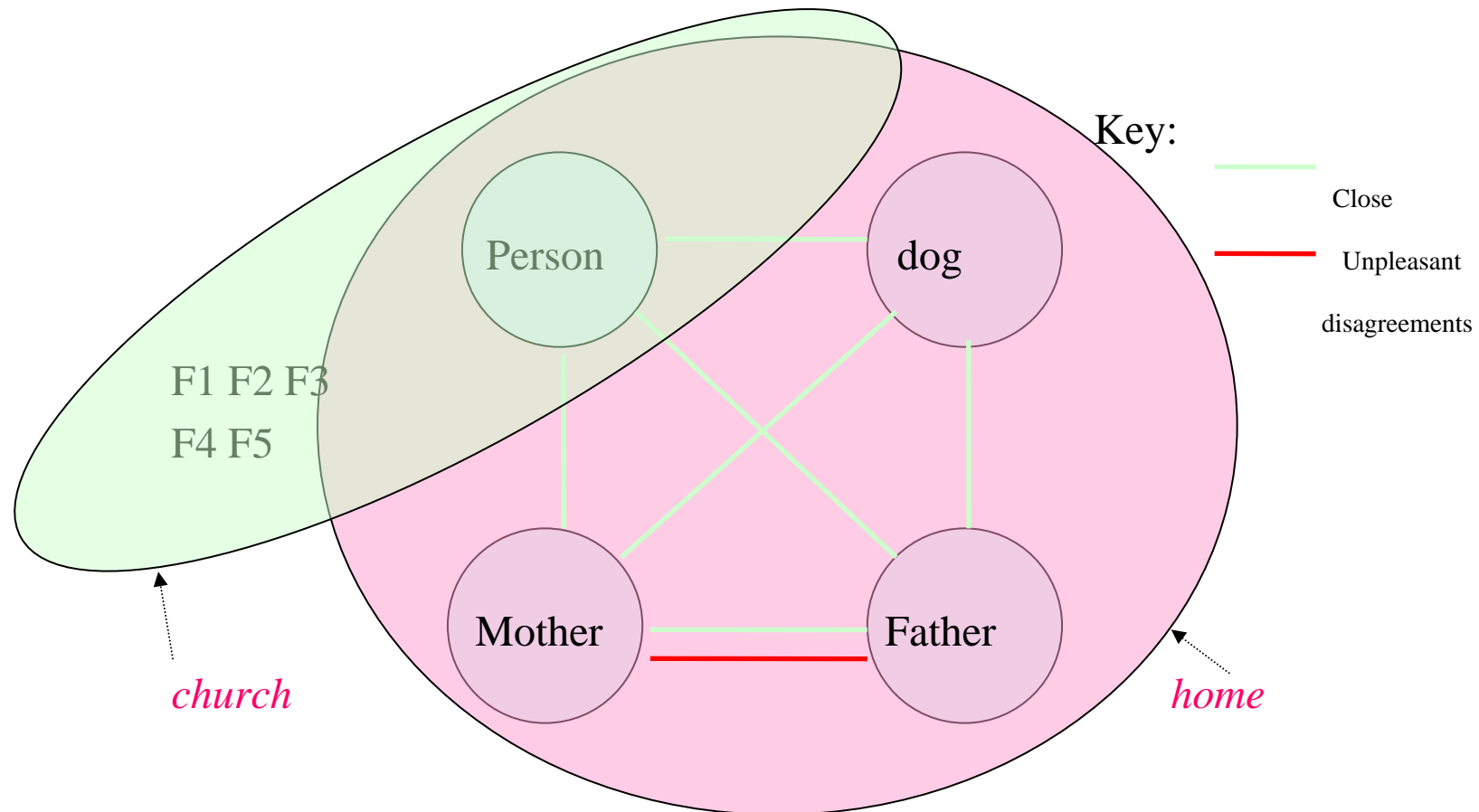
Timely insights can
help our partners

Project Management (PM) team
requires better quality information
sharing.

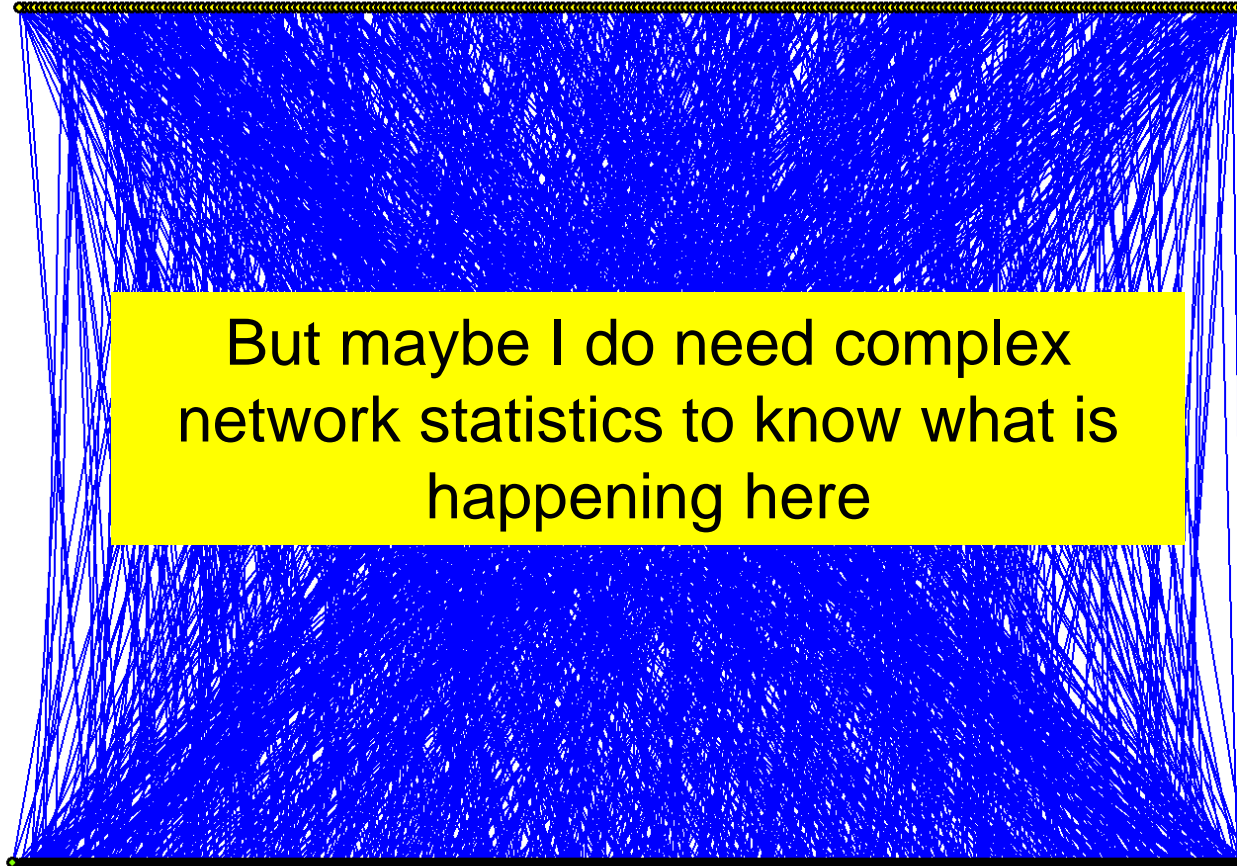
Stats or pics? Or both?

Social environments of clinical patients
(Pattison, Robins, Judd & Jackson, 2002)

Do I need complex network statistics to
know this guy is in trouble?



US companies/directors (1996)



Level of investment

1. Visualize

- Picture worth 1,000 words
- Descriptive analysis

2. Standard network statistics

- Count number of incoming ties and regress against individual attribute

3. Statistical models for social networks

- Cutting edge
- Take into account dependencies of data



MPNet

$$\Pr(\mathbf{X} = \mathbf{x}) = \frac{1}{\kappa} \exp \left\{ \sum_{\varrho} \lambda_{\varrho} z_{\varrho}(\mathbf{x}) \right\}$$

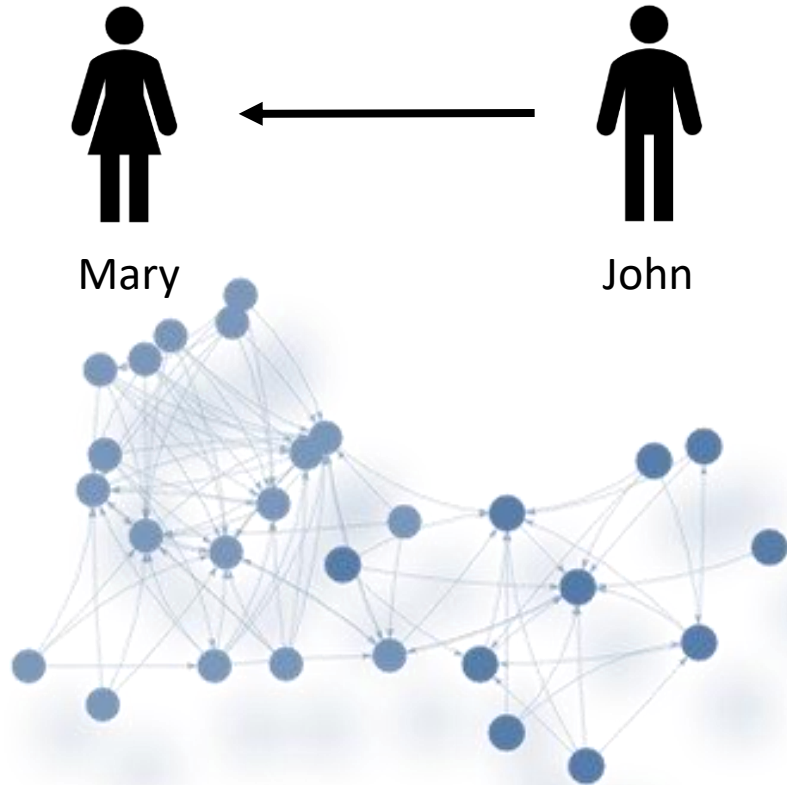
Audience

- Who will you report back to?
 - Leadership only
 - Leadership, then all staff

YOUR DATA

Network data is NOT anonymous

But it is de-identified & confidential



De-identification

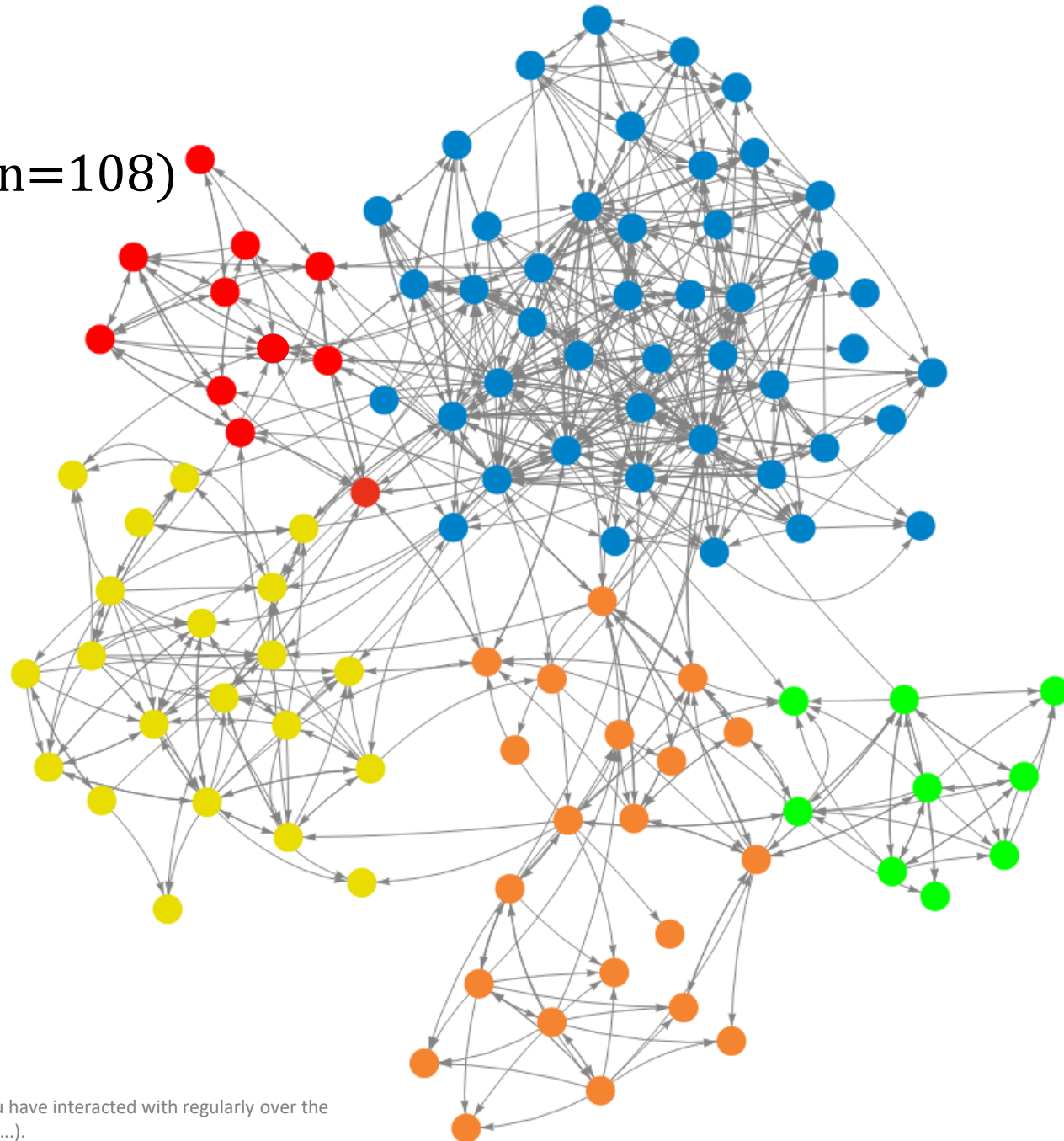
SOME EXAMPLES

Collaborate

Complete responses only (n=108)

Take Home

Strong within group connections, indicated by clusters of same coloured teams together.
Some connectivity across groups but it is limited.

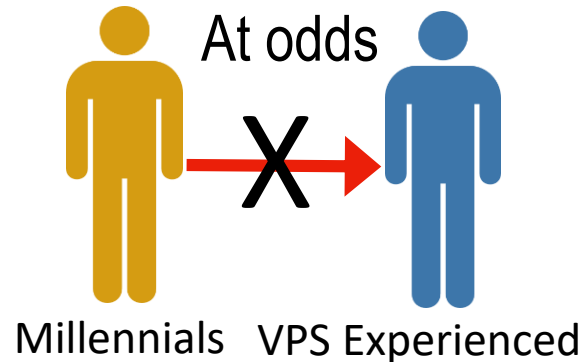
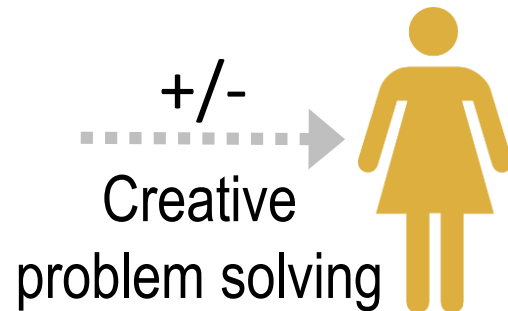
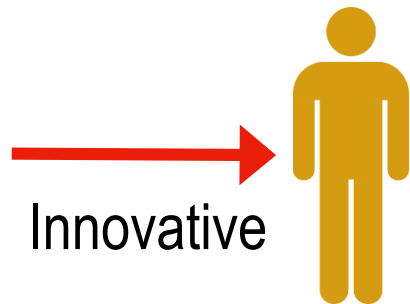
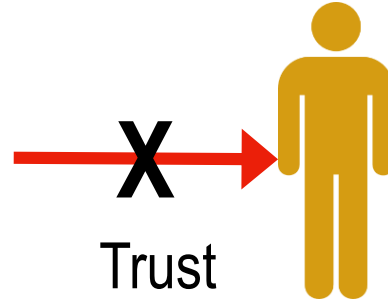
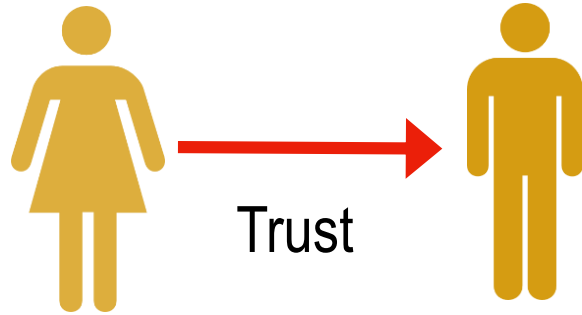


Millennials*



$$\Pr(\mathbf{X} = \mathbf{x}) = \frac{1}{\kappa} \exp \left\{ \sum_{\varrho} \lambda_{\varrho} z_{\varrho}(\mathbf{x}) \right\}$$

Statistical network models



Take Home

Younger workers are innovative, and highly trust one another. However, younger workers are **less likely to be trusted** by others within [org].

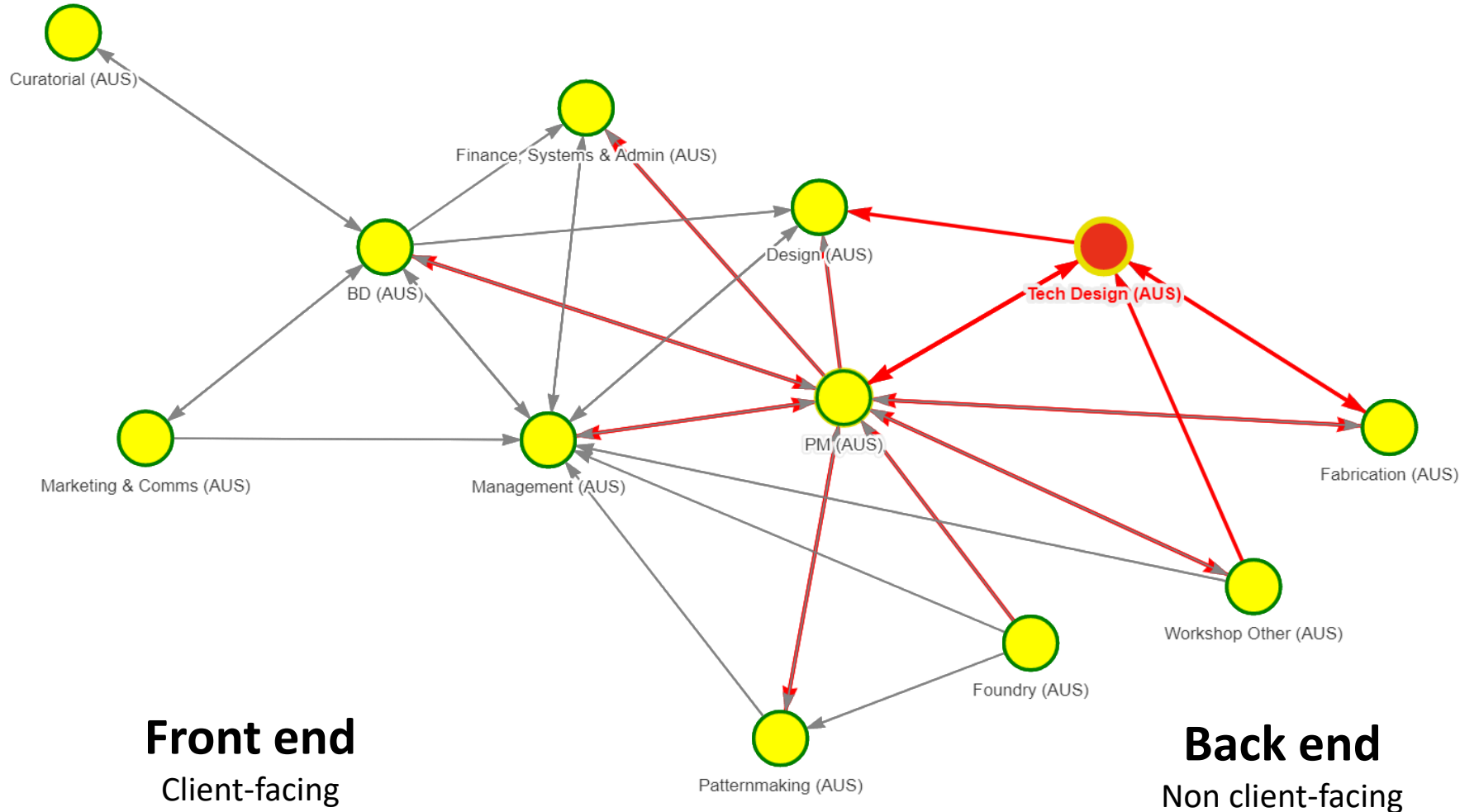
No 'at odds' interaction between younger and experienced staff.

Younger workers are neither more nor less likely to be selected as creative problem solvers.

High workflow

Australia Workflow density $\geq 20\%$

From whom do you require important inputs in order to get your job done? Inputs might include things like briefs, drawings, designs, instructions, costings, schedules, task or project-related documentation, objects or materials, or anything else you need to get your job done.



Insights

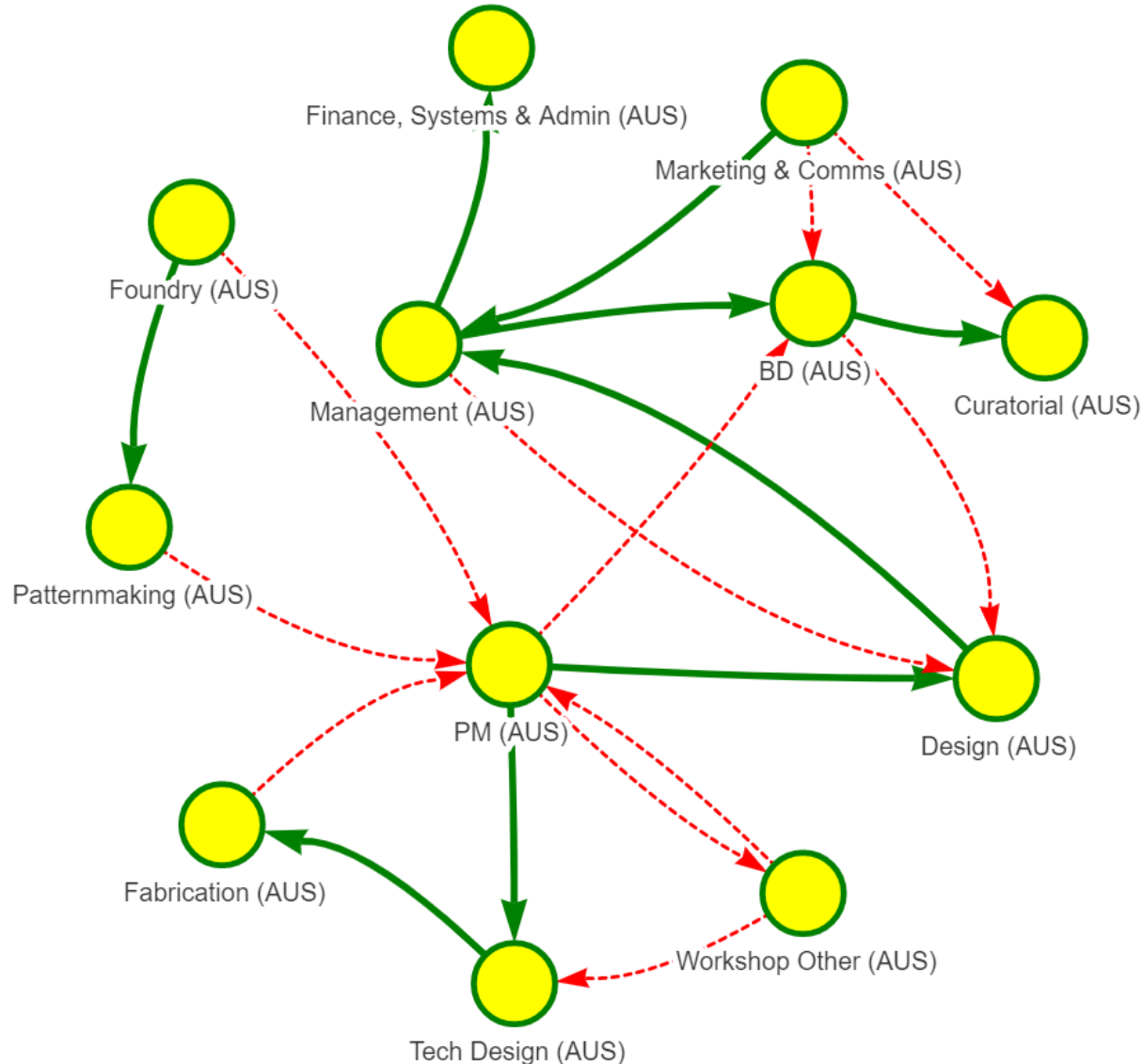
Front-end departments (**BD, Curatorial, Design**) are disconnected from the workshop teams.

Project Management and **Tech Design** are key lynchpins connecting the two

Workflow is 'sequential'.

Quality information sharing

Workflow and information sharing combined (Australia only)



Insights

Lots of good quality information sharing, particularly between **Management** and others.

Project Management and **Workshop** teams have low quality information sharing.

Marketing & Comms sees that it could get better quality information from **Business Development** and **Curatorial**.

So what?

Answering the 'So what?'

- One size fits all education program may not work
- Information quality gaps between departments highlights areas of focus for improvement
- Cannot know in advance what the issues might be
- Evidence-based approach to understanding an organisation
 - E.g. Tacit knowledge flows down the hierarchy, meaning important unspoken knowledge is being shared from senior to junior staff (i.e., this is good)