

Facilitating Knowledge Sharing Environment within Bureaucracies by Cultivating Communities of Practice: A Case Study



EVA23 Anticipation

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Why knowledge needs to be managed?

- The only sustainable competitive advantage is an organisation's ability to learn faster than the competition (*Peter M. Senge*)
- Large-scale infrastructure organisations generate a great deal of tacit project knowledge which is a product of experience, innovative problem solving and insights (*Kelly et al., 2013*)
- Project-based organisations consistently struggle with organisational learning challenges (*Bakker et al., 2011; Chronéer & Backlund, 2015*)
- Construction industry is known for slow learning (*Hertogh et al., 2008; Flybjerg et al., 2002*)
- Traditional infrastructure organisations are known for rigid boundaries between processes, stakeholders, and functions. These boundaries inhibit cross-functional and inter-project knowledge exchange and cooperation (*Gustavsson and Gohary, 2012*)
- Control mechanisms of hierarchical bureaucracies coupled with management by objectives generate defensive mechanisms that discourage individuals' desire to learn (*Argyris & Scon, 1978; Josserand, 2004; Mills and Friesen, 1992; Mintzberg, 1993; Senge, 1990*)
- Knowledge is sticky - it won't move without help (*Szulanski, 2000; Callaan, 2007; Kelly et al., 2013*)
- Organisational culture is "perhaps the most difficult constraint that knowledge managers must deal with" (*Davenport, et al., 1997*).

The Background



Knowledge Transfer Partnership Programme

- A multi-billion pound big infrastructure programme
- Major impact on the environment and society
- Highly dispersed nature
- Complex overlapping and interlocking project and operational systems



Customer demands



Why Communities of Practice?

Organizational knowledge is stored in the heads of individuals, and knowledge is captured, but not for the entire knowledge base. It is through the explicit and tacit knowledge of individuals that the organization can learn. (Nonaka and Takeuchi, 1995)



We Learn ...
10% of what we read
20% of what we hear
30% of what we see
50% of what we see and hear
70% of what we discuss
90% of what we experience
95% of what we teach others.

William Glasser

Coping with Change

Organisational hierarchy



Centralized control

The centres of excellence



A loosely coupled system

Communities of Practice (CoPs) are groups of people who share a common interest in a topic and who develop their knowledge and expertise in this area by interacting on an ongoing basis (Wenger et al., 2002).

CoPs reduce bureaucratic rigidity by enabling individual learning and knowledge exchange. They do not require painful changes, have fluid and organically evolving boundaries, play a big role in increasing problem-solving capacity at the individual and organisational level (Bilimoria and Searles, 2014).

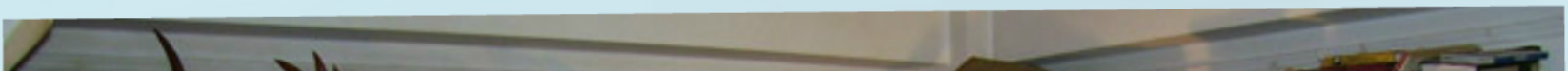
CoPs are risk-free, loosely coupled entities with their own culture, fostering learning and collaboration internally and externally. They manage around organisations' hierarchical structures towards task-based structures, resulting in an increased focus on cross-functional learning (Davenport and DeLong, 1998; Wenger, 2010).

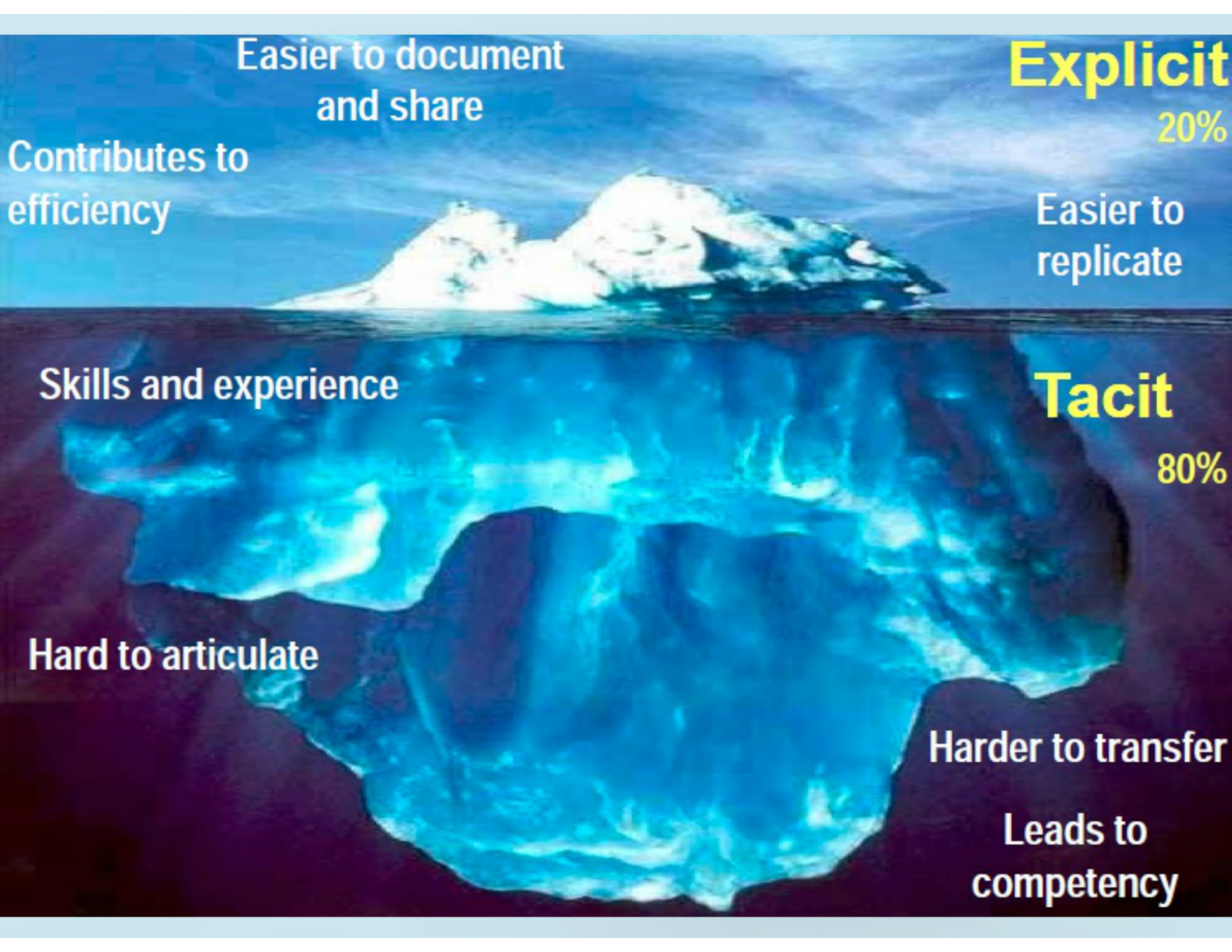
CoP members can be viewed as boundary spanners that cross horizontal and vertical boundaries to create an arena for mutual engagement in collective learning. In this context, cross-boundary collaboration is conceptualized as a form of collective learning and problem-solving (Glover and Gupta, 2011).

Loosely coupled systems may not fit the organisations' focused on capacity, standardisation and accountability for short-term results (Wenger and Snyder, 2000). On the other hand, CoPs need sponsors at a senior level who understand the "subtleties of these tensions" and can help CoPs balance integrity and integration (Snyder et al., 2003, p.32).

Practice!

Operational knowledge is stored in the heads of individuals and the only way to systematically transfer this tacit knowledge is through guided joint social interaction (*Davison and Blackman, 2005; Hayes and Allison, 1998; Lave and Wenger, 1991*)





Easier to document
and share

Explicit
20%

Contributes to
efficiency

Easier to
replicate

Skills and experience

Tacit
80%

Hard to articulate

Harder to transfer

Leads to
competency



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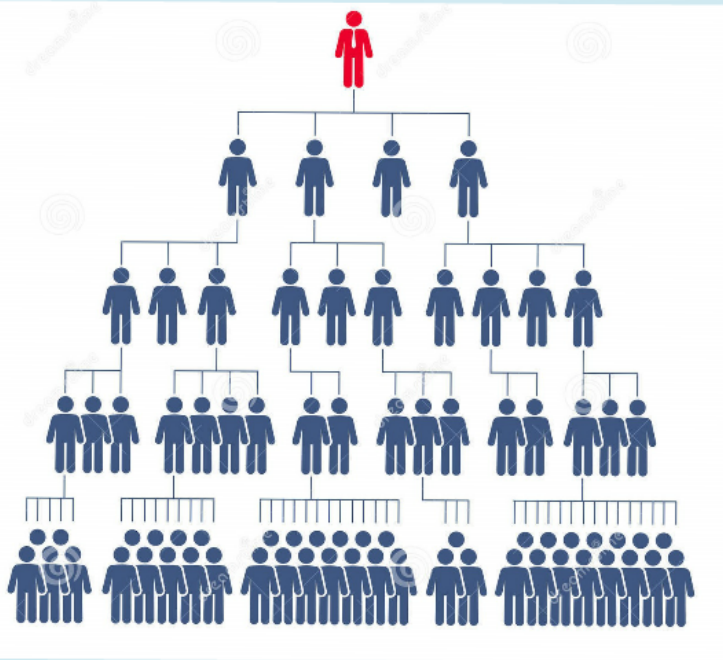
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A loosely coupled system

Communities of Practice (CoPs) are groups of people who share a concern, a set of problems, or a passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (*Wenger et al. 2002*)

CoPs reduce bureaucratic rigidities by enabling individual learning and knowledge exchange. They do not require painful changes; have fluid and organically evolving boundaries, play a big role in increasing problem-solving capacity at the individual and organisational level (*Bolisani and Scarso, 2014*)

CoPs are risk-free loosely coupled entities with their own culture, fostering learning and collaboration internally and externally. They manage around organisations hierarchical structures towards task-based structures, resulting in an increased focus on cross-functional learning (*Davenport and Prusak, 1998; Wenger, 2010*)

CoP members can be viewed as boundary spanners that cross horizontal and vertical boundaries to create an arena for mutual engagement in adaptive learning. In this context, cross-boundary collaboration is conceptualised as a form of collective learning and problem solving (*Brown and Duguid, 1991*).

Loosely coupled systems may not fit the organisations focused on capacity, standardisation and accountability for short-term results (*Wenger and Snyder, 2000; Orr, 1990*). Thus, CoPs need sponsors at a senior level who understand the "subtleties of these tensions" and can help CoPs balance integrity and integration (*Snyder et al., 2003, p.32*)

The Method

Systems Thinking

Systems thinking is a way of thinking in approaching problems and designing solutions.

Checkland, 1981

A systems approach begins when first you see the world through the eyes of another.

Churchman, 1968



Systems Thinking Approaches



the
elephant is
like a fan

... a
wall

... a
snake

... a
rope

... a
tree



Systems Thinking Approaches

Soft

Cognitive Mapping



(Ackermann and Eden, 2010; Eden, 2004)

FINDINGS

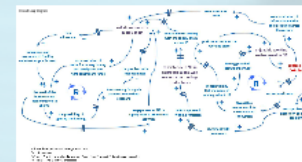
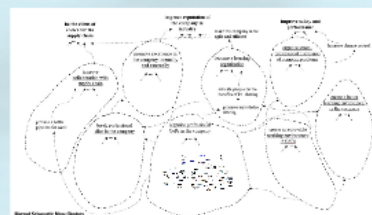
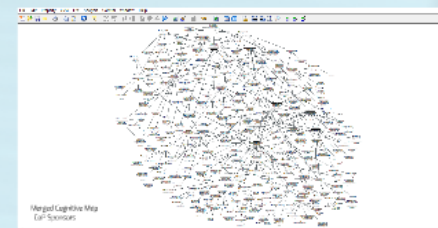


In descending order of importance, the emergent issues from the perspectives of the management of the multi-billion pound infrastructure programme are:

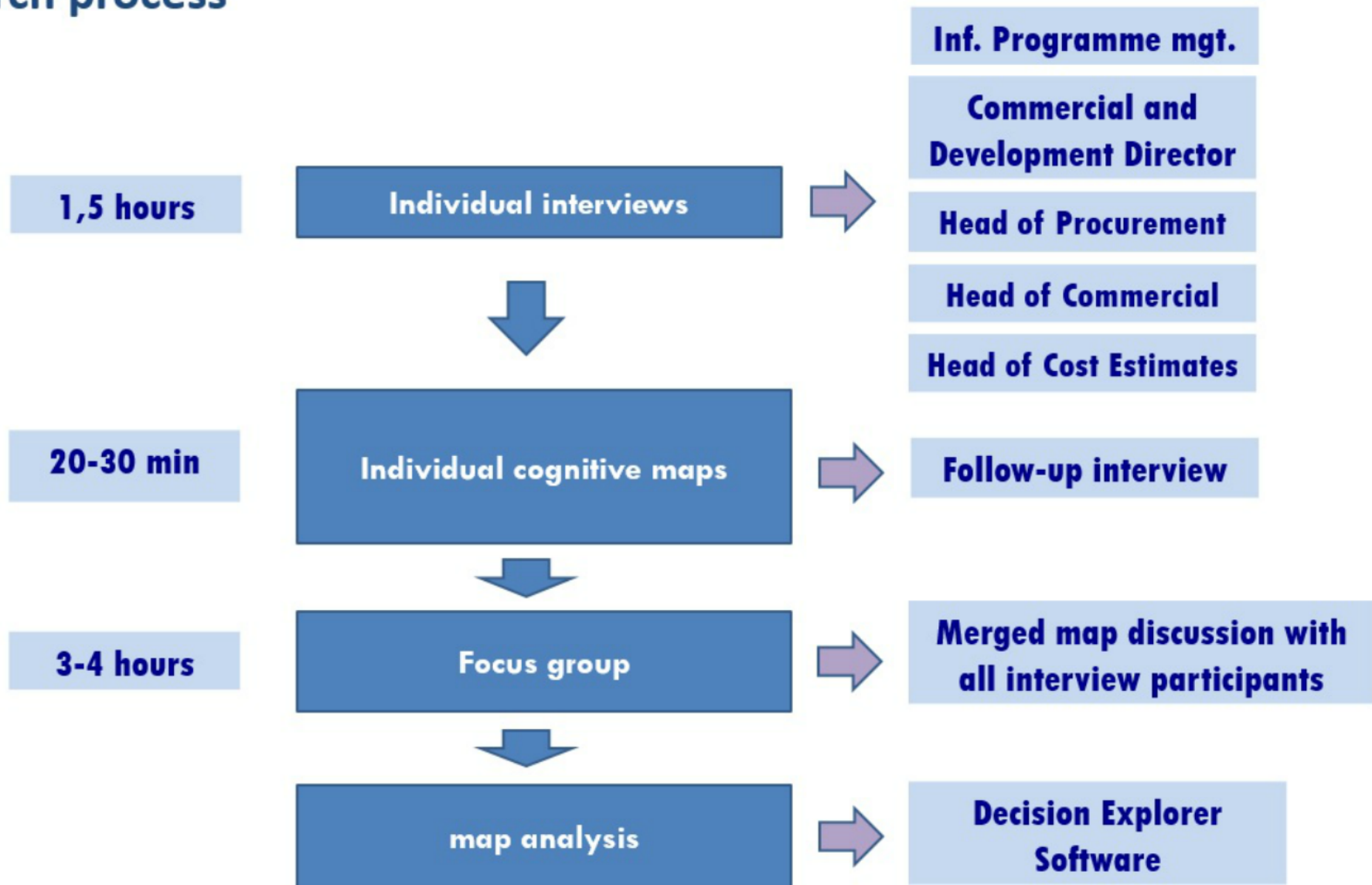
- 1) Lack of knowledge sharing
- 2) Organisational culture
- 3) Lack of a learning environment
- 4) Lack of comfort and security at work
- 5) Weak top-down communication
- 6) Lack of an effective knowledge repository

In descending order of importance, the possible solutions from the perspectives of potential CoP sponsors are:

- Organise professional CoPs
- Break professional silos
- Create an enjoyable working environment in CoPs
- Create a better learning environment in the company
- Organise cross-professional discussion of complex problems
- Promote excellence in the company internally and externally
- Become a learning organisation
- Improve collaboration with supply chain



The research process

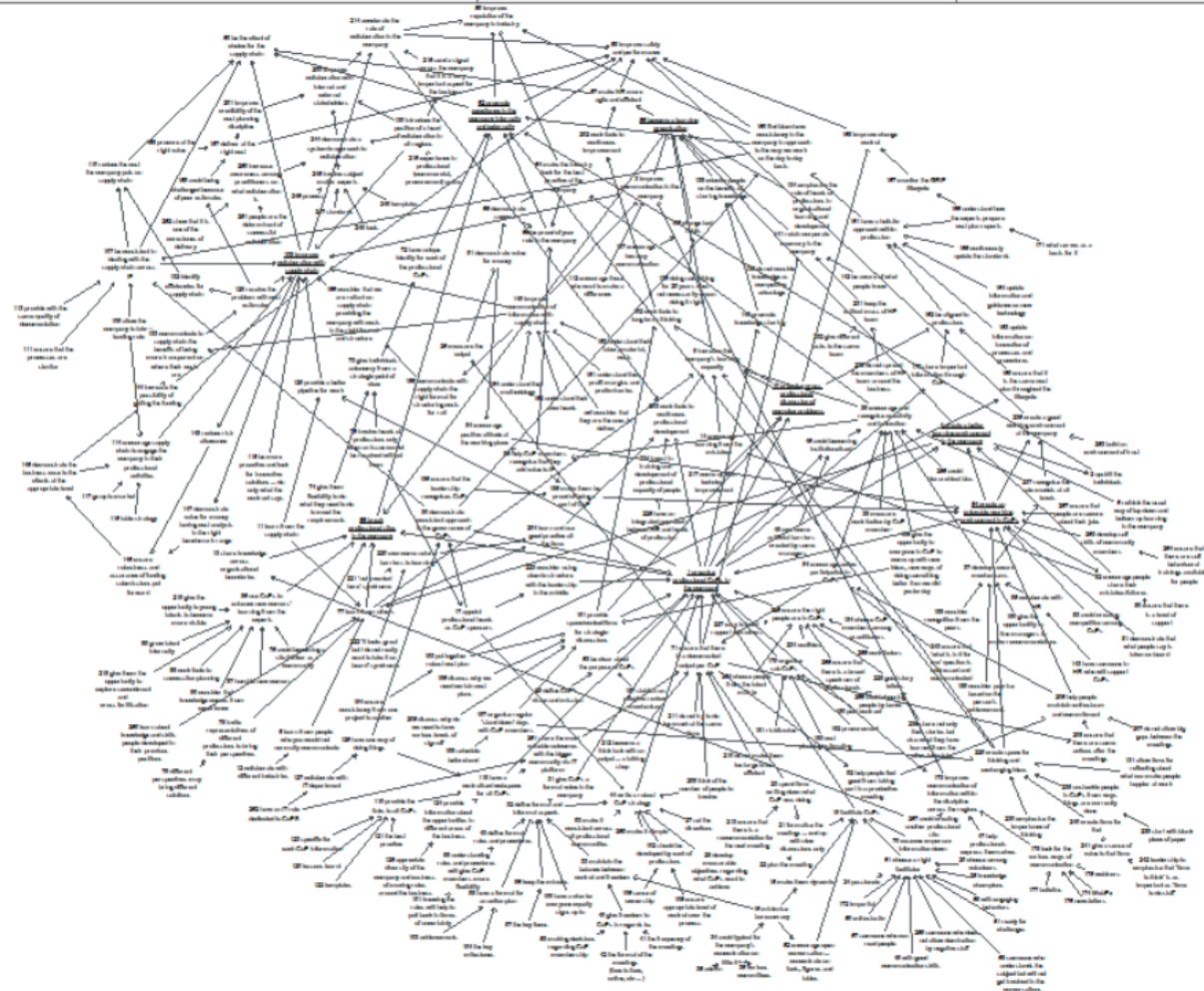


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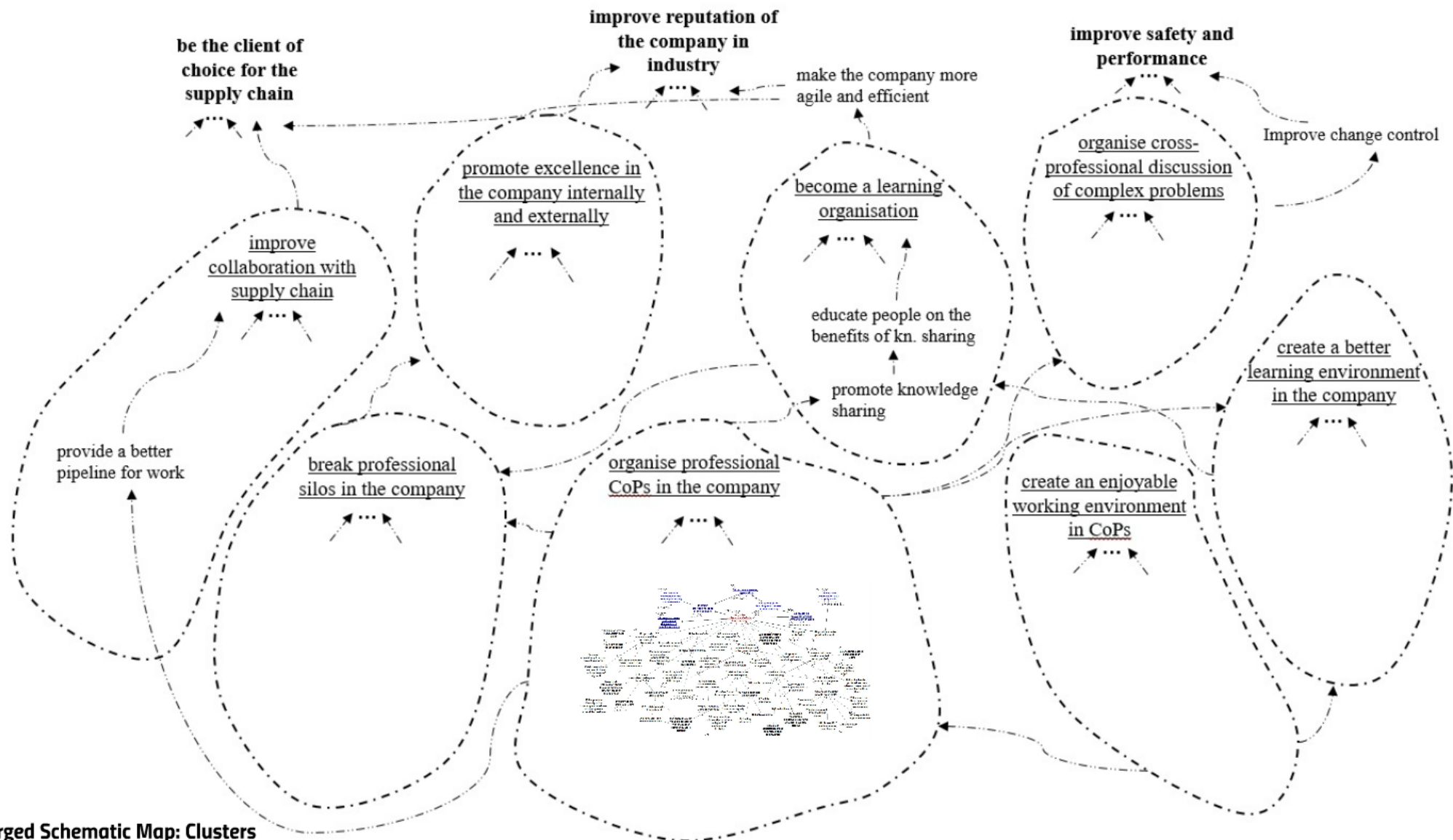
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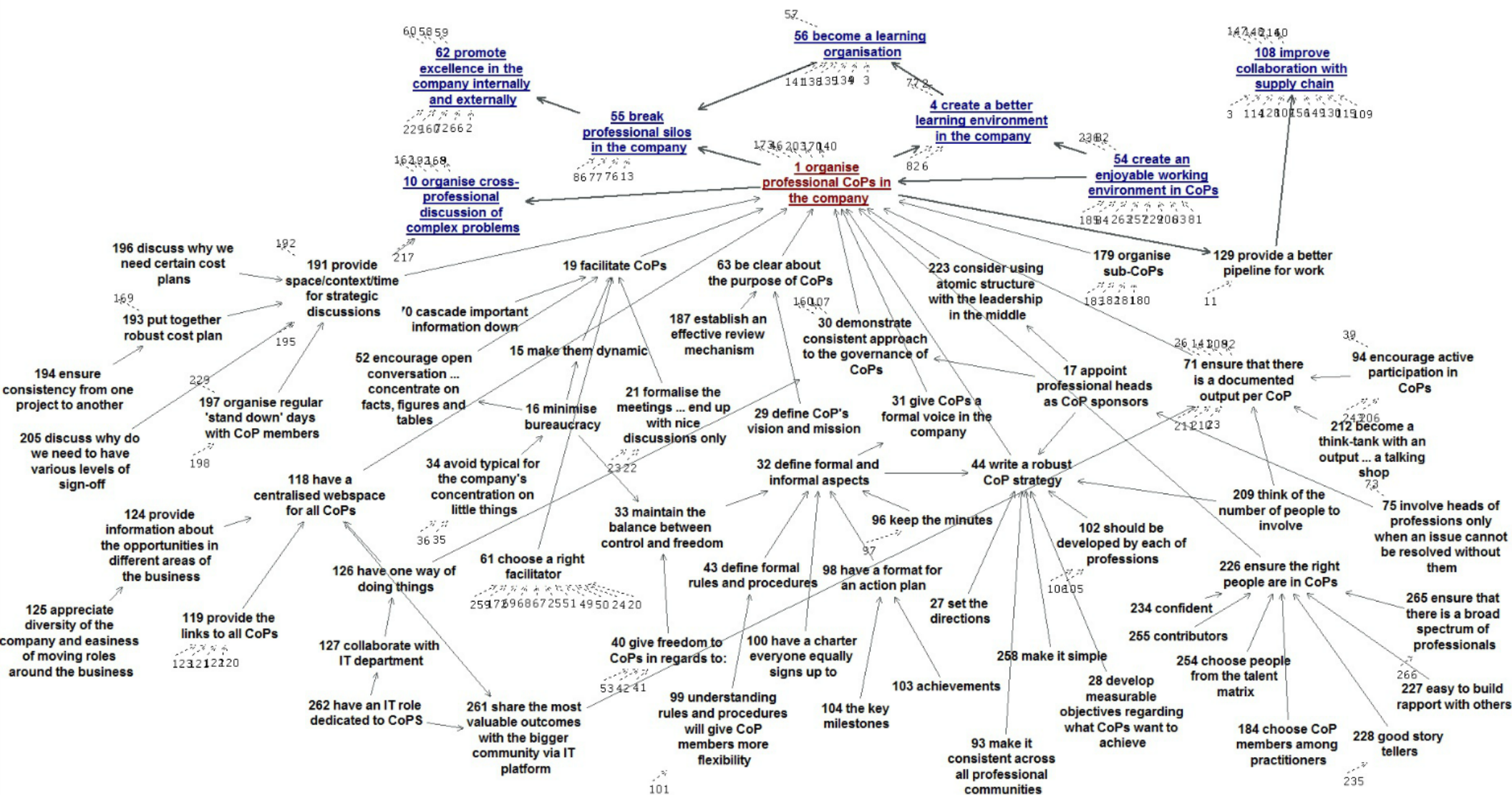
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Merged Cognitive Map
CoP Sponsors



Merged Schematic Map: Clusters



Conclusion

CoP Guide for Network Rail

creating a rhythm

CoP Lifecycle

The key highlights from the CoP pilot project

The first CoP sessions

"...the sessions were dynamic, individuals were focussed and energised and silo mentality was soon forgotten".

"[the CoP] launch event meant that everyone [CoP members] had the opportunity to meet me as their head of practice, but more importantly they realised that... they as individuals all had a part to play in the process and it is an on-going success".

Many of those attending had not met each other before but were firm friends and allies at the end relationships that endure still. At the end of the four days we had the new **# Vision - # Mission** process fully mapped, documents in place and where "tasks" were needed there were accountable owners and deadlines to meet all of which were adhered to".

No creditworthy evidence to see the difference now as network focused and the change resulting from the culture transformation going beyond the commercial gain - Values: We Deliver, Mutual Commitment & Respectfulness.

Achievements to date

- A Commercial on-line Hub, the final point for sharing continuous improvement, sharing best practice, sharing lessons learnt, sharing training materials and newsletters (with the facts, statistics and documents) to spread onto the BHS system. The benefits are already being realised in terms of **location of information, sharing best practice and enabling the One Vision One Way mindset**.
- Design and implementation of technical in-house training courses by CoP members
- Sharing the designed courses with Tier 1 suppliers
- Three **resilience** across the country to overcome the CoP journey
- Allocated budget to train **28 knowledge champions** in IP Commercial and **16 well-being champions**
- One Vision One Way - **sharing the success story** of Commercial CoP with Engineering Function to help them understand CoP journey
- The Commercial team was recognised as the **Champion among Functions** and is now being asked to support other functions who have seen their success and want to emulate it
- The Commercial CoP established its own **culture of knowledge exchange** and served as a driving force for **behavioral change**, "people love to share their best practices and ideas, and they have realised the power of sharing rather than keeping this close to themselves"
- The CoP **crossed the functional boundaries** by sharing the commonly wished lessons "these lessons are important as they are now fed back to the Engineering and Engineering Departments so that the boundaries become non-existent and less like sky and reported design issues are minimised"
- The success stories of CoP Commercial cover a number of hot topics:
 - Importance of record keeping
 - Ownership
 - Qualification and role build-ups
 - Safety

Organisational hierarchy

➔

The centres of excellence

The left diagram, titled "creating a rhythm", shows a circular flow between three states: "ONSET POINTS", "ONset", and "PRODUCTION OF STATE". Arrows indicate a clockwise cycle: ONSET POINTS leads to ONset, ONset leads to PRODUCTION OF STATE, and PRODUCTION OF STATE leads back to ONSET POINTS.

The right diagram, titled "Cell Lifecycle", shows a linear progression through five stages: "ONset", "ONset", "ONset", "ONset", and "ONset". Each stage is represented by a blue box with a white arrow pointing to the next stage, indicating a sequential process.

The first CoP sessions

"the [CoP] launch event meant that everyone [CoP members] had the opportunity to meet me as their head of practice, but more importantly they realised that... they as individuals all had a part to play in the process and it is an on-going success".

Networks, starting to use the difference rate as a comparison and the change in activity from the same to the factors is being rotated and compared on:

Victoria Hill School, West of Cornwall
(1) Network Hill

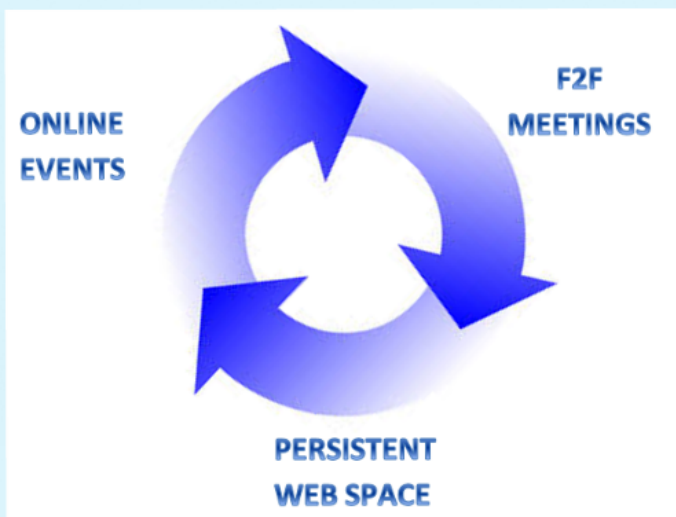
- A **Common** or **shared** **IT** **infrastructure** for driving **convergence**, **improvement**, **shared** **learning**, **predictive**, **sharing** **lessons** **learned**, **data** **driving** **improvement** **in** **new** **or** **existing** **markets**, **breakdowns** **and** **insights** **to** **be** **shared** **with** **the** **805** **community**, **the** **benefits** **are** **achieved** **by** **being** **proactive** **in** **terms** **of** **location** **of** **information**, **sharing** **best** **practices** **and** **understanding** **the** **Other** **Does** **the** **805** **really** **not** **wait**.
- Design and implementation of technical and **business training courses** by **CoP members**.
- **Driving** **the** **design** **courses** **with** **Tim** **supplies**.
- **Three** **relationships** **connect** **the** **community** **to** **the** **CoP** **journey**
 - **Allocated** **budget** **to** **train** **20** **learning** **champions** **in** **CoP** **Convenors** **and** **16** **well-being** **champions**.
 - **One** **Video** **Other** **Video**, **sharing** **the** **success** **story** **of** **Champion** **CoP** **with** **Engineering** **Function** **for** **the** **Other** **CoP** **journey**.
- **The** **Convenors** **have** **been** **well** **recognized** **as** **the** **Champion** **among** **Functions** **and** **is** **now** **being** **called** **to** **support** **other** **Functions** **who** **have** **seen** **the** **success** **and** **want** **to** **emulate**.
- **The** **Convenors** **CoP** **established** **to** **own** **culture** **of** **knowledge** **exchange** **and** **serve** **as** **a** **driving** **force** **for** **behavioral** **change**, **"people** **like** **to** **share** **time** **best** **practices** **and** **others**, **and** **they** **have** **realized** **the** **power** **of** **sharing** **which** **is** **giving** **this** **meaning** **this** **close** **to** **others**."
- **The** **CoP** **enabled** **the** **functional** **breakdown** **by** **sharing** **the** **cross** **functional** **lessons**, **"these** **insights** **are** **important** **as** **they** **are** **now** **being** **used** **for** **the** **Engineering** **and** **Engineering** **Departments** **so** **that** **the** **breakdown** **between** **man** **and** **machine** **and** **black** **box** **and** **real** **physical** **disruptions** **are** **revisited**."
- **The** **success** **stories** **of** **CoP** **Convenors** **cost** **a** **number** **of** **list** **posts**
 - **Importance** **of** **social** **learning**.
 - **Recovery**.
 - **Characteristics** **of** **role** **holders**.
 - **Safety**.



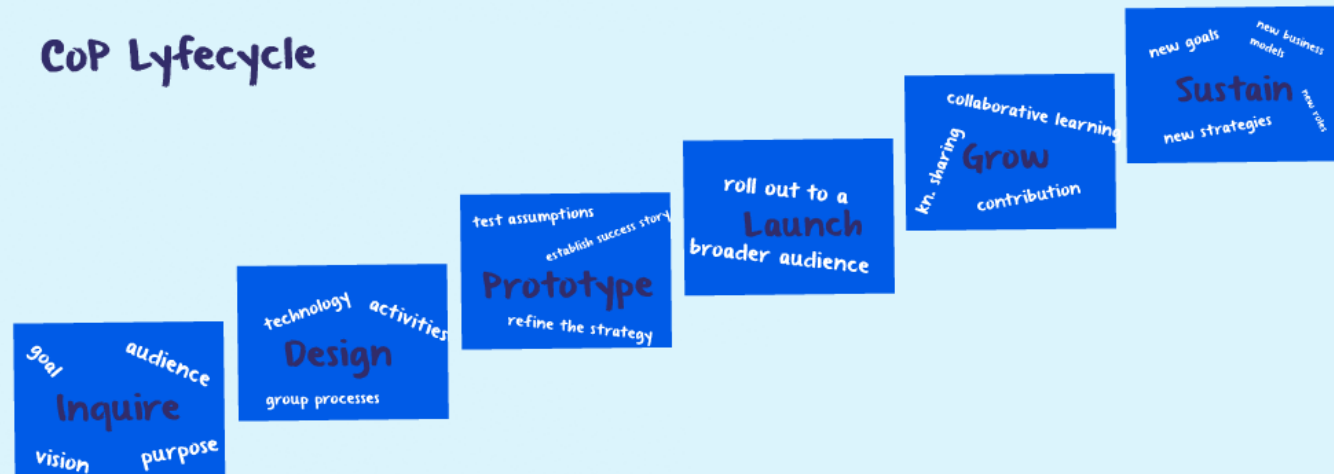
- resistance to supervision and control
- loosely-knit horizontal structure
- exchange of tacit-based tacit knowledge
- risk-free exchange of mistakes and failures

CoP Guide for Network Rail

creating a rhythm



CoP Lifecycle



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"We are really starting to see the difference now as we move forward and the change in activity from the centre to the functions is being noticed and commented on".

Victoria Hill-Stanford, Head of Commercial

ID Networks Rail

Achievements to date

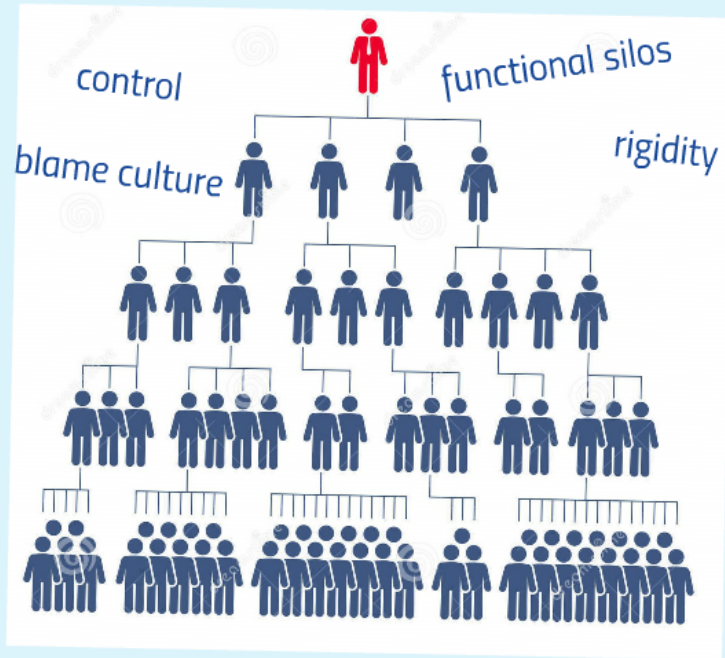
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- Design and implementation of technical **in-house training courses** by CoP members
- **Sharing** the designed courses with Tier 1 suppliers
- Three **roadshows** across the country to commence the CoP journey
- Allocated budget to train **28 knowledge champions** in IP Commercial and **16 well-being champions**
- One Vision One Way - **sharing the success story** of Commercial CoP with Engineering Function to help them on their CoP journey
- The Commercial team was recognised as **the Champion among Functions** and is now being asked to support other Functions who have seen their success and want to emulate it
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- The CoP **crossed the functional boundaries** by sharing the community validated lessons: "these lessons are important as they are now fed back to the Estimating and Engineering Departments so that the estimates become more robust and less blue sky, and repeated design issues are minimised".
- The success stories of CoP Commercial cover a number of hot topics:
 - Importance of record keeping
 - Tax recovery
 - Quantification and rate build ups
 - Safety

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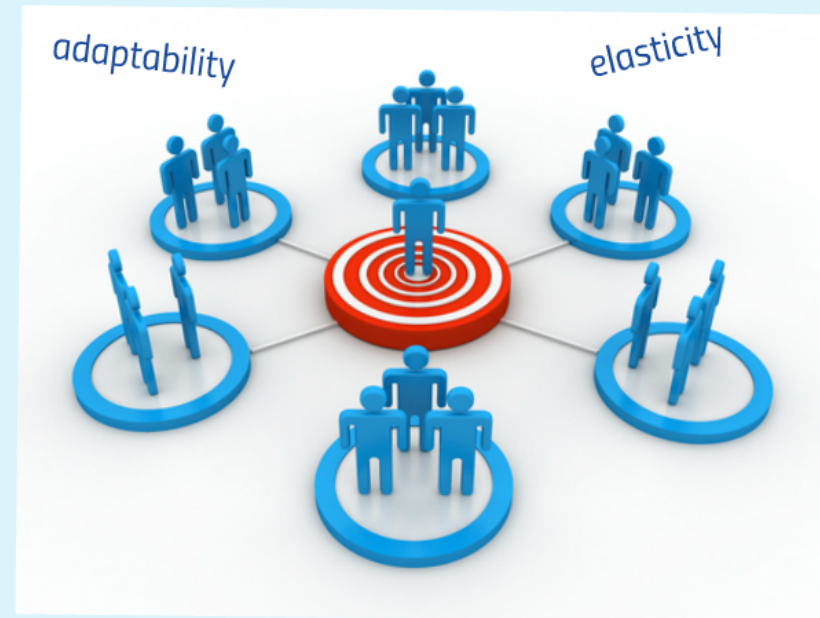
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Victoria Hill-Stanford, Head of Commercial
IP, Network Rail

Organisational hierarchy



The centres of excellence



resistance to supervision and control

loosely-knit horizontal structure

exchange of task-based tacit knowledge

risk-free exchange of mistakes and failures

management by objectives

lack of motivation to share knowledge

strong pressure to deliver short-term results

defensive mechanisms

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