

Systems Thinking

Interactive session

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**Combined use of
VSM, SSM and SAST**

(Emphasis on SAST)

- Design of a healthcare information system (HIS) strategy for Ferens PCT, NHS, during 2003-2006
- This project was part of a larger initiative called Connecting for Health (CfH)
- The DoH inculcated general management principles in the NHS during the 1980s
- Conflict between two main factions – clinicians and managers
- A healthy manager-clinician relationship is central to ensuring the effective health outcomes
- Their worldviews need to merge towards a common purpose

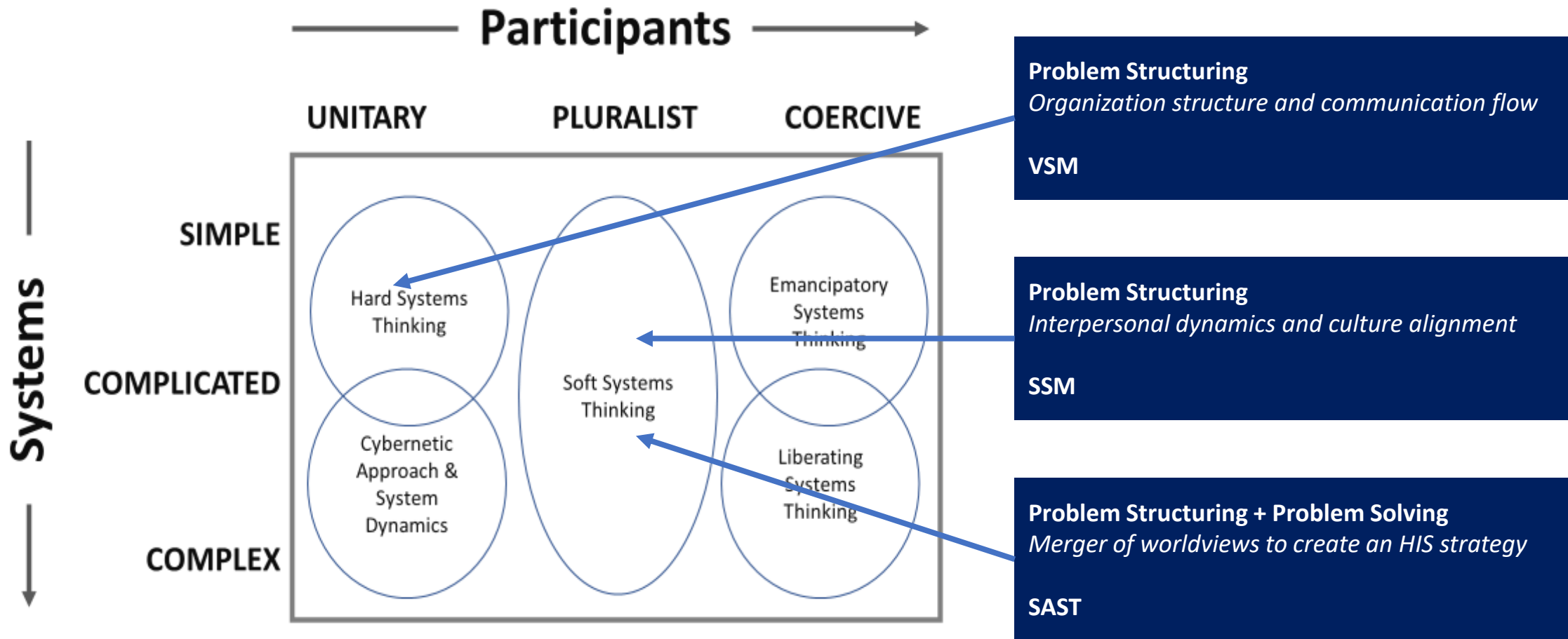
It was realized that the project mandate to design an IS strategy for Ferens PCT was remote and esoteric, given the challenges that rested at a more fundamental level.

Problem Structuring

Understanding the system-in-focus and creating alignment between the key stakeholders to arrive at a consensus on the need for a local HIS strategy.

Problem Solving

Creating the HIS strategy through a participative process achieving convergence of worldviews of the key stakeholders.



System of Systems Methodologies (SOSM) (Jackson, 2019)

System 1

Implementation

System 2

Coordination

System 3

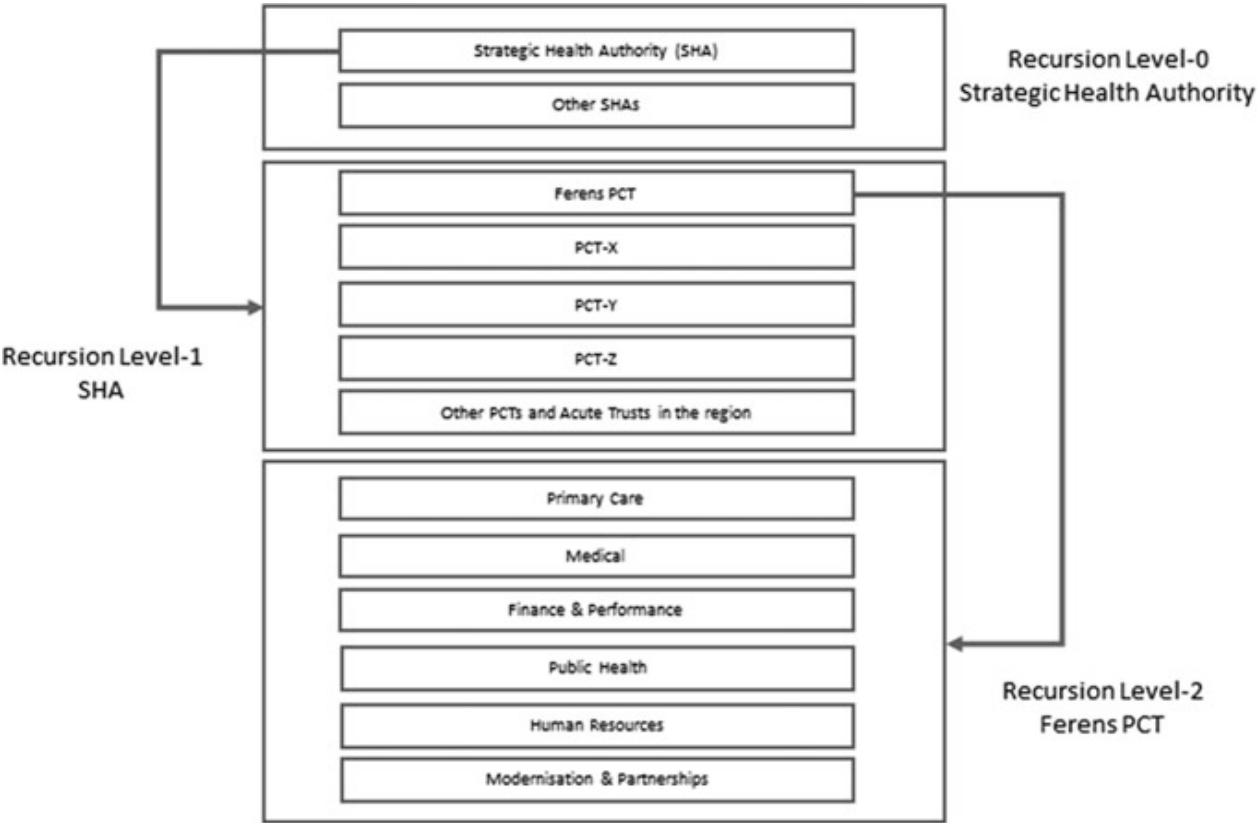
Control

System 4

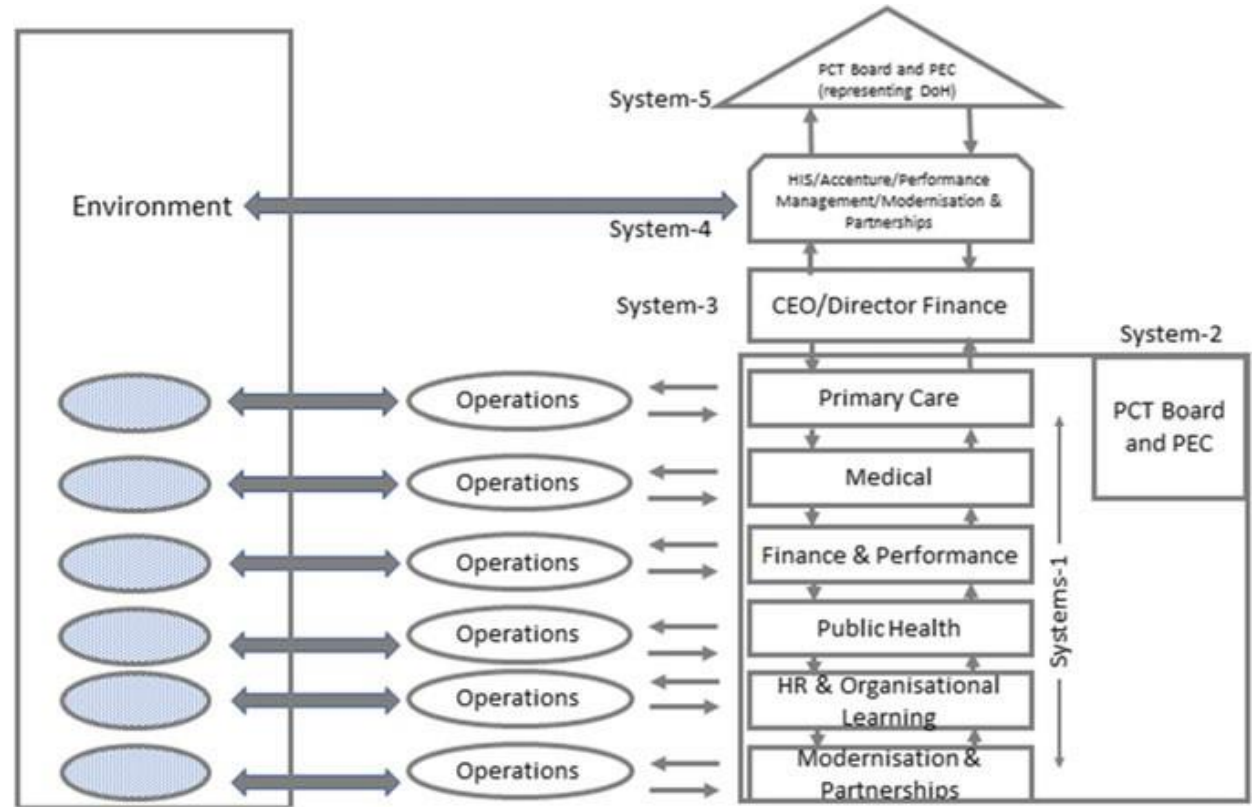
Development

System 5

Policy



System Identification



System Diagnosis

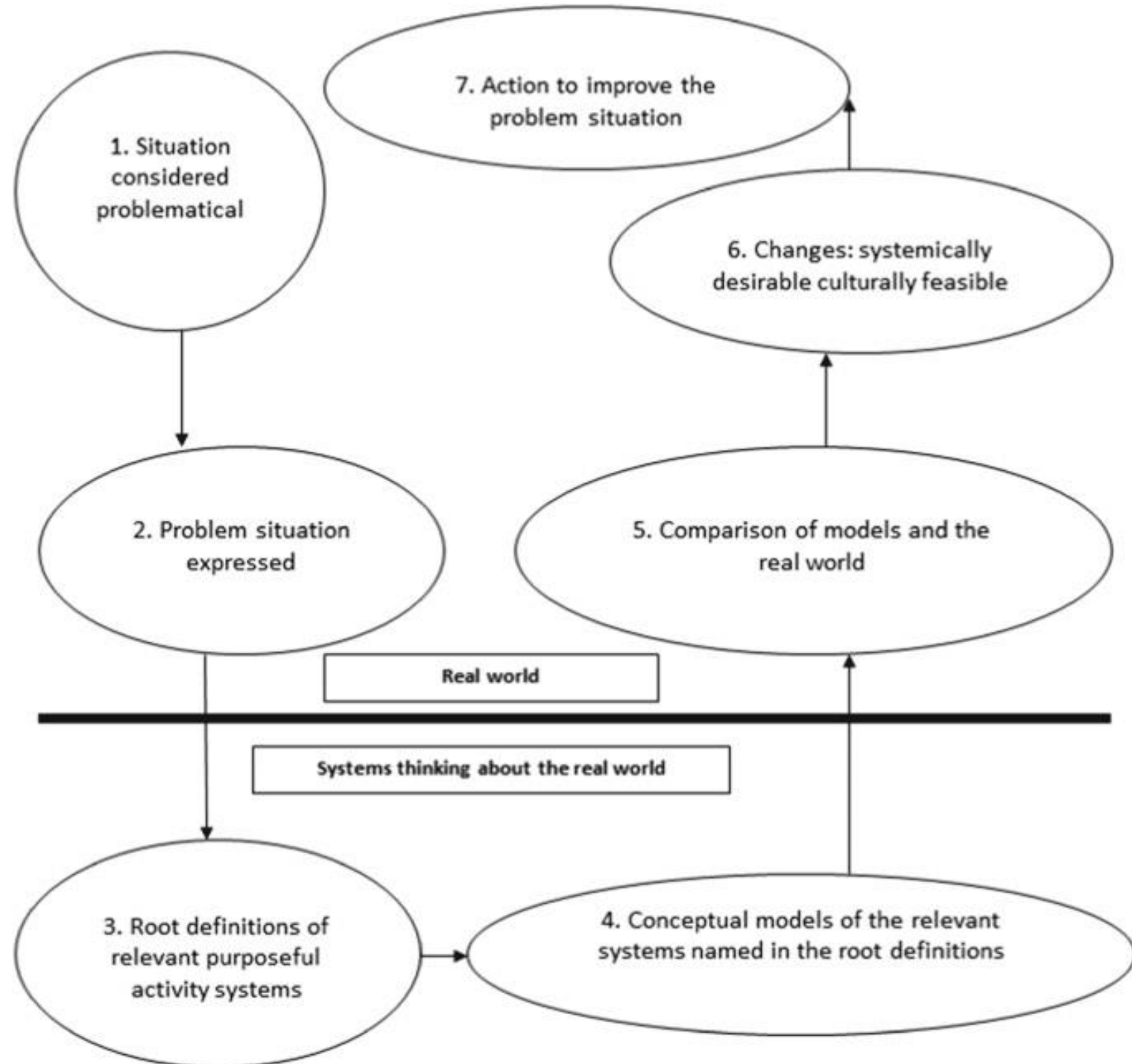
- Lack of implementation accountability
- Coordination breakdown
- Lack of key stakeholder involvement
- System misalignment

Two challenges that needed answering:

- (i) Why an HIS strategy was required, which is a process of reasoning rather than the process of choice-making
- (ii) How an HIS strategy would be arrived-at once the first challenge is addressed

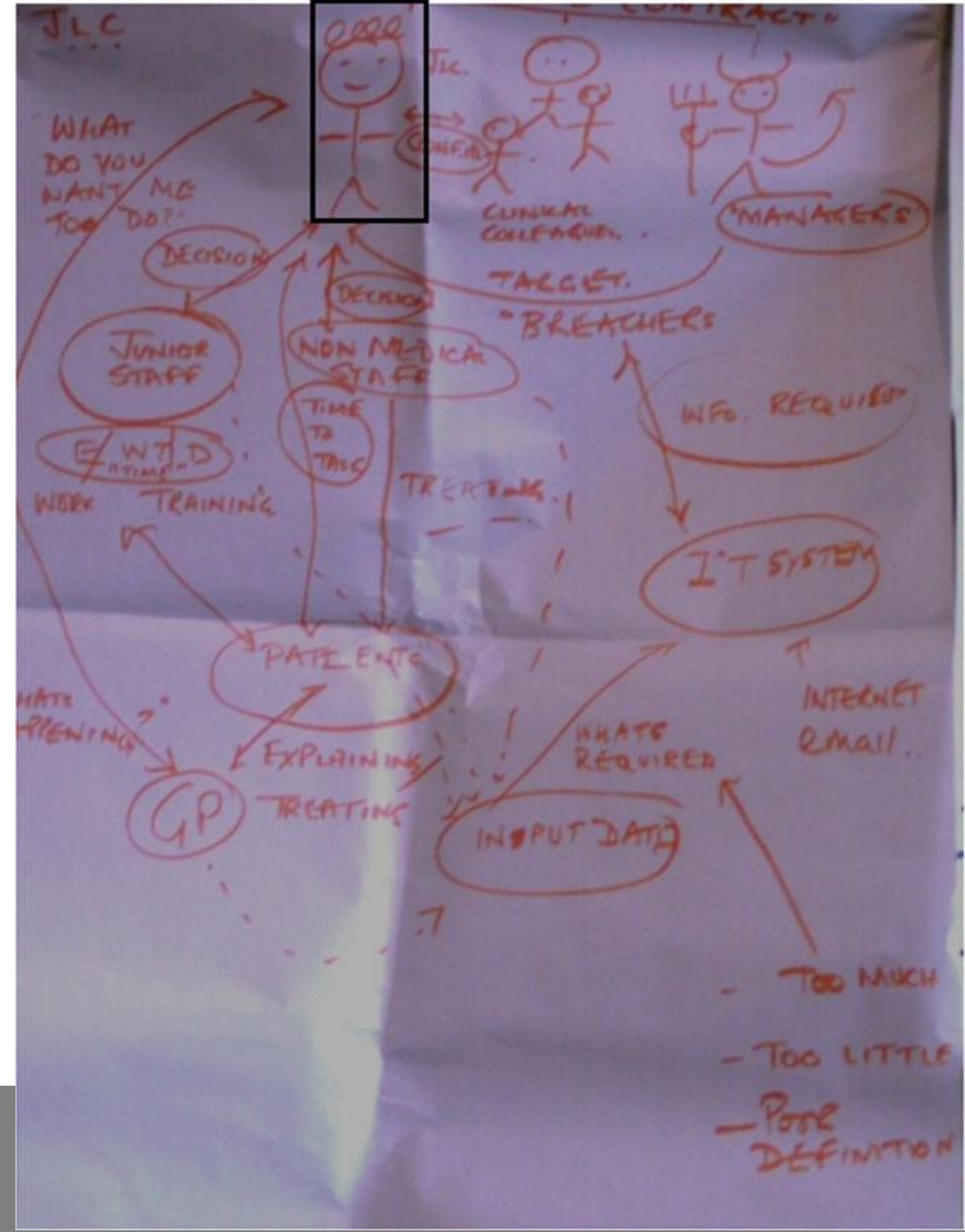
- Participative platform for stakeholders to bring together diverse perspectives and worldviews in an atmosphere of constructive deliberation aspiring for consensus
- SSM does not address technical requirements or solutions but serves to address issues that may arise out of conflict of values and differing perspectives emanating out of differing worldviews
- SSM enables the appreciation of the human activity system by shifting the focus from the system per-se to the actors, all of who demonstrate purposeful activities in the system

Soft Systems Methodology (SSM) (Checkland, 1981; Checkland & Scholes 1990; Checkland & Scholes, 1999)

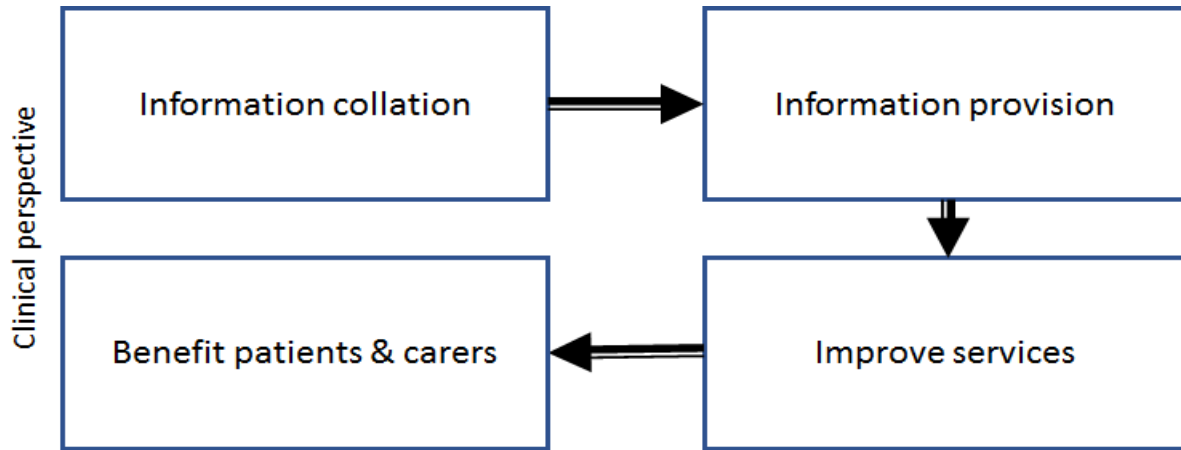


SSM 7 stages

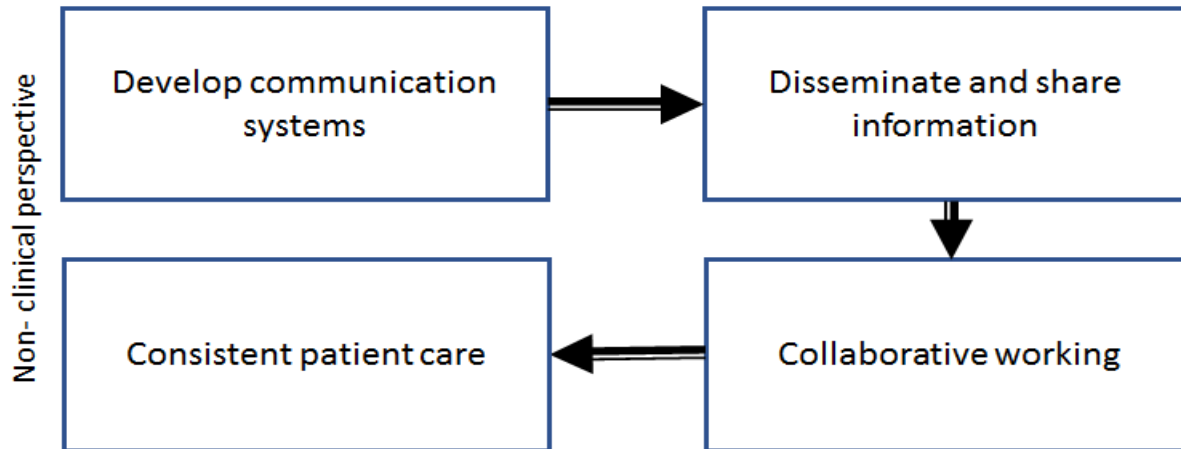
- Confusion regarding what was defined as information as this was contextual
- Duplication of information collection and management
- Confusion over data ownership and access
- Inconsistencies in the use of information support platforms between various NHS entities
- Non-adherence to standard taxonomies
- Information inaccessibility despite its availability



Conceptual Models



Change that is **systemically desirable** and **culturally viable**



We agreed on the common vision for a **collaborative approach** to HIS that would support both clinicians and managers alike to work seamlessly in a knowledge-environment for better patient outcomes.

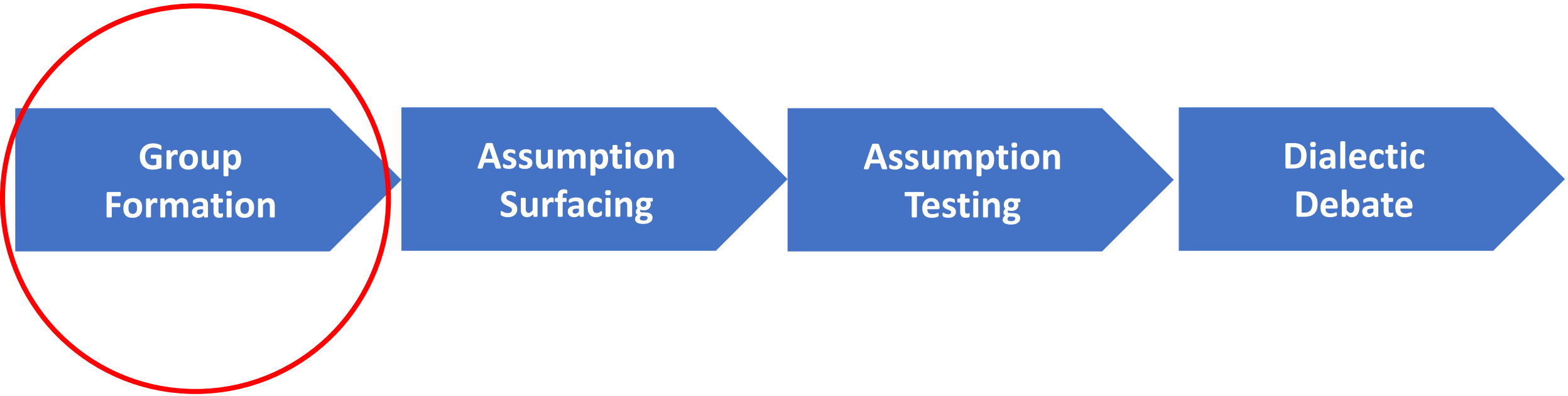
- Established a common alignment for the need of an HIS strategy
- Surfaced fundamental differences between clinicians and managers that stemmed from individual worldviews exposing that such differences were not irreconcilable because both sides had been ‘victims of the system’
- It was agreed that a collaborative approach is needed

It is to be noted that elements of problem-structuring need to be reflected through the problem-solving journey in an iterative mode so that solutions arrived at are relevant and sufficient

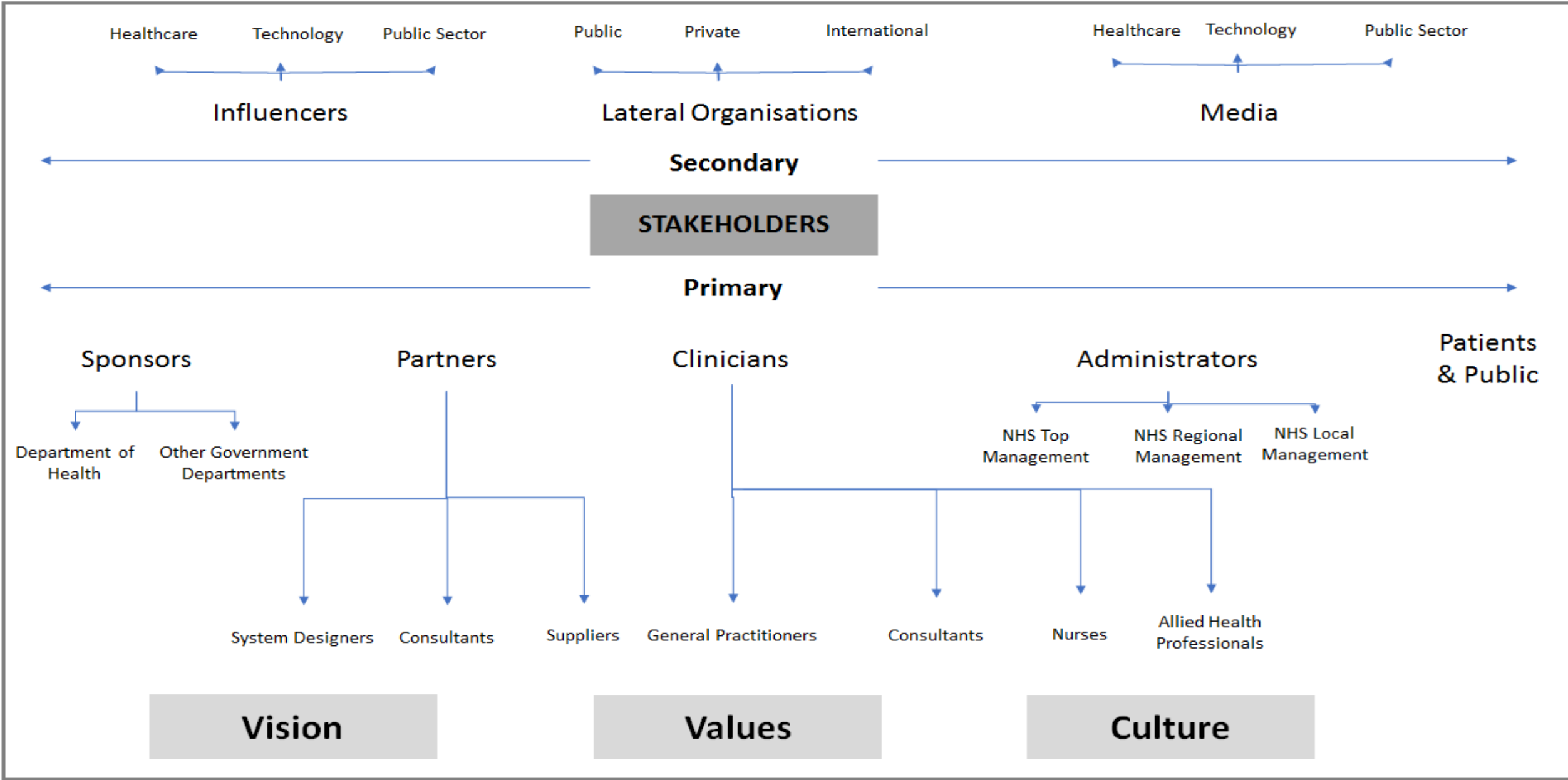
This calls for participants to be open to negotiating with boundaries, revisit interrelationships and be sensitive of emergent characteristics in the system – both intended and unintended

- A satisficing rather than optimizing rationale
- An acceptance of conflict over goals
- Different objectives measured in their own terms
- The employment of transparent methods that clarify conflict and facilitate negotiation
- The use of analysis to support judgement with no aspiration to replace it
- The treatment of human elements as active subjects
- Problem formulation on the basis of a bottom-up process
- Decision taken as far down the hierarchy as there is expertise to resolve them
- Acceptance of uncertainty as an inherent characteristic of the future

An organisation only really begins to learn when its most cherished assumptions are challenged by counterassumptions. Assumptions underpinning existing policies and procedures should therefore be unearthed and alternatives put forward based on counterassumptions



Thesis + Anti-Thesis = Synthesis



Assumption Surfacing – Stakeholder Analysis

Group-1

Top-down Approach

1. IT industry has vested interest in personal gains.
2. Media wants to portray a negative image.
3. The media should be more positively engaged by CfH.
4. The general public have a one-sided view, as portrayed by the media.
5. The general public has a lack of confidence in CfH.
6. The IT industry has a conflict of interest.
7. The general public has a lack of understanding of the aims of CfH.
8. The general public believes that money should rather be spent on healthcare and on professionals, than on IT.
9. The government expects too much too soon from a complicated project.
10. The government has an unrealistic time-frame for delivery of the project.
11. The government is politically driven and does things that are locally irrelevant.
12. The healthcare sector has a lack of expertise and lack adequate IT staff to deliver the project.
13. Finance department underestimated resources needed for the national and local delivery of the project.
14. Clinicians believe that they have not been consulted.
15. Clinicians have an unrealistic expectation of participation.
16. Clinicians have a fear of their IT skills.
17. Patients are mostly not interested in getting involved.
18. There is lack of training capacity to ensure skills for delivery.

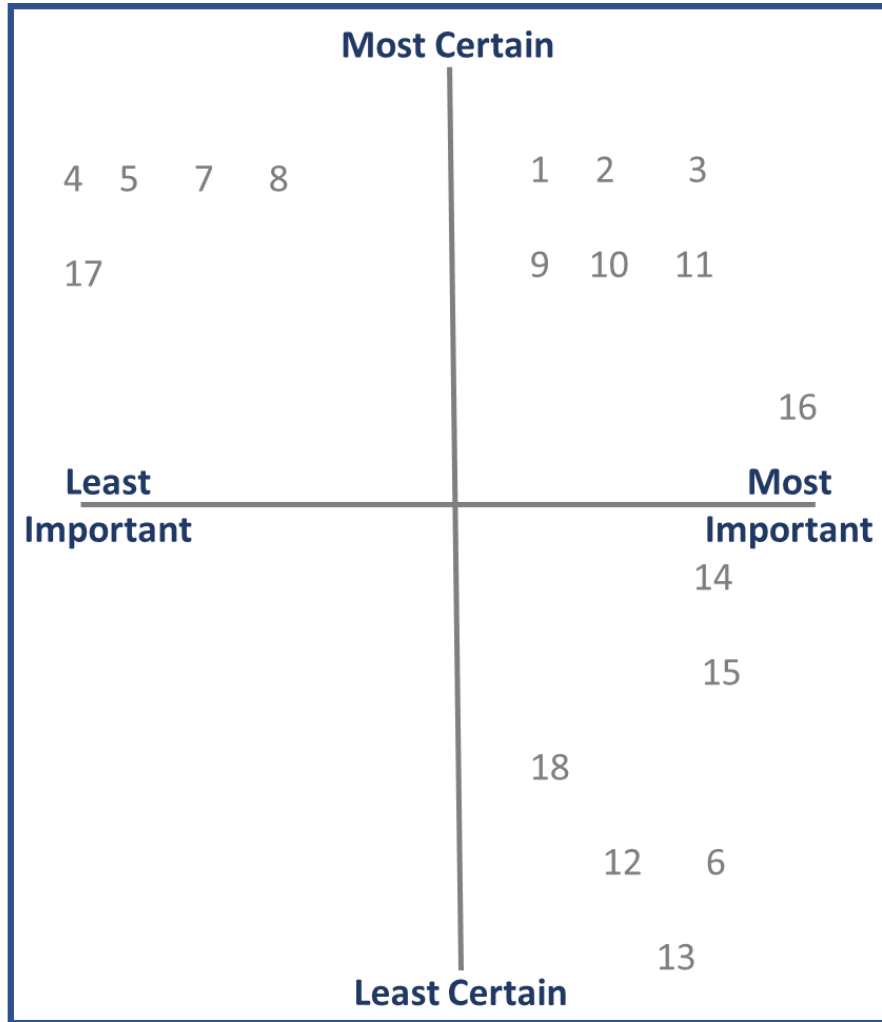
Group-2

Bottom-up Approach

1. CfH will go over cost. It is a white elephant.
2. Administrative staff will be resistant to change.
3. Administrative staff has no time to work with the new systems.
4. Clinicians are not computer literate.
5. Clinicians are time limited to work with the new systems.
6. Patients are not computer literate.
7. Clinicians are conservative to accept change.
8. Government is control freak.
9. Clinicians are sceptical about success of CfH.
10. Patients want local treatment.
11. Private healthcare services are only interested in profit.
12. Clinicians are sceptical about patient confidentiality in the new system.
13. NHS managers need numbers.
14. Suppliers see CfH as an opportunity for profit.
15. Administrative staff will find it difficult to use the new system.
16. The treasury wants to keep costs under control.
17. Patients lack knowledge about the system.
18. The government wants to impose solutions all the time.
19. Universities need to do more research for information and funding.
20. Private healthcare services are always after more NHS work.
21. Government will blame someone else when the system does fails.

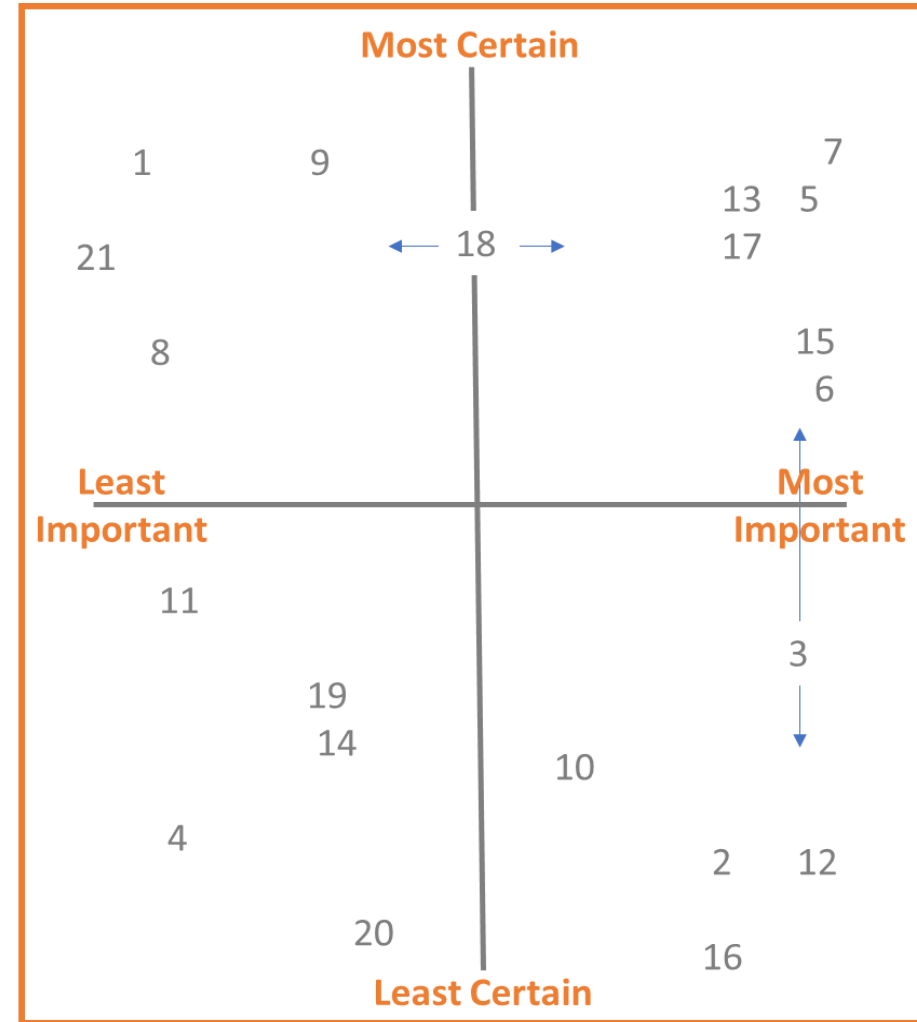
Group-1

Top-down Approach



Group-2

Bottom-up Approach

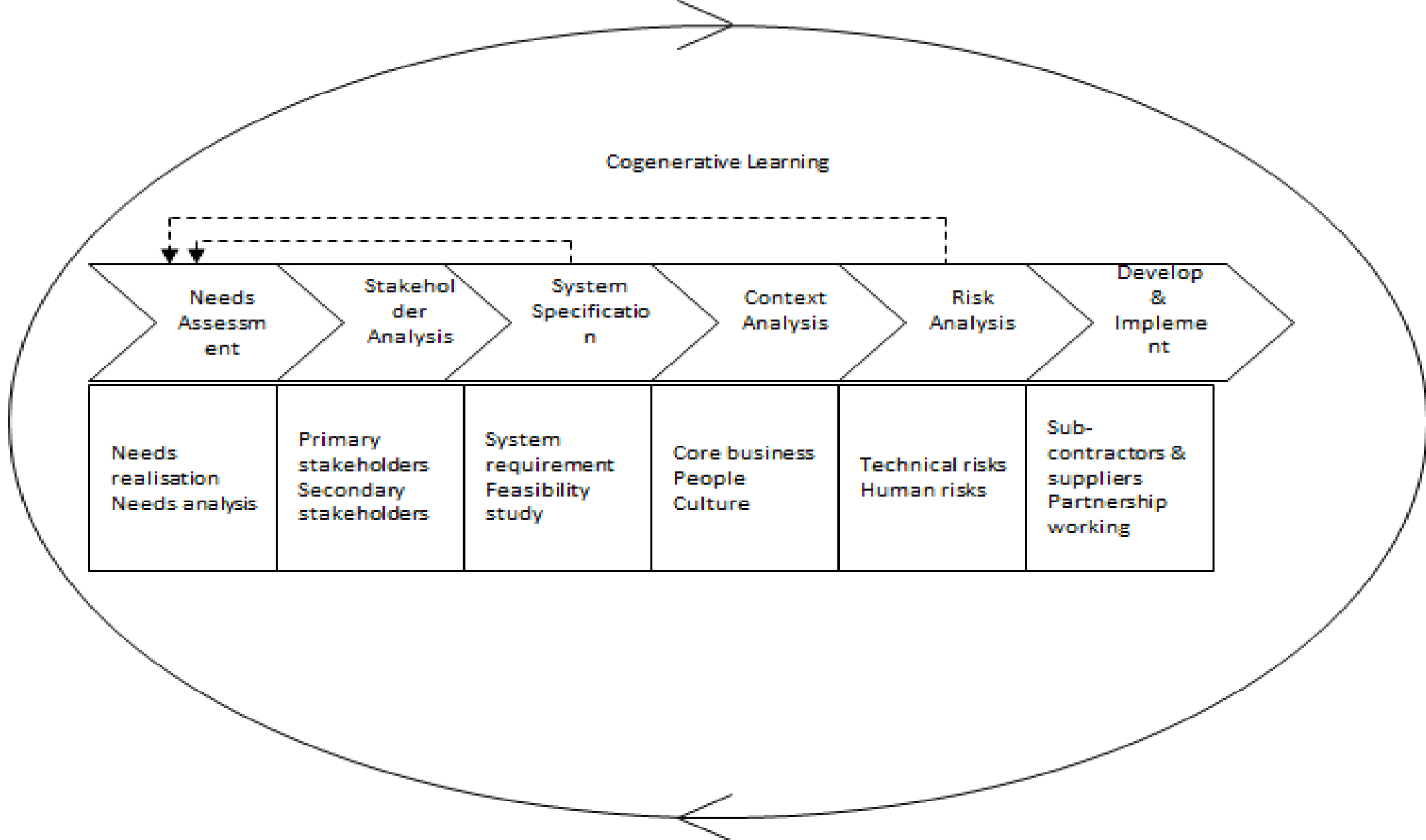


- Both groups talked about the vested interest of the private IT industry in the CfH initiative for lucrative business contracts
- Exposed the political drive for the initiative rather than a genuine focus on healthcare outcomes
- Understanding of the unnecessary complexity introduced due to inclusion of too many services under the same initiative making CfH the ‘elephant in the room’
- Acknowledged the lack of training for clinicians on IT skills
- Exposed the lack of adequate consultation of key stakeholders during the design of the initiative

Later, the groups were offered the opportunity to modify their assumptions.

Group-1 that represented the top-down worldview changed their ratings on assumptions to indicate how government policies and cost-saving were a more real threat than earlier thought to negatively impact IS programs in the NHS

Group-2 that represented the bottom-up worldview, apart from making a similar change, also changed their rating to reflect the benefit of IS more positively, shifting away from the skepticism expressed earlier



Synthesis – Normative Approach to Healthcare IS

- The exercise was able to bring together two opposing factions and create synthesis through a healthy and inclusive debate
- The groups were able to highlight sensitive aspects aided by the tools of SAST, which were not otherwise surfaced with this level of clarity
- Greater transparency helped bring humility and self-awareness amongst the key stakeholders that created a conducive platform for them to collaboratively create a normative approach to HIS
- This approach was later presented to the Ferens PCT management as a recommendation to be taken up with technical discussion, refinement, and integration with CfH

Strategic Convergence

Strategic: an act of great importance within an integrated whole or to a planned effect

Convergence: an act of moving toward union or uniformity

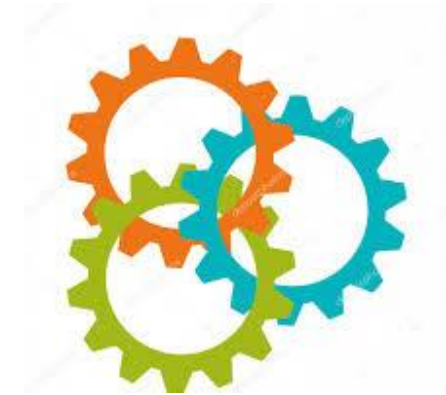
(Merriam-Webster)



INTENT



WORLDVIEW



ACTION-ORIENTATION

Strategic convergence involves going beyond the obvious of seeking **fact-based agreements** to aspiring for **values-based consensus**. This requires deeper intervention where the parameters of intent, worldview and action-orientation become important.



- Surfaced organisational challenges
- Delineated personal from organisational
- Non-competitive nature
- Fractions were non-threatening
- Enabled creative tension
- Unearthed hidden issues and mindsets
- Established common understanding
- Helped clarify procedural and substantive rationality



- Inadequate inclusivity
- Pre-research already brought in coloured perspectives
- Conceptual challenges
- Lack of consideration of power-dynamics
- Scope for only 2 groups (SAST)
- Too much focus on consensus
- Who knows if the expression is authentic?
- Rationality and control?

Critical Systems Thinking (CST)

Wicked Problems



Ambiguous
Volatile & Unpredictable
Nonlinear
Unique

A close-up photograph of a mechanical engine component, possibly a piston or valve train, with various metal parts and bolts visible. The lighting is dramatic, highlighting the textures and metallic surfaces.

**Reductionist
Approach**

An aerial photograph of a river winding through a deep, rugged canyon. The river is a vibrant blue-green color, contrasting with the reddish-brown rock walls. The canyon walls are steep and layered, showing signs of erosion. The sky is clear and blue.

**Systems
Approach**

Two fundamentally different ways of problem solving

The difference

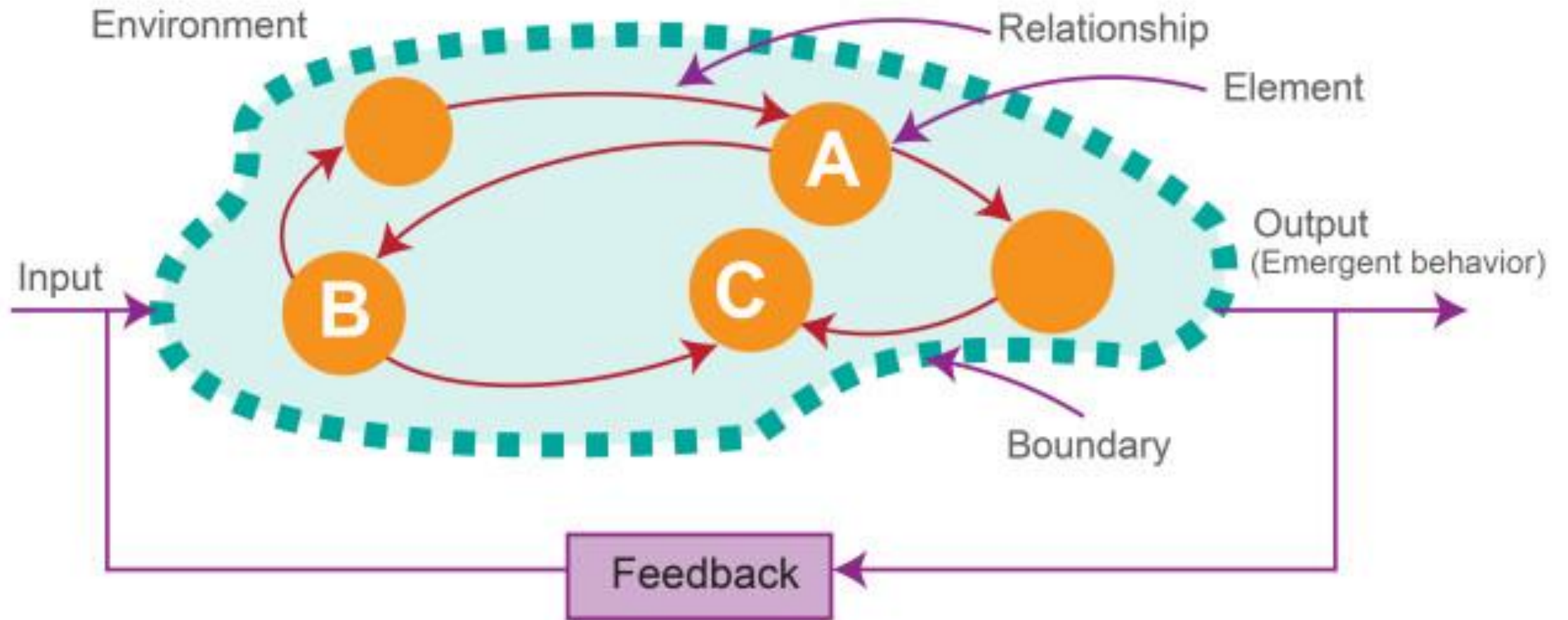
Reductionist Approach

- Linear thinking
- Focus on problem-solving
- Expert-led
- Focus on optimisation
- Barriers mindset

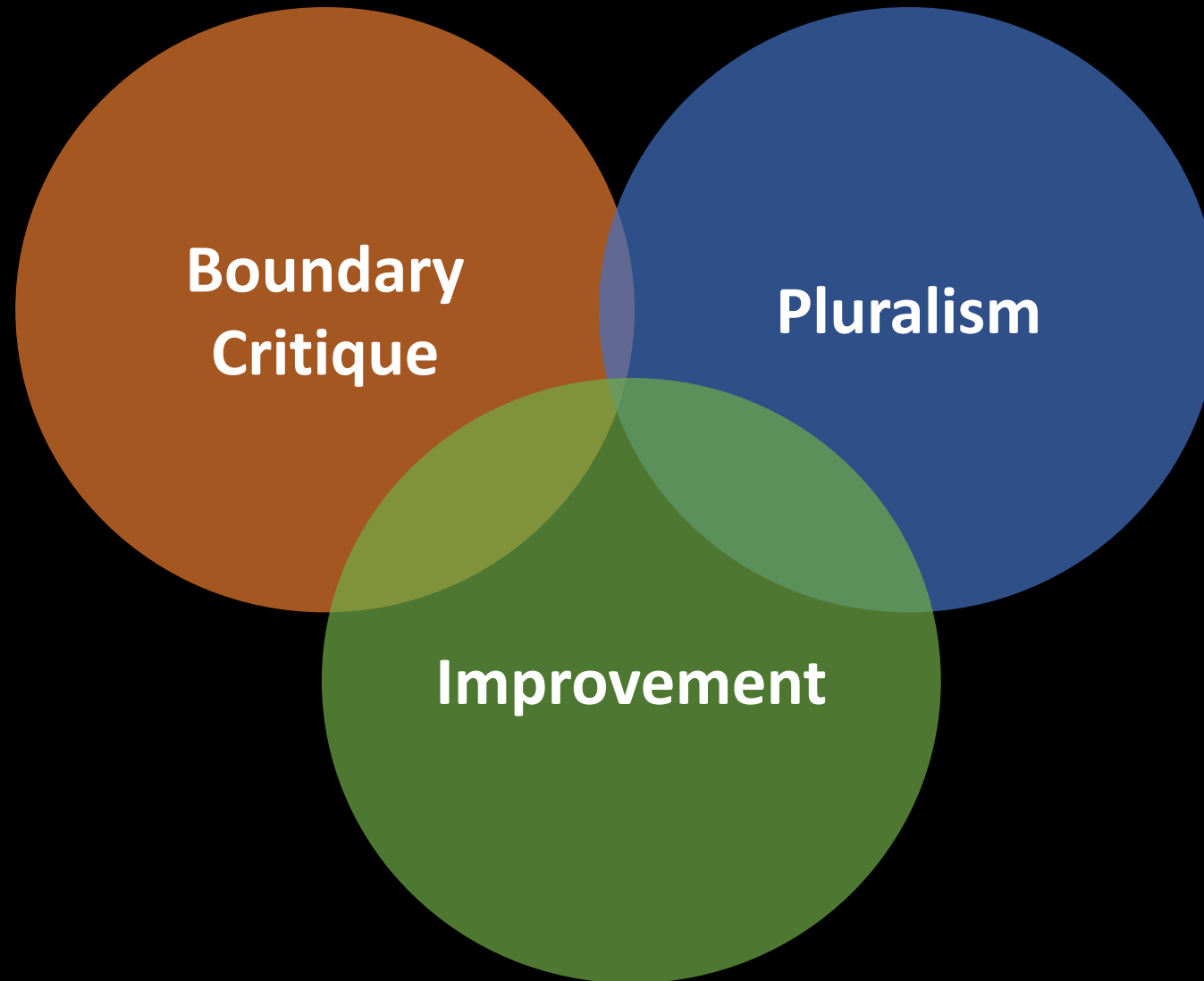
Systems Approach

- Holistic thinking
- Focus on problem-structuring
- Stakeholder-led
- Focus on empowerment
- Boundaries mindset

The systems approach



3 fundamental commitments



An aerial photograph of a river winding through a deep canyon. The river is a vibrant blue-green color, contrasting with the reddish-brown, layered rock formations of the canyon walls. A large, prominent rock formation sits in the center of the river's curve. The sky is a clear, bright blue with a few wispy clouds. The overall scene is a dramatic and scenic landscape.

Thank You!

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