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Using Q Methodology in a benchmarking evaluation

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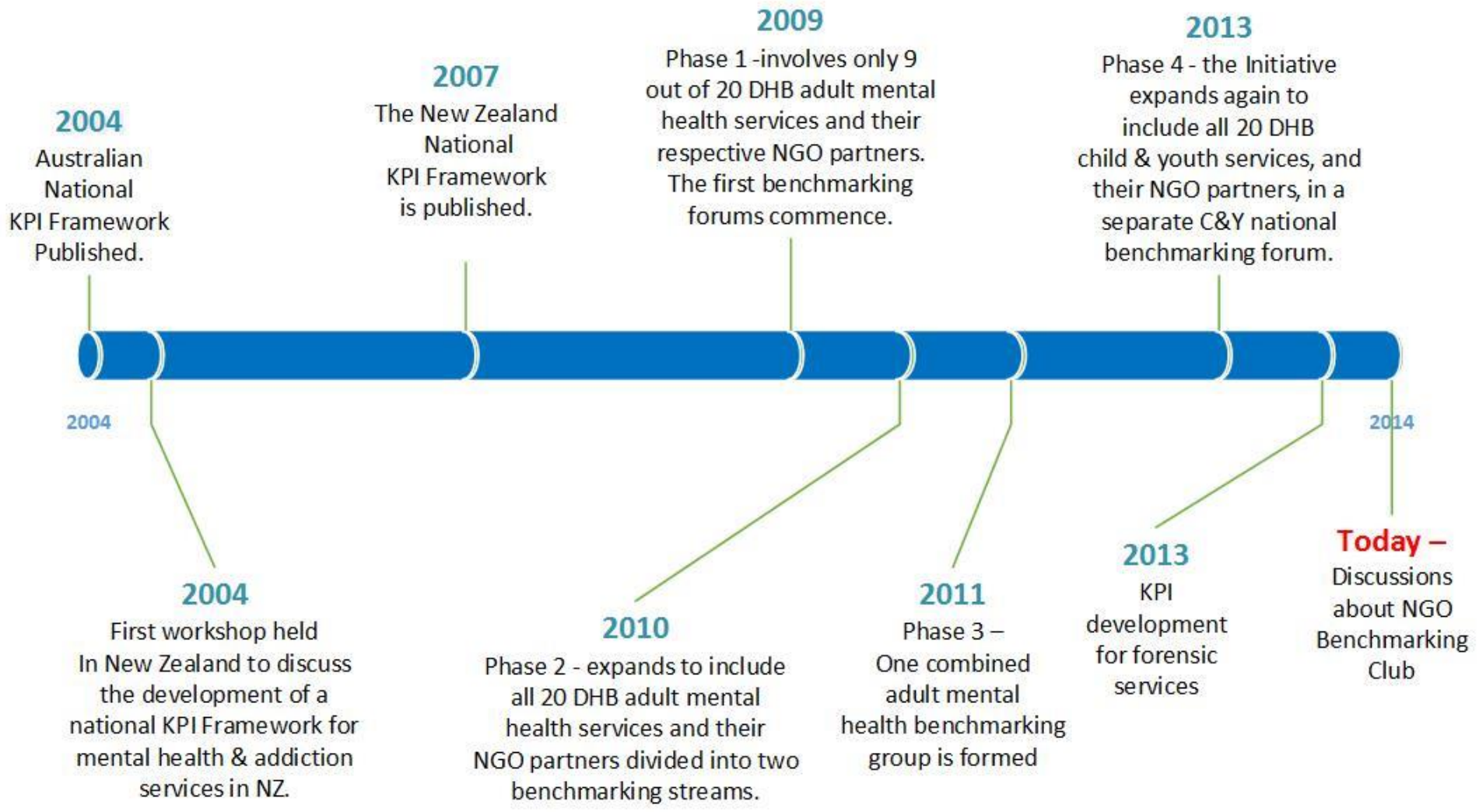
Outline of this presentation

- The context
- Defining benchmarking
- Phase 1 – a standard evaluation
- Phase 2 – use of Q Methodology
- Data collection using ‘Q’
- Data synthesis & interpretation – the agora
- Implications for benchmarking practice
- Reflections on phase 1 and phase 2
- Some thoughts about using Q.

CONTEXT

The Key Performance Indicator Framework for New Zealand Mental Health & Addiction Services

NZ National Mental Health KPI Project timeline



BENCHMARKING DEFINED

"*Practitioners wishing to implement benchmarking programs currently face the prospect of distinguishing between a plethora of praxis-driven forms, typologies and frameworks where none of them offer an assurance that efforts will be successful.*"

Moriarty (2011) A theory of benchmarking.

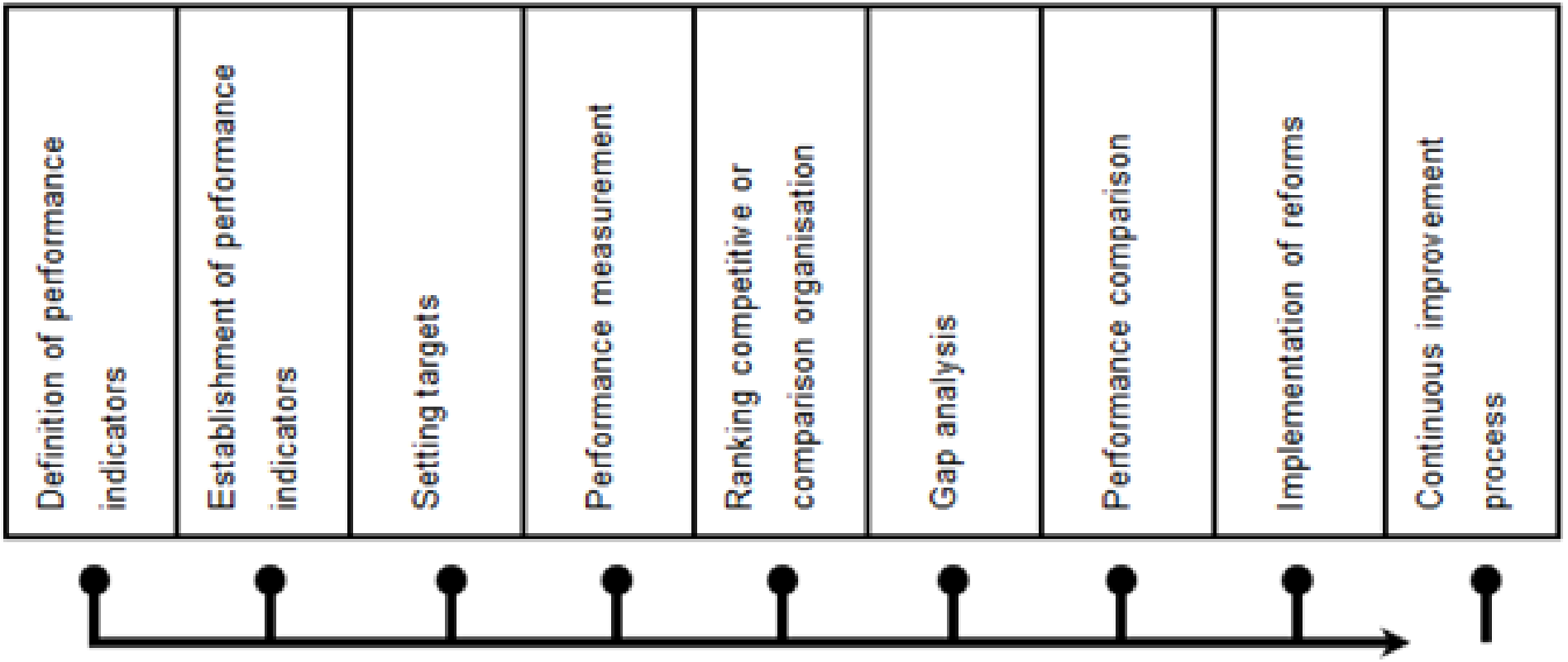
A ‘benchmark’ or ‘benchmarking’

- Camp (1993) described the original four phase, 10-step benchmarking model developed at Xerox as.....*”the continuous process of measuring our products, services and practices against those of our toughest competitors or companies renowned as leaders.”*

A ‘benchmark’ or ‘benchmarking’ contd

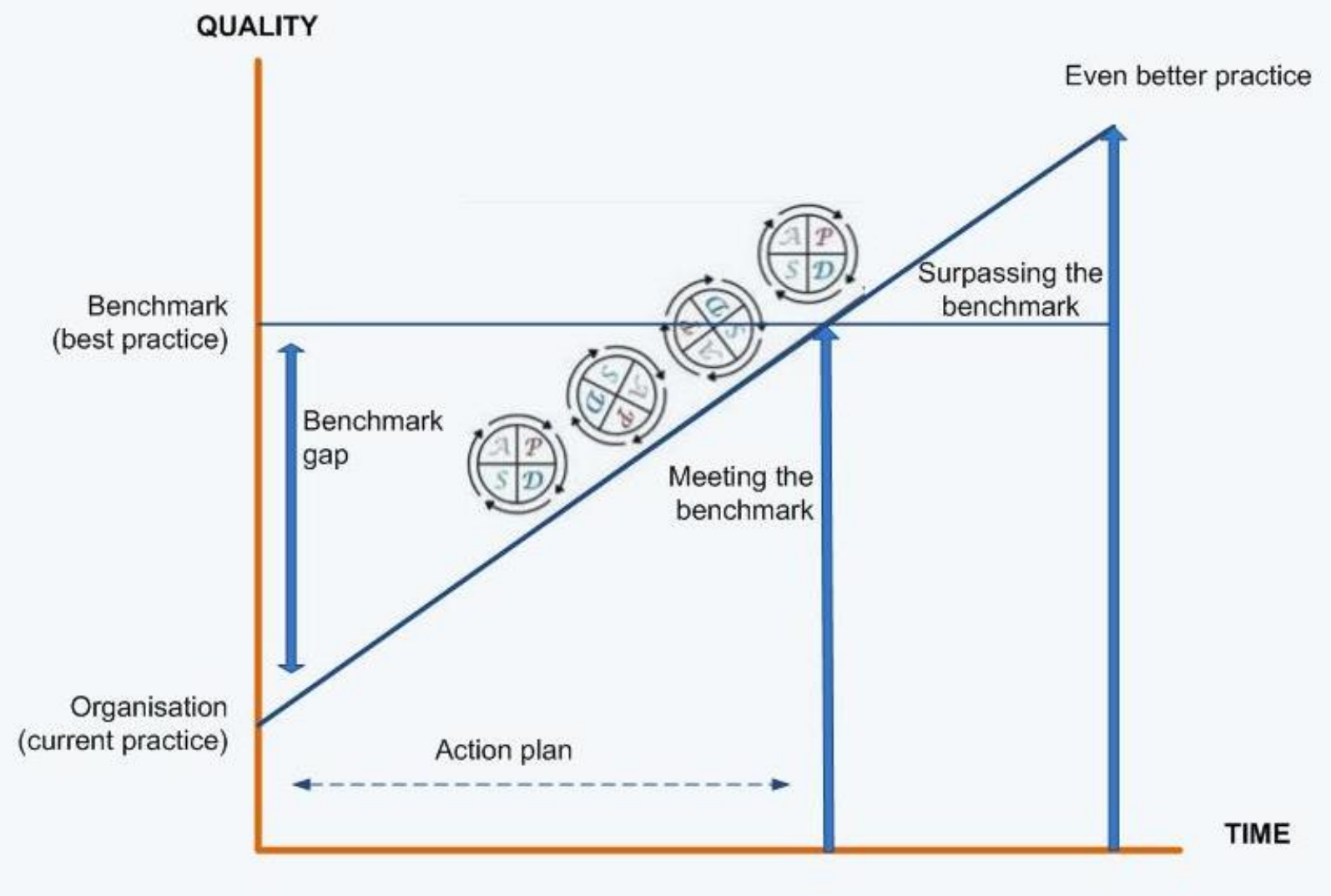
- Cole (2009) described it as...*”a continuous quality improvement process.”*
- *...”It is used to identify and understand the practices exhibited by the best in their field; to adapt and improve those practices, for the purpose of reaching the targeted level of excellence, and then surpassing it with even better practice.”*

A visual depiction of the various terms used to define and describe benchmarking



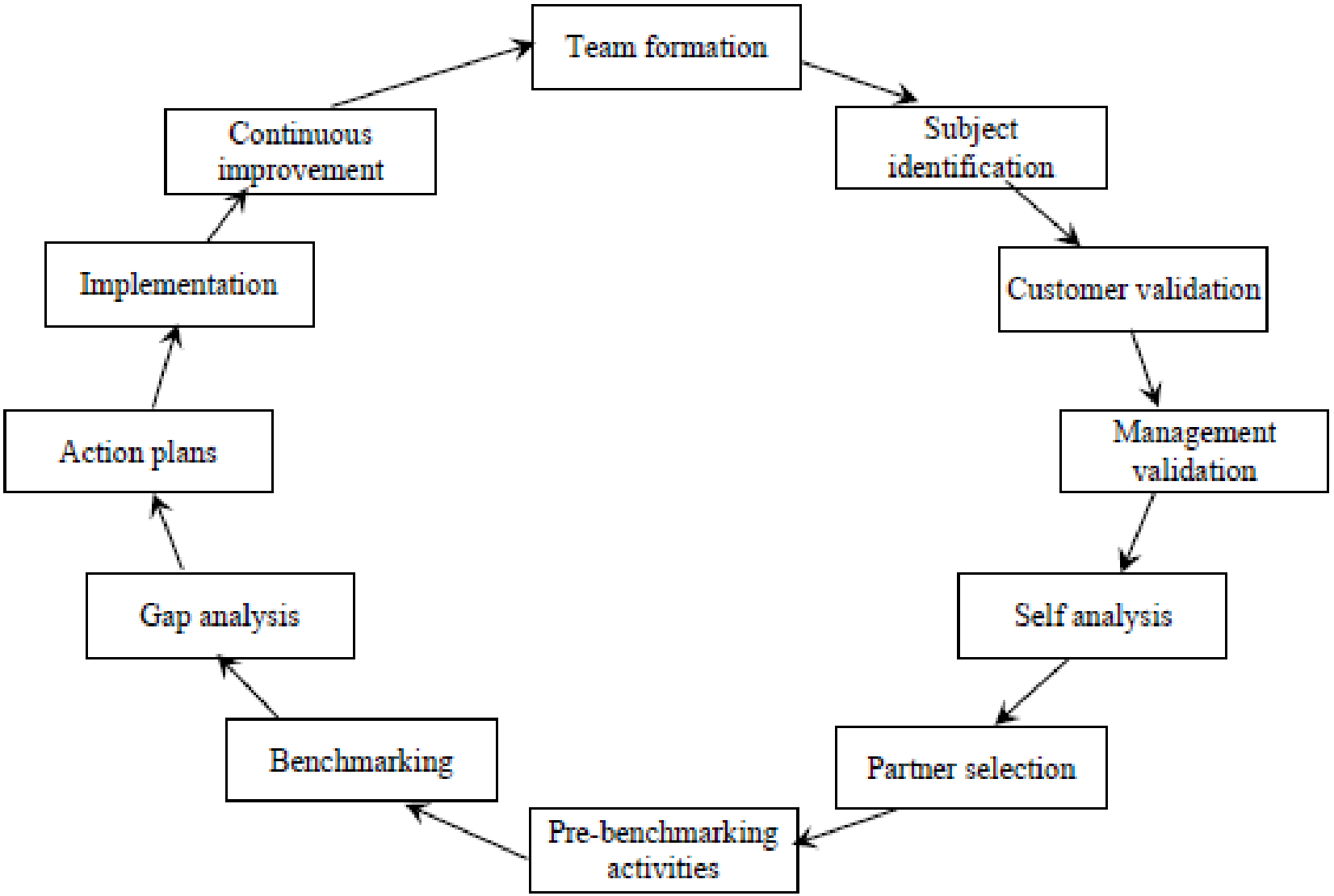
Cole (2009) Benchmarking: a process for learning or simply raising the bar?

A representation of the benchmarking process



Source: Adapted from Cole (2009)

The universal benchmarking model



Source: Anand & Kodali (2008)

Usage and satisfaction of management tools & techniques (over 9,000 respondents worldwide) (Rigby et al, 2009)

	Usage	Satisfaction
Benchmarking	76%*	3.82
Strategic Planning	67%*	4.01*
Mission and Vision Statements	65%*	3.91*
Customer Relationship Management	63%*	3.83
Outsourcing	63%*	3.79
Balanced Scorecard	53%*	3.83
Customer Segmentation	53%*	3.95*
Business Process Reengineering	50%*	3.85
Core Competencies	48%*	3.82
Mergers and Acquisitions	46%*	3.83
Strategic Alliances	44%	3.82
Supply Chain Management	43%	3.81
Scenario and Contingency Planning	42%	3.83
Knowledge Management	41%	3.66**
Shared Service Centers	41%	3.68**
Growth Strategy Tools	38%**	3.87
Total Quality Management	34%**	3.80
Downsizing	34%**	3.59**
Lean Six Sigma	31%**	3.87
Voice of the Customer Innovation	27%**	3.88
Online Communities	26%**	3.69**
Collaborative Innovation	24%**	3.71**
Price Optimization Models	24%**	3.75
Loyalty Management Tools	17%**	3.79
Decision Rights Tools	10%**	3.68

Source: Mann, R. (2011) *Benchmarking in pursuit of performance excellence*. Retrieved from www.conferenz.co.nz/content/whitepapers

THE EVALUATION OF A NEW ZEALAND DISTRICT HEALTH BOARD'S LOCAL BENCHMARKING PROCESS

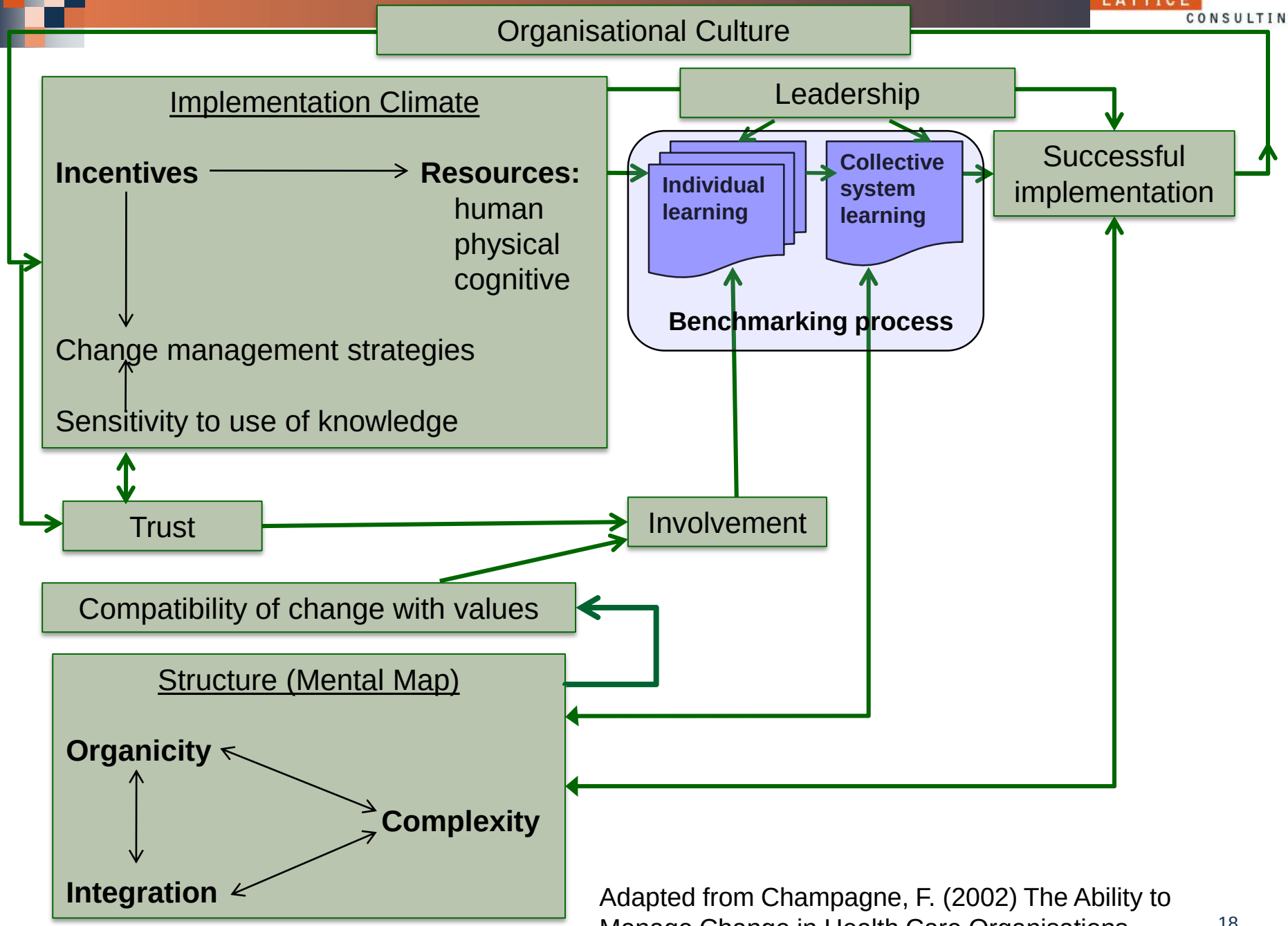
Scope of the evaluation

- This evaluation focused on the local benchmarking process used by the adult mental health service of one of the twenty District Health Boards that is involved in the New Zealand National Mental Health Key Performance Indicator (KPI) project.

Two Evaluation Questions

1. To what extent is it possible to attribute service improvements within District Health Boards to the introduction of benchmarking?

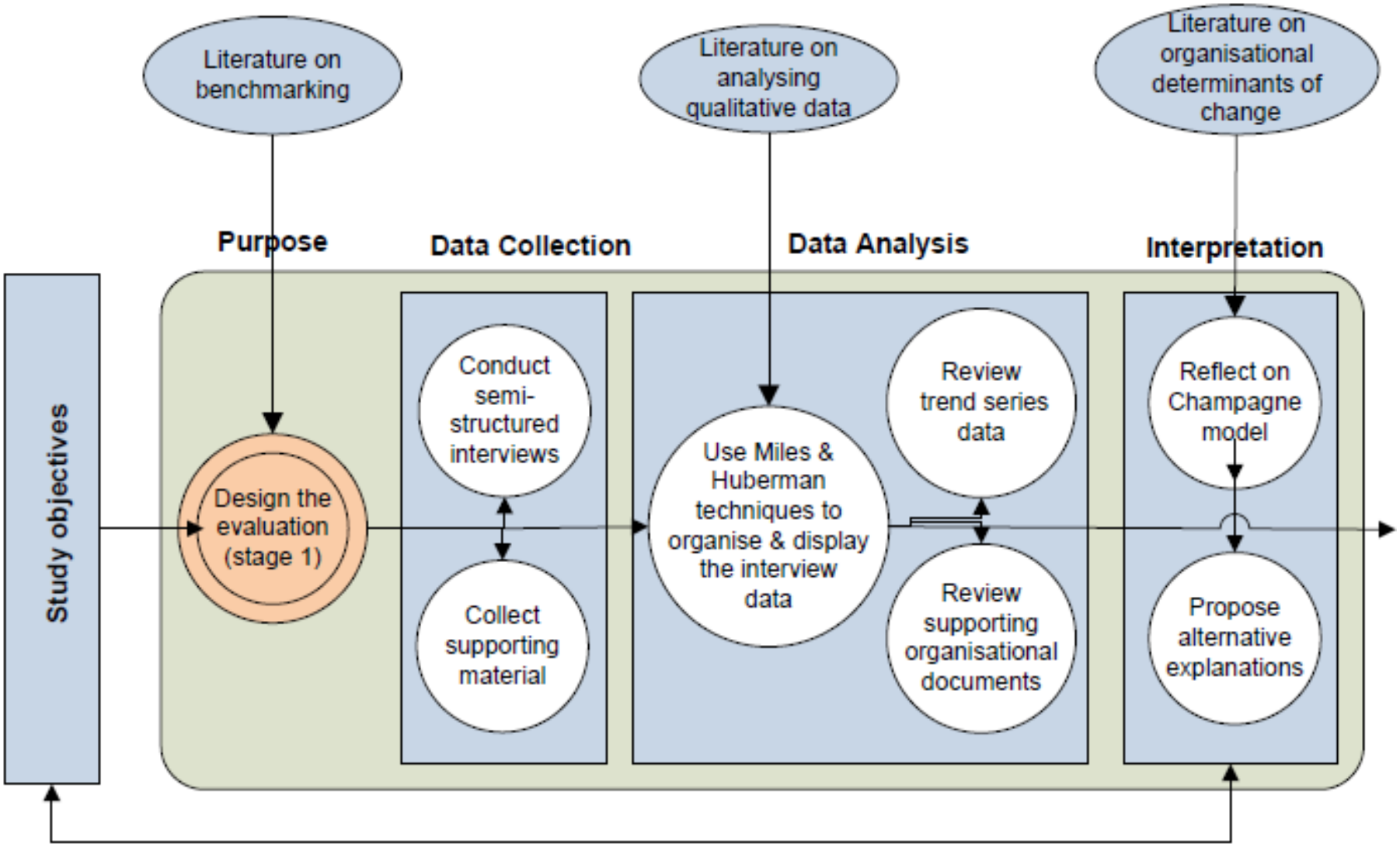
2. What key factors in the benchmarking process seem to contribute to improvements in system performance and health gains for service users?



Adapted from Champagne, F. (2002) The Ability to Manage Change in Health Care Organisations

PHASE 1

Phase one of the benchmarking evaluation



The end result of the data analysis

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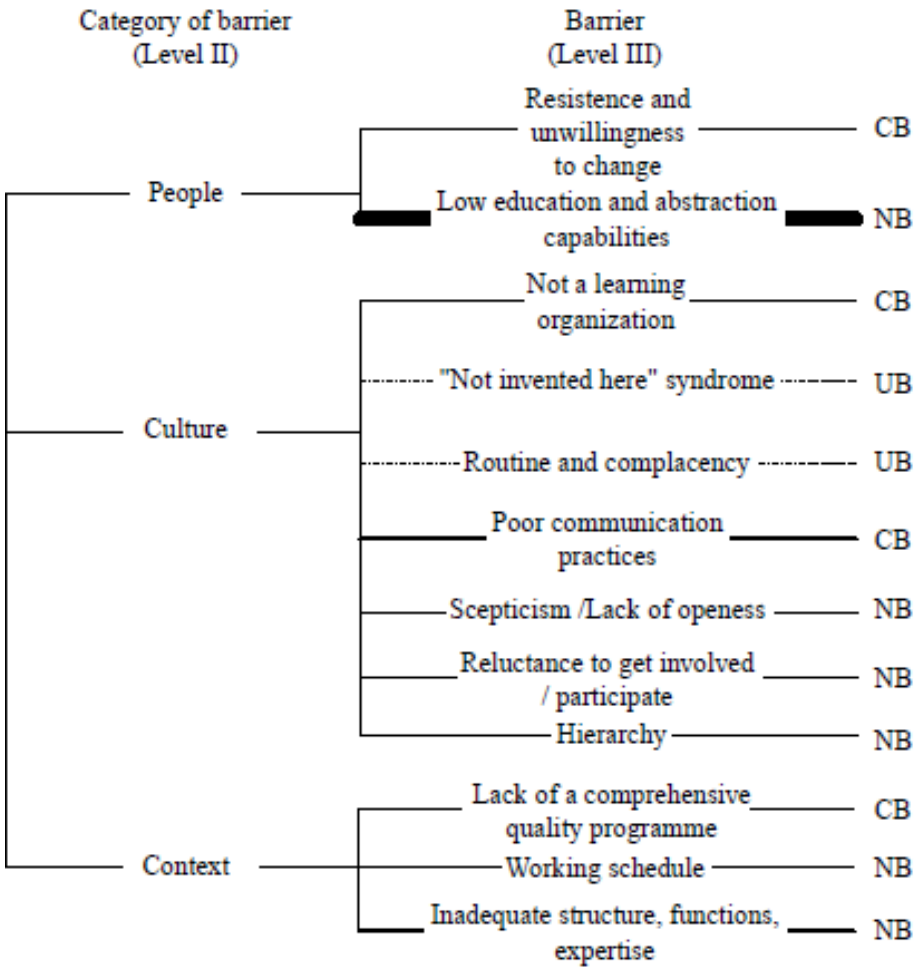
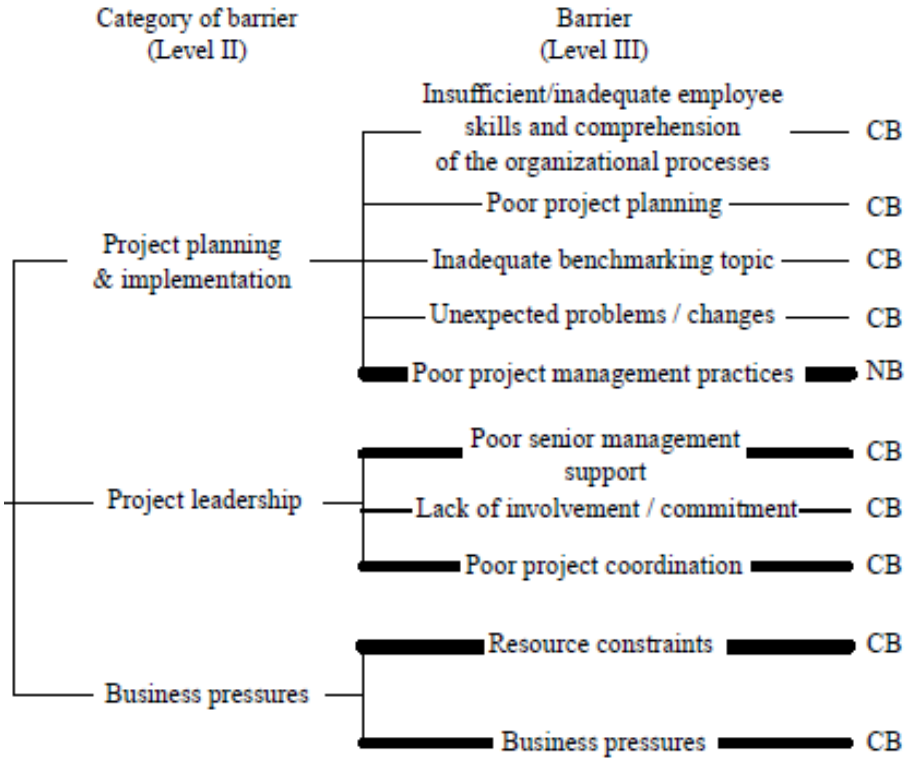
Organisational Barriers (L1)



Benchmarking Project Management Barriers (L1)



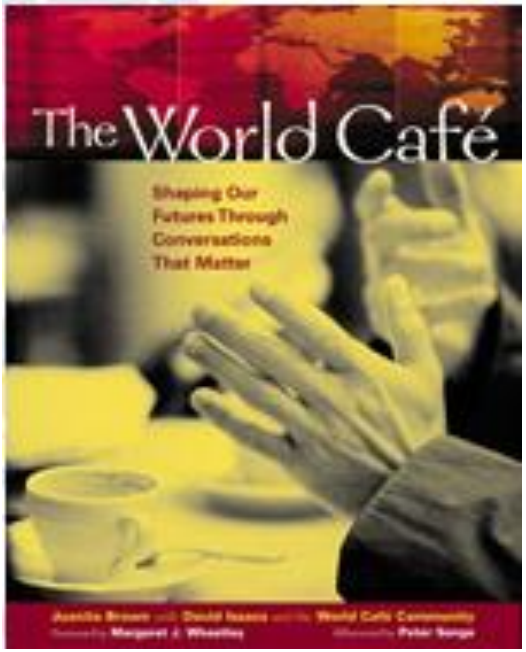
Legend: NB: New barriers UB: Unconfirmed barriers CB: Confirmed barriers

Source: Amaral & Sousa (2005) Barriers to internal benchmarking initiatives: an empirical investigation

The '*so what*' test:

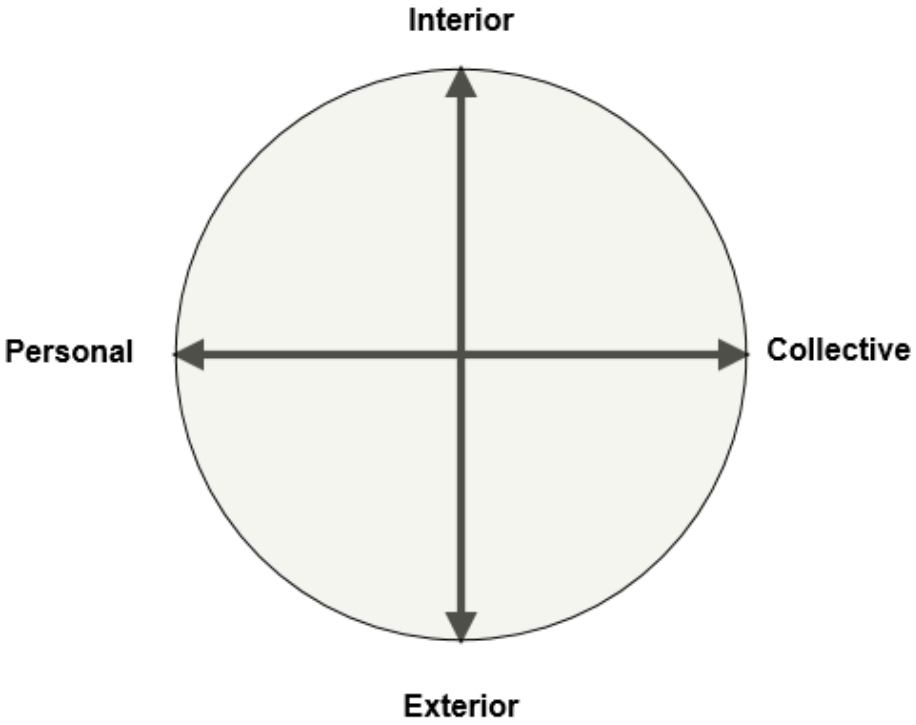
- These findings did not add anything to the existing body of knowledge, apart from….
- .....highlighting the influence of some external sources of accountability (ie, the voice of service users, families/whānau and non-government organisations).

Discovery of some similar principles in The World Café



- Exploring questions that matter.
- Encouraging everyone's contribution.
- Connecting diverse perspectives.
- Listening together for patterns and insights.
- Sharing collective discoveries.

Discourse analysis - the study of subjectivity



Revealing different social perspectives on an issue.

Making visible the interior personal and the interior collective world view.

Source: Upshur (2001) Meaning and measurement: an inclusive model of evidence in health care

PHASE 2 - THE USE OF Q METHODOLOGY

Positioning Q

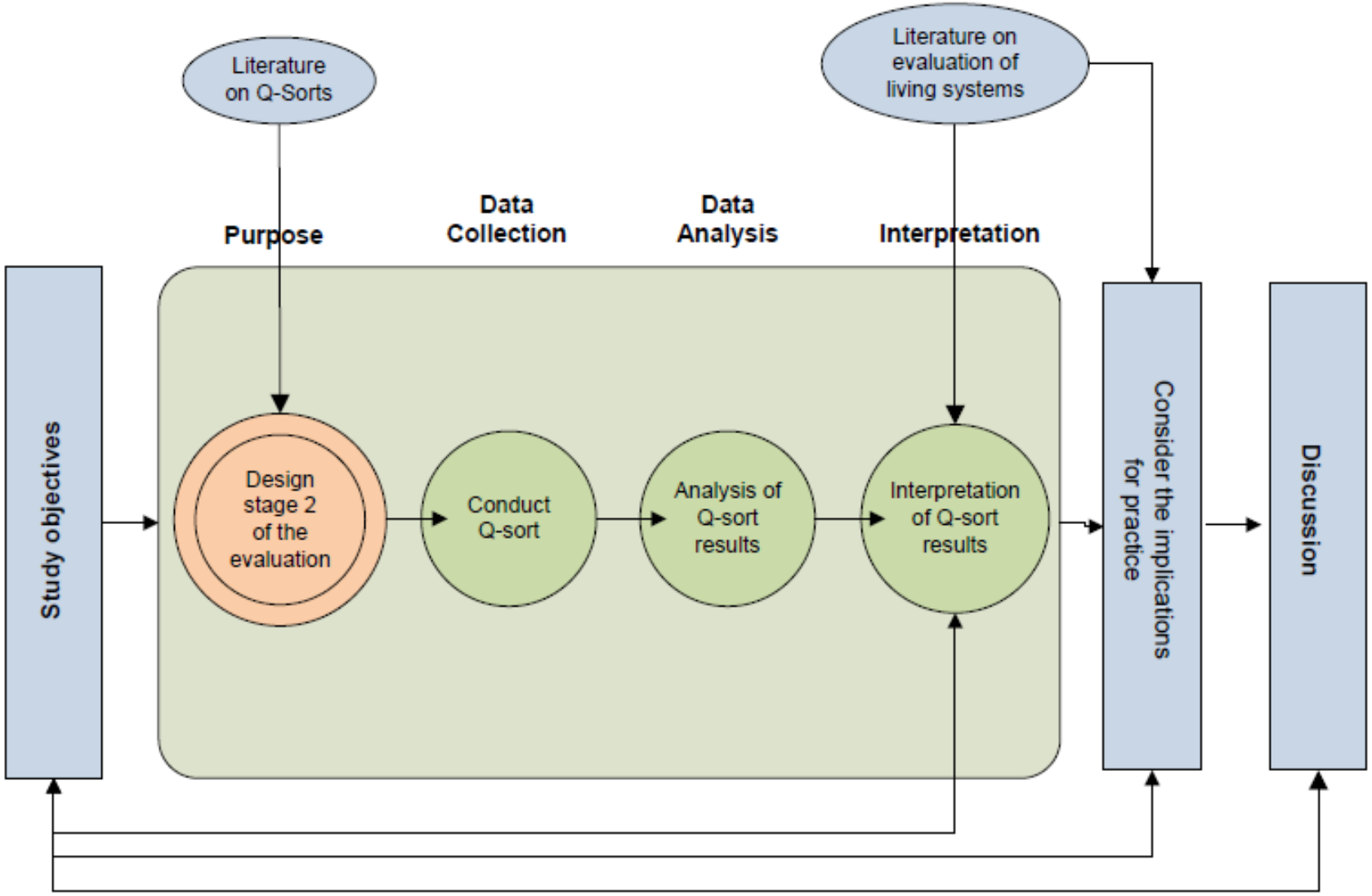
"The Q sort as a data collection form is designed to maximise the expression of qualitative variation at the level of subjectivity and to record it in numerical form."

Source: Stenner, Watts & Worrell (2008) *Q Methodology*

The objective in Q Methodology

- To describe typical representations of different points of view about the subject under consideration, rather than the proportion of individuals with specific viewpoints.

Phase two of the benchmarking evaluation



Q Methodology step by step

1. Formulating the evaluation question
2. Generating the Q-set
3. Selecting the P-set
4. Collecting data
5. Analysing Q-sort data
6. Interpreting Q factors.

Source: Stenner, P., Watts, S., & Worrell, M. (2008). Q Methodology. In C. Willig & W. Stainton-Rogers (Eds.), The Sage Handbook of Qualitative Research in Psychology (pp. 215-239). London: Sage Publications Ltd.

Formulating the evaluation question

Step One

The evaluation question:

What are the factors that most enable and most constrain the benchmarking process?

Comment

No more than one question can be used for each Q-sort.

Generating the Q-set

Step Two

All 202 quotes that were collected in phase 1 of the study were grouped under common themes.

These statements/themes were then displayed according to the matrix of ‘enabling’ and ‘constraining’ factors (see following slide).

Comment

This process generated a list of 56 statements (ie, the concourse) which was then reassessed.

Matrix of enabling & constraining factors

Factors that **support** a benchmarking process and which are **tangible**	Factors that **hinder** a benchmarking process and which are **tangible**
Factors that **support** a benchmarking process and which are **intangible**	Factors that **hinder** a benchmarking process and which are **intangible**

Reassessment of statements

Some statements were eliminated in order to reduce any ambiguity of meaning and to eliminate repetition. Statements were eliminated on the basis that they were:

- An exact inverse of another statement.
- Extreme statements or implausible competitors with other statements.
- A repeat of what someone else had already said.

This process resulted in a final list of **23 statements** (ie, the Q sample).

Generating the final Q-set

- Based on my experience of the benchmarking process, what people had told me as well as the literature on the subject, I felt that this final list of 23 statements covered the ‘concourse’ of what was known about the benchmarking issue.

- I then randomly numbered each statement in preparation for the Q-sort.

Selecting participants

Step three

14 people made up the P-set.

- 7 of this group had been involved in stage one of the evaluation.
- The DHB invited another 7 staff members to participate, all of whom were new to the evaluation.

The key issue is not the number of participants, but the representation of different points of view about the subject.

Comment

Maximise the likelihood that a variety of distinct viewpoints will be expressed.

Collecting the data

Step four

All participants attended a workshop to do the Q-sort.

They were given the following items:

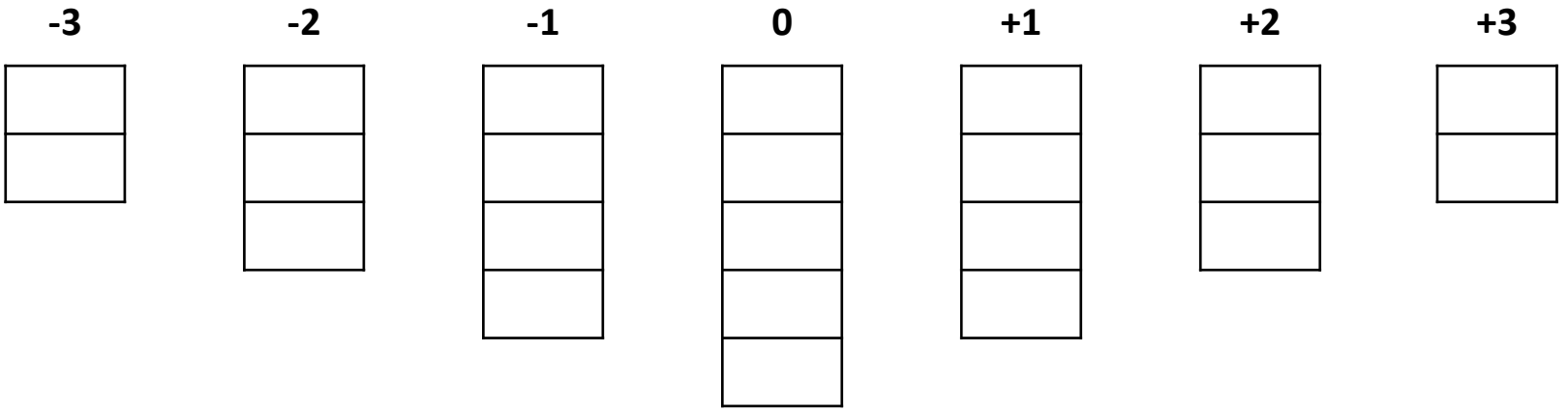
- a brief overview of Q
- a pack of the 23 cards
- a Q-sort record sheet
- an instruction sheet and;
- a brief questionnaire that was designed to give me some background information about each person.

Comment:

It is the overall pattern, configuration or gestalt of the Q-sort that is of primary interest.

The condition of instruction

"Imagine that you are about to implement a benchmarking process into another DHB. Sort the 23 statements according to what you believe are the factors that will most constrain (-3) this process to the factors that will most enable (+3) this process using the Q Sort table."



Doing the Q-sort

- Items are sorted according to their psychological significance for any given participant (Burt & Stephenson, 1939).

Analysing Q-sort data

Step five

The data from the record sheets was entered into the free PQMethod software programme.

Q-analysis involves correlating and factoring the data by-person in order to identify a small set of factors.

Each factor is loaded by a number of Q-sorts that have been sorted in a substantially similar way.

Comment:

The individuals' Q-sorts are 'individual perspectives', the factor analysis solutions reflect deeper organising principles, hence they are called 'social narratives' (Stephenson 1965).

Q data analysis

- The data from participant's record sheets was entered into the PQMethod software programme (Schmolck). This is a free programme that now uses notepad.exe and has been specifically designed to support the analysis and interpretation of Q Sort data.
- The factors were obtained using a Principal Components Factor Analysis, along with a Varimax rotation.

PQMethod software: http://schmolck.userweb.mwn.de/qmethod/downpqwin.htm

Un-rotated Factor Matrix

		Factors							
SORTS		1	2	3	4	5	6	7	8
1	1	0.8494	0.1686	0.3064	0.1269	-0.0742	-0.1125	0.0233	-0.2572
2	2	-0.8593	0.2372	0.1565	0.1244	-0.2435	-0.0051	0.0415	0.1306
3	3	0.7927	-0.0072	-0.2487	-0.2606	-0.4078	0.0655	-0.0170	-0.1395
4	4	0.8826	-0.1186	0.2086	-0.1245	0.0467	-0.1856	-0.2278	0.1179
5	5	0.5189	-0.6450	0.1542	0.3717	0.2776	-0.0733	0.0342	0.0967
6	6	0.4608	0.6398	0.3570	0.3500	0.3048	0.1404	0.0579	-0.0013
7	7	0.7755	0.3298	-0.1216	0.1101	-0.3118	-0.2153	-0.2180	0.1960
8	8	0.7648	0.3855	-0.1632	-0.0789	0.0256	0.4188	0.0601	0.1441
9	9	0.8871	-0.0406	-0.1806	0.2013	-0.1464	-0.0613	0.1689	-0.1127
10	10	0.5471	-0.0631	0.6584	-0.4620	-0.0031	0.0961	-0.0764	-0.0267
11	11	0.6753	-0.5096	0.0383	0.0646	-0.1740	0.4176	0.0248	0.0807
12	12	0.7514	0.0600	-0.0416	-0.4065	0.1340	-0.2758	0.3705	0.1554
13	14	0.6176	0.0793	-0.4639	-0.1429	0.5512	0.0273	-0.1798	-0.0722
14	15	0.8325	-0.0231	-0.0556	0.4333	-0.1424	-0.0801	0.0203	0.0162
Eigenvalues		7.7166	1.4574	1.1039	1.0255	0.8949	0.5688	0.3151	0.2346
% expl.Var.		55	10	8	7	6	4	2	2

Selection criteria for the final factors

- Explanatory eigenvalue that was greater than 1.00%.
- Factor loadings that exceeded the standard error based on the following computation 2.58 (SE) +2.58 (1/4.79) = 0.53.
- Factors that were substantially loaded (i.e. 0.70 or better).
- Q-sorts that were high on one factor and quite low on the others.
- Those factors that were well-defined by two or more Q-sorts.

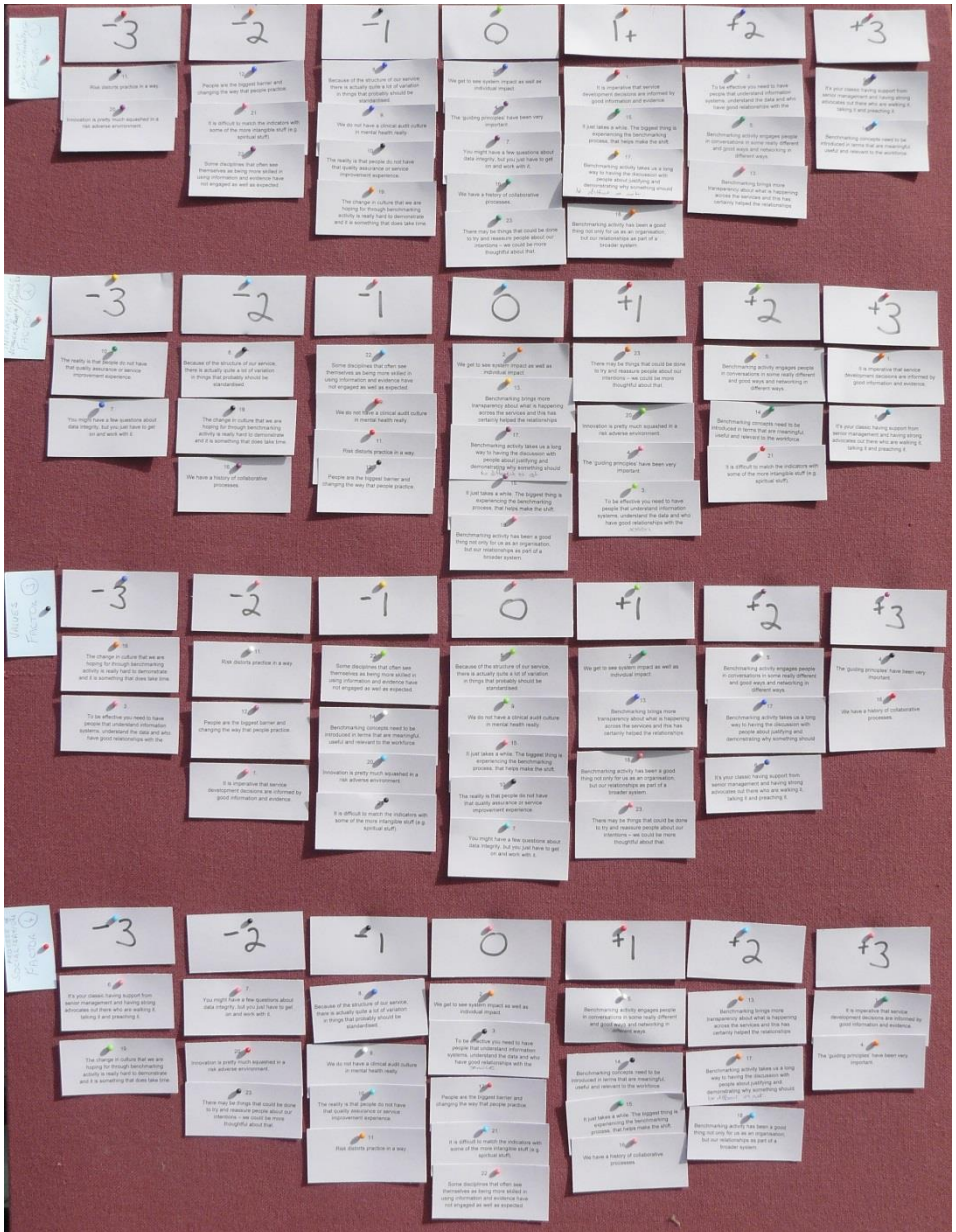
Factor estimation

- To enable interpretation, an estimate of each factor must first be prepared by merging all the Q-sorts that exemplify that factor.
- This results in a factor score for each item/statement. Arranging these factor scores into the form of a Q-sort distribution yields a single complete Q-sort for each of the factors.
- This best estimate of each factor is called the ‘factor array’, and it is these that are subjected to interpretation.

FACTOR Q-SORT VALUES FOR EACH STATEMENT

			Factor Arrays			
No.	Statement	No.	1	2	3	4
1	It is imperative that service development decisions are informed by good information and evidence.	1	2	3	-2	3
2	We get to see system impact as well as individual impact.	2	0	0	1	0
3	To be effective you need to have people that understand information systems, understand the data and who have good relationships with the services.	3	2	1	-3	0
4	The `guiding principles' have been very important.	4	0	1	3	3
5	Benchmarking activity engages people in conversations in some really different and good ways and networking in different ways.	5	1	2	2	1
6	It's your classic having support from senior management and having strong advocates out there who are walking it, talking it and preaching it.	6	3	3	2	-3
7	You might have a few questions about data integrity, but you just have to get on and work with it.	7	0	-3	0	-2
8	Because of the structure of our service, there is actually quite a lot of variation in things that probably should be standardised.	8	-1	-2	0	-1
9	We do not have a clinical audit culture in mental health really.	9	-1	-1	0	-1
10	The reality is that people do not have that quality assurance or service improvement experience.	10	-2	-3	0	-1
11	Risk distorts practice in a way.	11	-3	-1	-2	-1
12	People are the biggest barrier and changing the way that people practice.	12	-2	-1	-2	0
13	Benchmarking brings more transparency about what is happening across the services and this has certainly helped the relationships between inpatient and community, which is an issue.	13	3	0	1	2
14	Benchmarking concepts need to be introduced in terms that are meaningful, useful and relevant to the workforce.	14	1	2	-1	1
15	It just takes a while. The biggest thing is experiencing the benchmarking process, that helps make the shift.	15	1	0	0	1
16	We have a history of collaborative processes.	16	0	-2	3	1
17	Benchmarking activity takes us a long way to having the discussion with people about justifying and demonstrating why something should be different or not.	17	1	0	2	2
18	Benchmarking activity has been a good thing not only for us as an organisation, but our relationships as part of a broader system.	18	2	0	1	2
19	The change in culture that we are hoping for through benchmarking activity is really hard to demonstrate and it is something that does take time.	19	0	-2	-3	-3
20	Innovation is pretty much squashed in a risk adverse environment.	20	-3	1	-1	-2
21	It is difficult to match the indicators with some of the more intangible stuff (e.g. spiritual stuff).	21	-2	2	-1	0
22	Some disciplines that often see themselves as being more skilled in using information and evidence have not engaged as well as expected.	22	-1	-1	-1	0
23	There may be things that could be done to try and reassure people about our intentions – we could be more thoughtful about that.	23	-1	1	1	-2

Factor analysis – 4 factors



Interpreting Q-factors

Step six

The interpretative task involves the production of an overarching theme for each factor that '*breathes subjective life'* back into the numerical display.

These themes are constructed by careful reference to the positioning of the items relative to each other, as well as the overall configuration of the items in the relevant factor array.

Comment:

This process demands great attention to detail, as well as attending to a sense of the *gestalt* of the whole factor array.

You cannot ignore anything.

INTERPRETATION OF Q-FACTORS:

THE AGORA

1. Robust systemic understanding

- Coined as a phrase that captured a disposition towards factors focused on organisational culture, leadership and innovation, all of which are deemed to be transformational in nature.

"*It's your classic having support from senior management and having strong advocates out there who are walking it, talking it and preaching it .*" (+3)

2. Sound information infrastructure

- A second disposition of factors pointing towards more operational aspects of the organisation (eg, good information systems, good quality data and good information).

"*It is imperative that service development decisions are informed by good information and evidence.*" (+3)

3. People, values & principles

- The third factor captured the disposition toward interpersonal factors such as ‘trust’ and how trust is cultivated and maintained between people to enable them to work together to create impact.

  “*The guiding principles have been very important.*” (+3)

  “*We have a history of collaborative processes.*” *(+3)*

4. Workforce preparation

- The perspective of ‘new entrants’ to the benchmarking process.

“The change in culture that we are hoping for through benchmarking activity is really hard to demonstrate and it is something that does take time.” (-3)

Interpretation of the four factors – the underlying perspectives

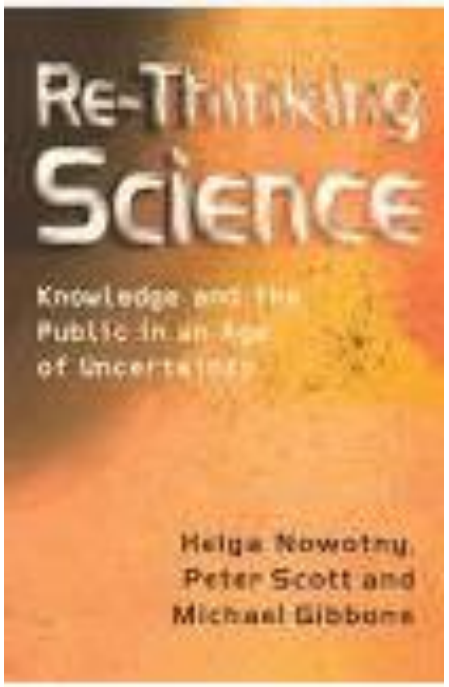
1. Robust systemic understanding
2. Sound information infrastructure
3. People, values and principles guiding action
4. Workforce preparation

Expressing the inter-relationship between the four factors

A model of organisational performance and change based on the difference between **transformational** and **transactional** change variables.

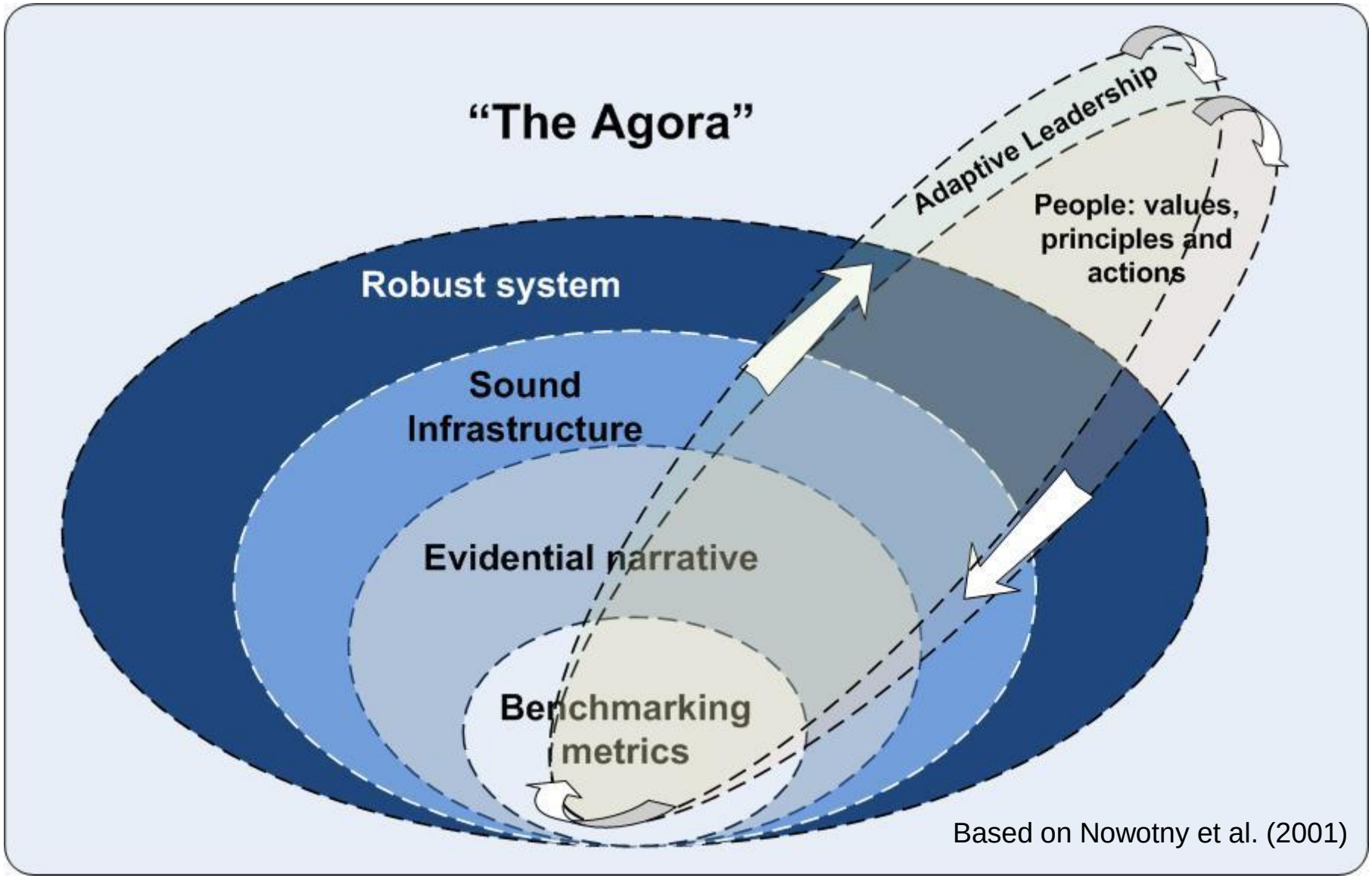
Reference: Burke & Litwin (1992)

‘The agora’ = public space



- Democratisation of knowledge.
- Socially robust knowledge as a product of intensive debate & interaction amongst different people with different expertise.
- The democratisation of quality in health care.

The enabling factors in benchmarking



Putting it all together

- ☑ The literature
- ☑ Comments from semi-structured interviews
- ☑ The DHB's benchmarked reports
- ☑ The supporting documentation (DHB Annual Plan)
- ☑ The results of the Q Sort

= criteria for assessing the readiness of a DHB with regard to effectively engaging in benchmarking practice.

Rubric - assessing benchmarking readiness

Rating	Systemic understanding	Information infrastructure	People, values & principles guiding action	Adaptive Leadership	Workforce preparation	Evidence of service improvements
Excellent						
Average						
Poor						

NB: This assessment sheet was accompanied by a rubric that described the evaluative criteria.

IMPLICATIONS FOR BENCHMARKING

The implications for benchmarking

Traditional approach	The agora
The focus is on teams identifying **what** works and then implementing good or exemplary practice.	The focus is on **how** a team learns just as much as **what** it learns.
The emphasis is on correctly implementing the steps in the benchmarking process.	The emphasis is on conversation as a core learning process (eg, the World Cáfe).

The implications for benchmarking

Traditional approach	The agora
Exerting power A top-down approach whereby health professionals offer expert advice about what is considered to be good or exemplary practice. The health professionals are connected with the other groups of stakeholders, but only in a limited way.	**Yielding power** A bottom-up approach whereby problems are addressed collaboratively, with equal opportunities for all stakeholders to contribute insights from their own perspective on the issues.

The implications for benchmarking

Traditional approach	The agora
Hierarchical leadership - Service improvements are reliant on a few key individuals, who hold senior leadership positions within the service, to drive change.	**Distributed leadership -** Service improvements are reliant on a high level of commitment and involvement from everyone who has a stake in the final outcome.

The implication for benchmarking

Traditional approach	The agora
The degree of improvement is unlikely to exceed the performance of the exemplars.	The potential exists for the degree of improvement to exceed that of the exemplar and to be transformative in nature.

MY REFLECTIONS OF THE TWO PHASES OF THE EVALUATION

Different emphasis in each phase of the evaluation

Phase 1	Phase 2 – Use of Q
• The emphasis is on producing scientifically grounded knowledge. • This approach involves the identification of the evidence via a deductive process (supported by what is already known about the subject).	• The emphasis is on people's subjective views and the construction of meaning. • This process involves the contextual interpretation and reinterpretation of what is considered to be knowledge (reshaping the evidence).

Different emphasis in each phase of the evaluation

Phase 1	Phase 2
Mechanistic models/theories of change, albeit with the addition of arrows to help depict inter-relationships throughout the system.	Iterative cycles of change, more like a 'living systems' model (ie, as per Wadsworth's (2010) *Human inquiry for Living Systems*).
Use of evaluative methods and techniques that only elicit information about what people 'think'.	Methods and techniques that elicit information about what people 'think' and 'feel' about an issue in order to help surface previously unknown or inaccessible information.

MY VIEWS ABOUT USING Q-METHODOLOGY

Advantages

- It can help to ‘depersonalise’ conflict about an issue.
- In this case the use of Q yielded new insights into the benchmarking issue, which augmented the findings from stage one of the evaluation, thereby altering the overall flavour of the final report.
- *It brings a sense of coherence to research questions that have many complex and often socially contested answers* (Stainton Rogers, 1995). That said, it is not that useful in much simpler, straightforward situations.
- Participants enjoyed doing the Q-sort. They particularly liked doing it together as a group.
- It built on people’s existing opinions about the issue.

Pitfalls

- It is not an easy method to use – it is a curious mix of a of qualitative approach that relies on a reasonable level of quantitative expertise.
- When I did the evaluation, the free PQMethod software would not run on current 64bit Windows systems. Luckily we had a old laptop that we were able to use. The software has now been updated (March 2014) but it still requires a reasonable level of technical ability to use it.
- I quickly discovered that Q attracts its technocrats as well as its democrats. The paradigm wars live on!

Comments and questions.

Thanks for listening.

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