
“Causal”-loop diagram to investigate compromises with the NHS Balanced Scorecard

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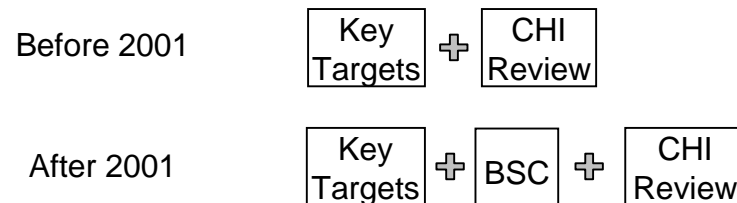
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- Objective
 - Investigate consistency of the NHS Balanced Scorecard indicators with the theoretical framework of the balanced scorecard.

 - Factors for investigation
 - Intrinsic factor: Interest in tools for the Performance Management; especially, adaptations of commercial practices in the public sectors.
 - Shadow cabinet and many of the CEO of the trusts do not believe in the components and the use of the rating scheme.
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- NHS Performance Rating Framework
 - Balanced Scorecard (BSC)
 - Performance Tree
 - BSC and Causal-loop diagrams
 - NHS Dataset
 - Path Diagram and Other Results
 - Discussion
 - Conclusion
 - Q&A
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NHS Performance Rating Framework

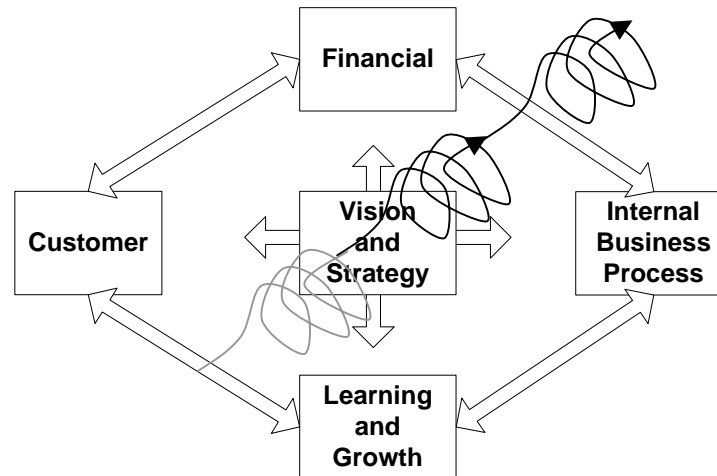
- NHS has been following balanced scorecard since 2001 and the framework is rapidly evolving (DoH 2001, 2002a, 2002b).



- In addition to the key targets, the National Health Service (NHS) hospital trusts are also rated using BSC performance indicators.
- BSC in the NHS is composed of three types of performance indicators: patient, clinical, and capacity and capability.
- Performance indicators have been added and discarded from the balanced scorecard since the first year of publishing the NHS performance rating based on the above framework.

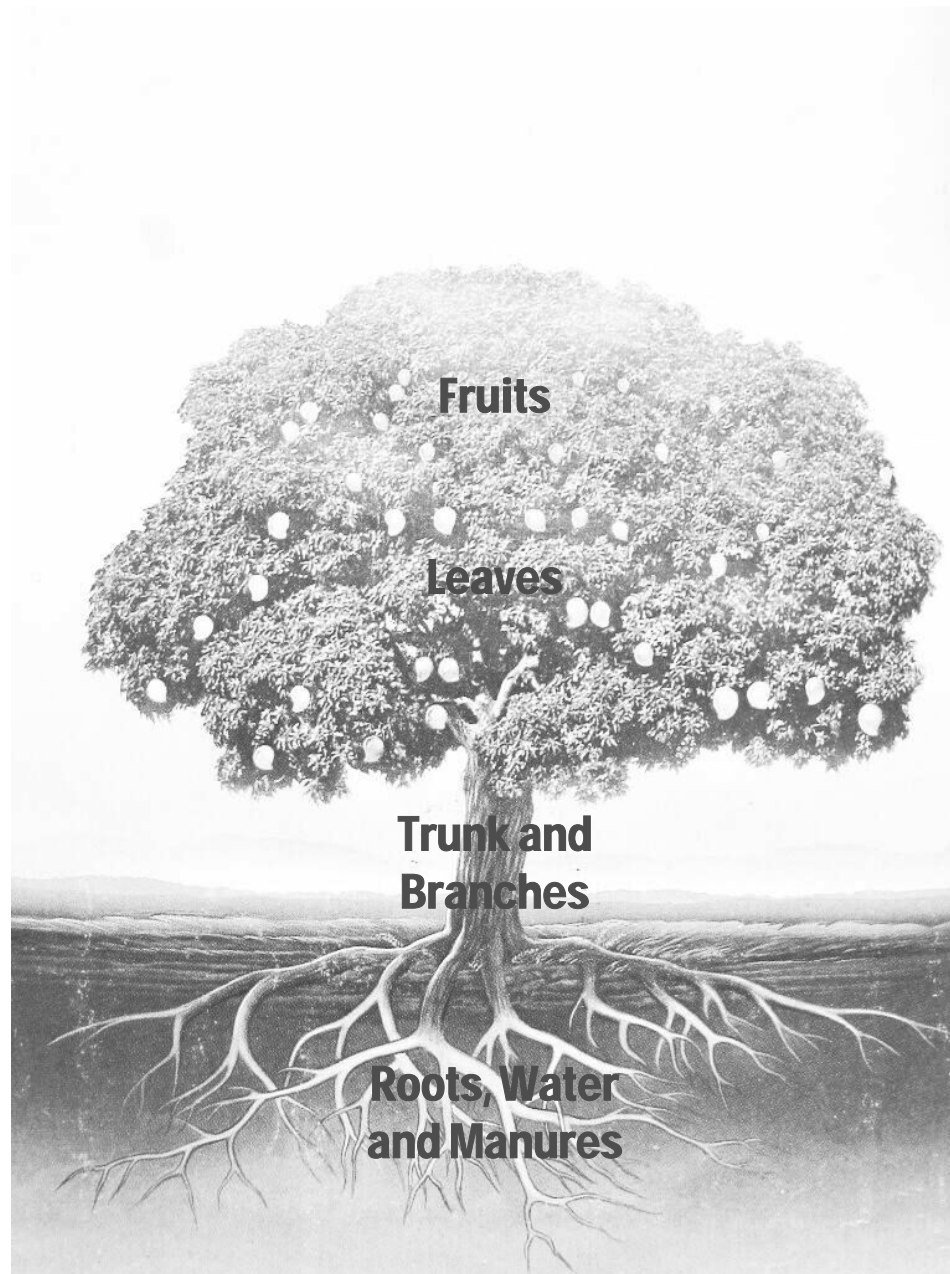
Balanced Scorecard

- BSC is a **balanced representation of performance of the internal as well as external objectives.**

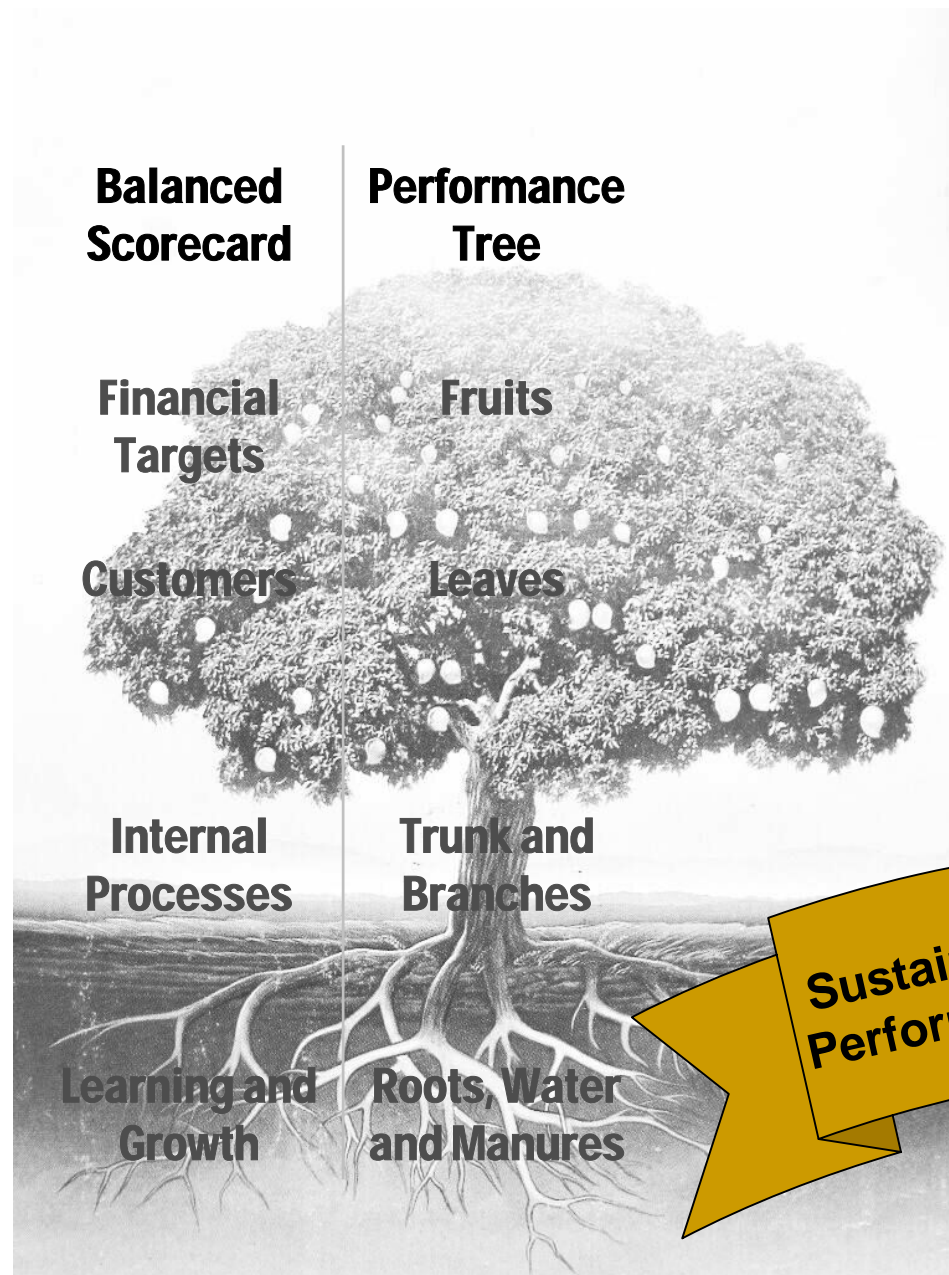


- Typical BSC has - **financial, customer, internal processes, and learning and growth** - dimensions.
- These dimensions are **interrelated with the cause-and-effect relationships** (Kaplan and Norton 1996, p. 30).
- Cause-and-effect relationships amongst these dimensions imply how fruits (financial measures) in a tree are related to leaves (customers), trunk (processes) and roots (learning and growth).

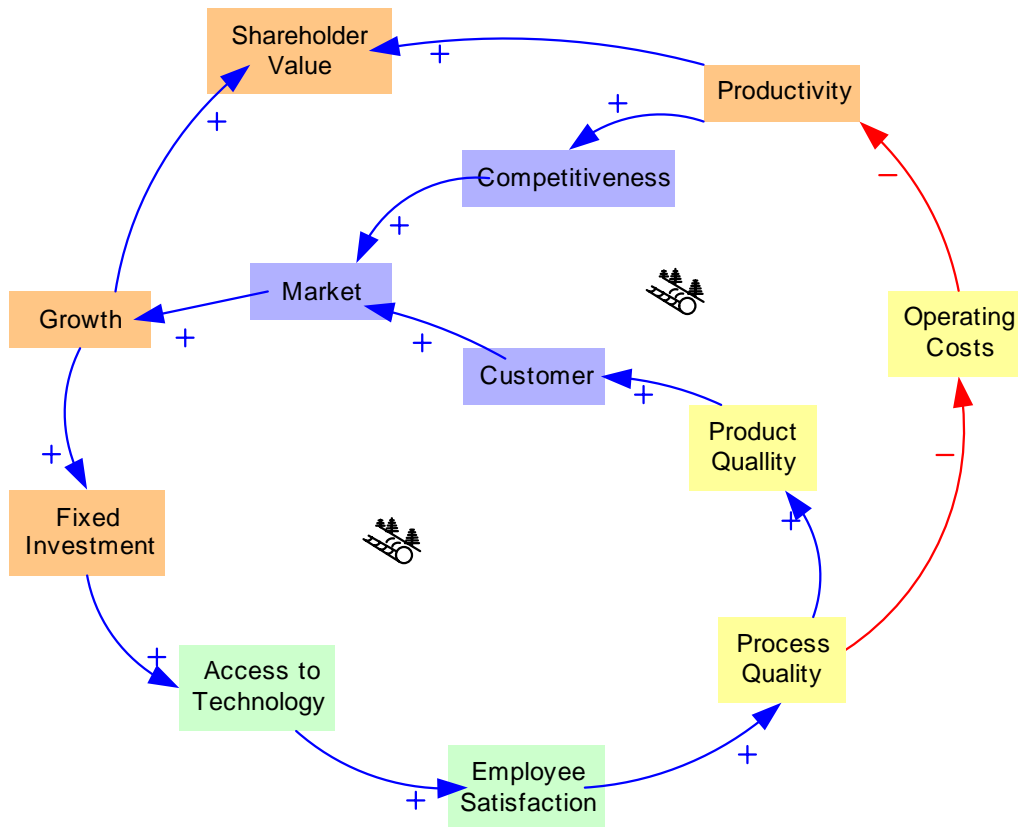
A Metaphor





A Metaphor



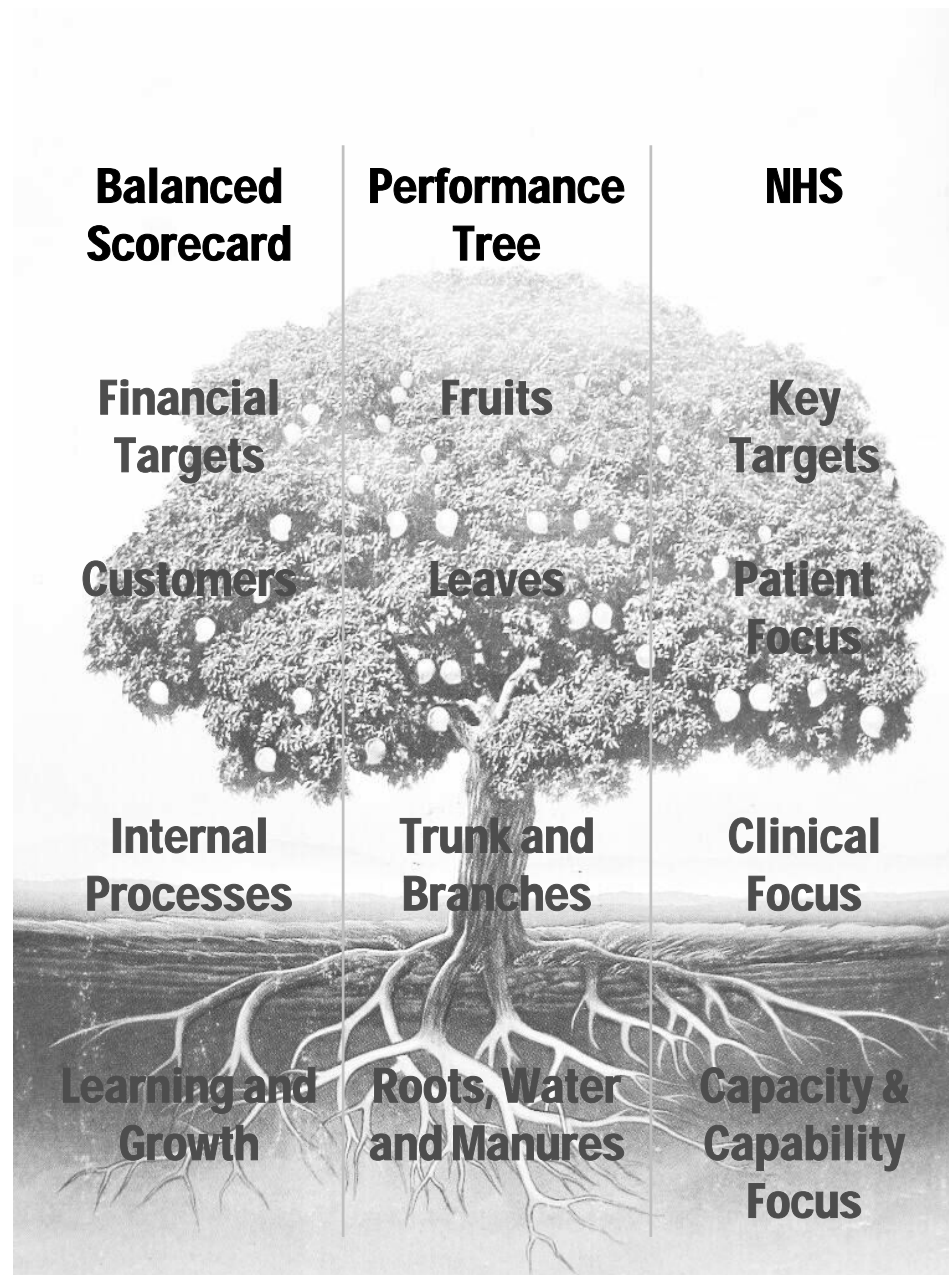
Balanced Scorecard and Causal-loop diagrams



Representation of Cause-and-effect linkage map published by Solano *et al* (2003)

- Two types of effects:
 - Same or Positive effects (S or +)
 - Opposite or Negative effects (O or -)
- Two types of most simplistic loop construction using these effects
 - Reinforcing Feedback Loops (R or )
 - Balancing Feedback Loops (B or )

A Metaphor



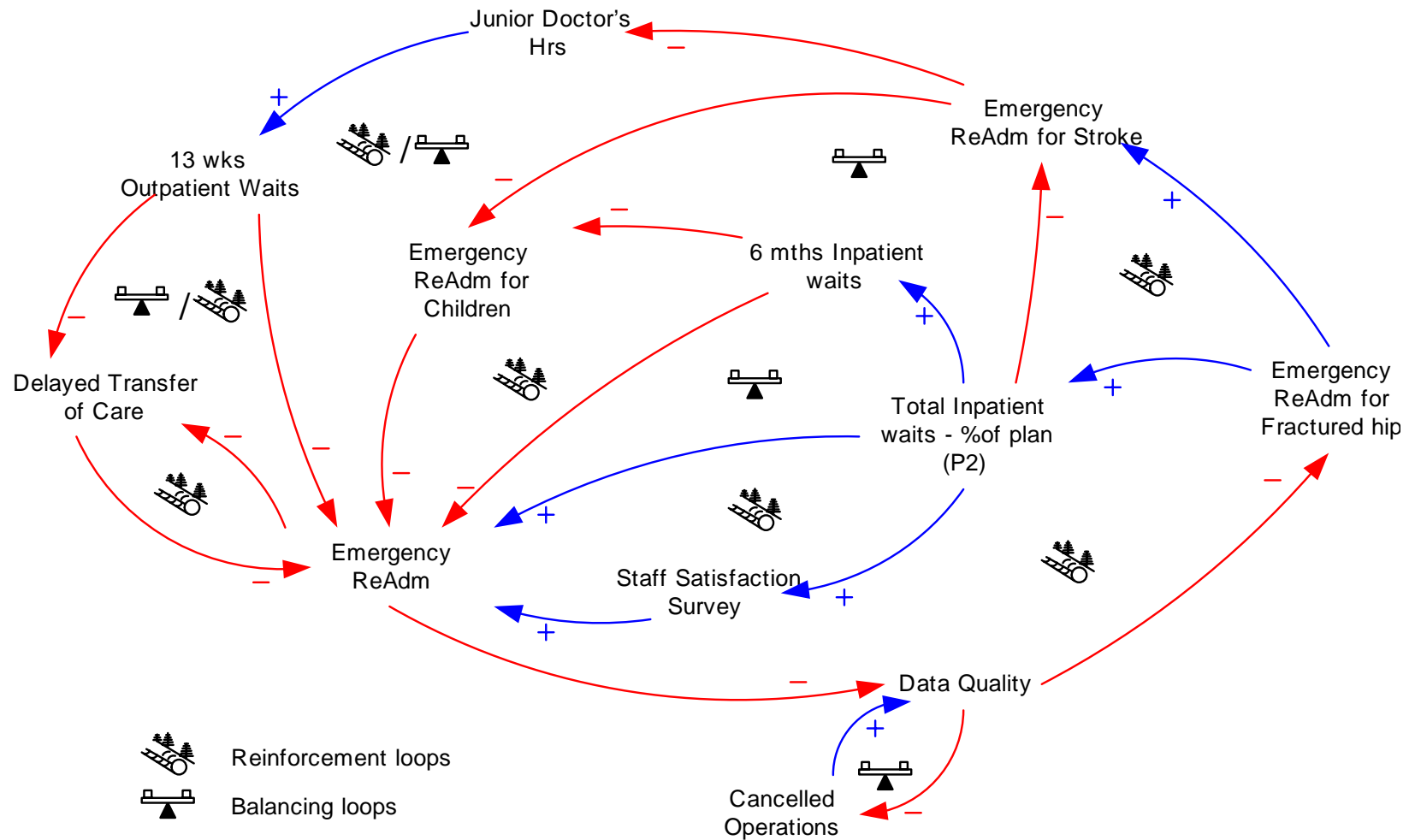
NHS Dataset (Acute Trusts)

	2001/ 2002	2002/ 2003	Common Indicators
Patient Focus	14	19	7
Clinical Focus	9	10	7
Capacity & Capability Focus	5	7	5

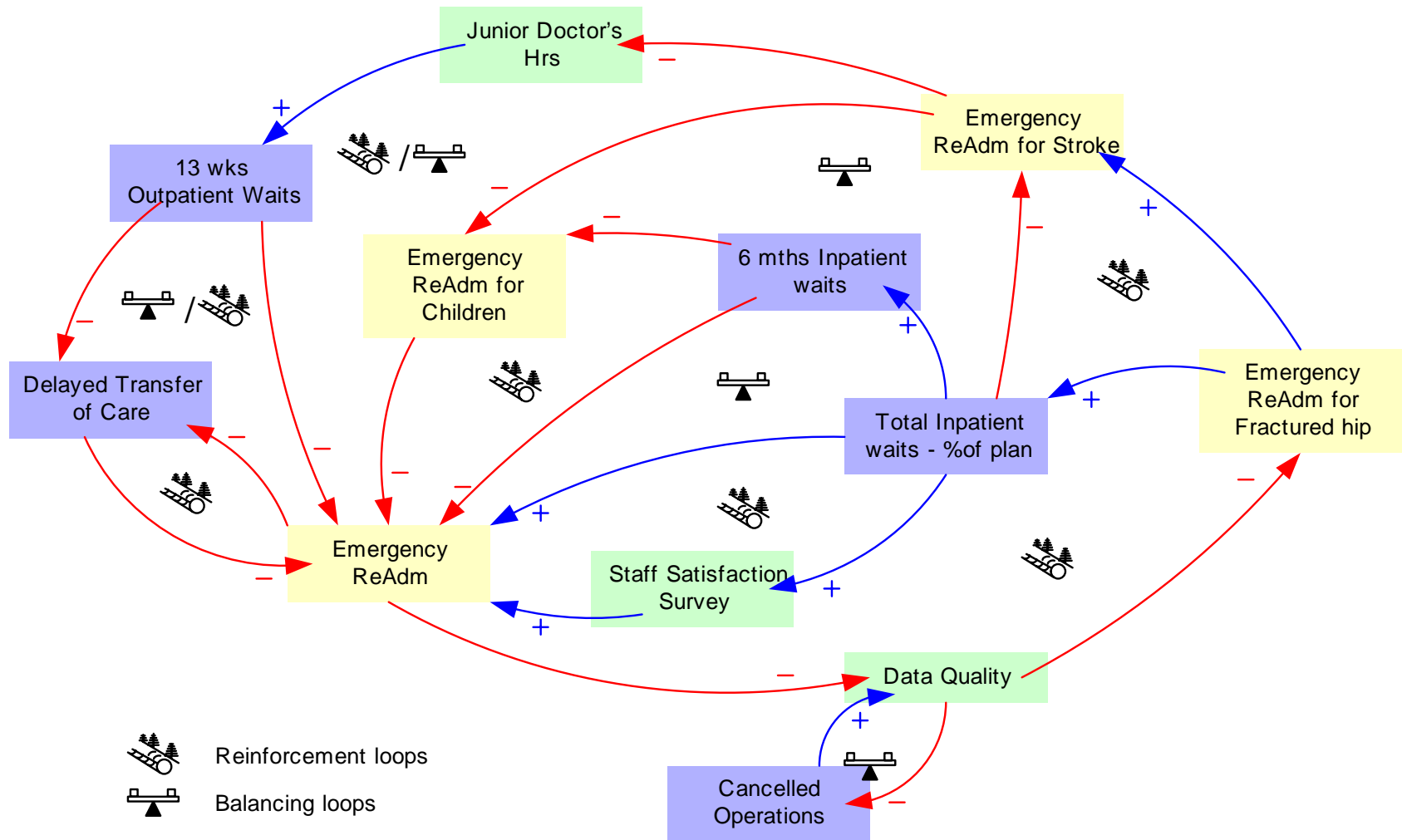
- No. of variables that can be used are: 19
- Variables that are dropped for further investigation : 3
- Why?
They are specific to specialised practices only e.g. heart operations and breast cancer.

Data Source: www.performance.doh.gov.uk/performanceceratings

Result





Result



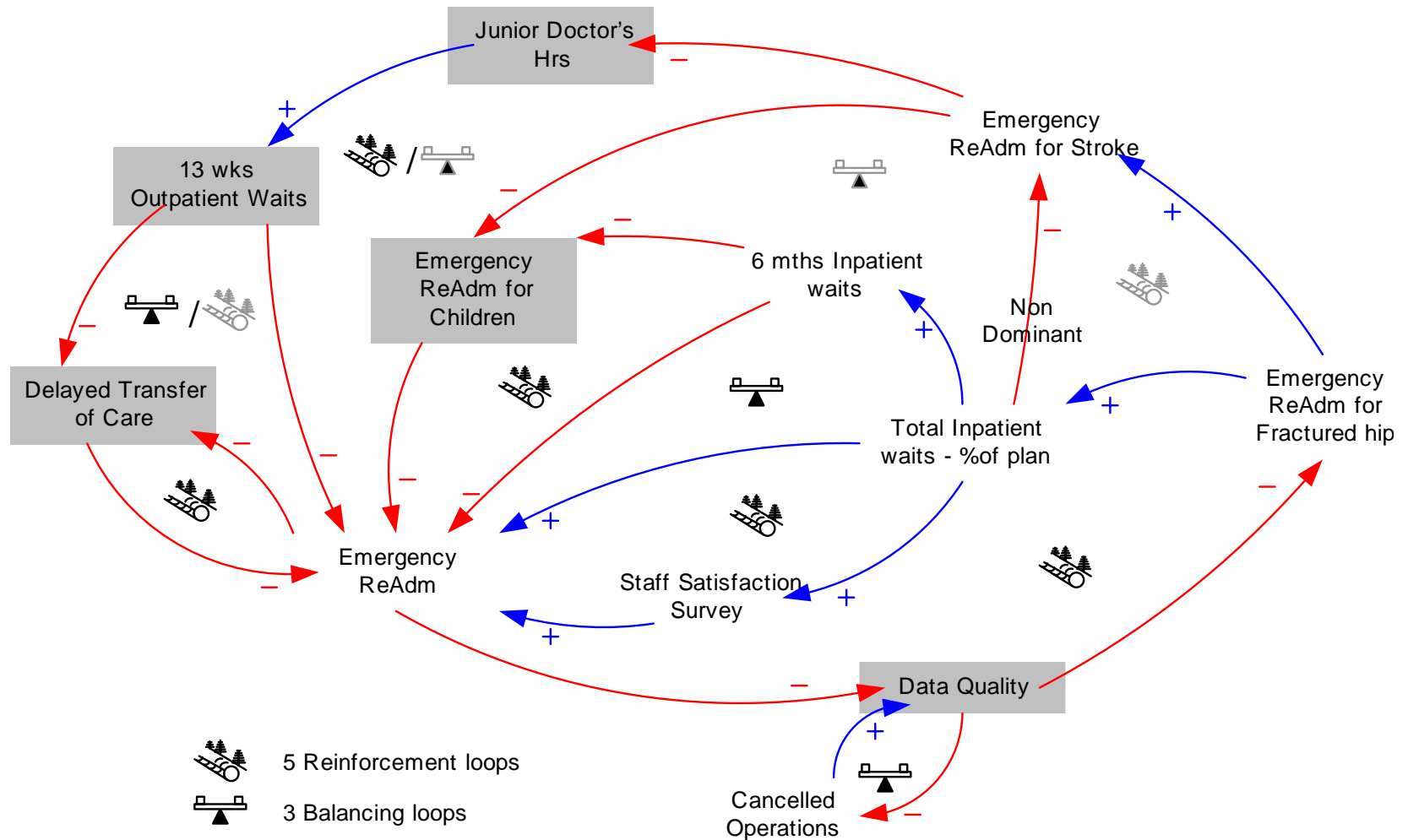
Discussion

- Scenario Analysis
 - Introducing an intervention that brings improvement in Emergency Readmission for adults
- Three Scenarios
 - Scenarios based on the results of the competing effects at two places.

Scenario	Competing effects			
	Emerg Readm for Hip Replacement +> Emerg Readm for Stroke	Total Inpatient Wait %plan -> Emerg Readm for Stroke	Emerg Readm for Stroke -> Emerg Readm for Children	6mth Inpatient Wait -> Emerg Readm for Children
A	Dominant	Non Dominant	Dominant	Dominant
B	Non Dominant	Dominant	Dominant	Non Dominant
C	Non Dominant	Dominant	Non Dominant	Dominant



 Dominant
 Non Dominant

Scenario A. Improving Emergency Admissions



Discussion

Performance Variables	Improvement in ER		
	Scenario A	Scenario B	Scenario C
6mths Inpatient waits	0	0	0
Total Inpatient waits-%of Plan	0	0	0
13wks Outpatient waits	0	0	0
Cancelled Operations Non-Readmission	0	0	0
Delayed Transfer of Care	0		
Emergency Readmission	0	0	0
Emergency ReAdm for Children	0	0	0
Emergency Readm for Stroke	0	0	0
Emergency Readm for Fractured hip	0	0	
Data Quality	0		
Staff Satisfaction Survey	0	0	0
Junior Doctor's Hrs	0	0	0

 compromised
 not compromised

Conclusion

- The Balanced Scorecard implemented by the NHS has conflicting sets of variables.
 - Sub-group in contra-position to others for all scenarios
 - Some others in contra-position depending on the identified conditions
 - There is a need to put processes in practice for sustainable performance.
 - Especially issues related to Emergency Readmission
 - Dominating numbers of reinforcing loops connected to Emergency Readmission
 - coupled with its contra-position with various indicators
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References

- DoH (2001) *NHS Performance Ratings: Acute Trusts 2000/01*, Department of Health, London.
- DoH (2002) *NHS Performance Ratings and Indicators 2002*, Available at:
http://www.performance.doh.gov.uk/performance/2002/tech_index_trusts.html.
- DoH (2002) *NHS Performance Ratings: Introduction*, Department of Health, UK, Available at:
<http://www.performance.doh.gov.uk/performance/index.htm>.
- Kaplan, R. S. and Norton, D. P. (1996) *The Balanced Scorecard : translating strategy into action*, Harvard Business School Press, Boston, Mass.
- Solano, J., De Ovalles, M. P., Rojas, T., Padua, A. G. and Morales, L. M. (2003) 'Integration of Systemic Quality and the Balanced Scorecard', *Information Systems Management*, no. Winter, pp. 66-81.

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- Q&As

- Feedback
