

Extracting a Conceptual Model for a Complex Integrated System in Health Care



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Introduction

- Why did I use the term *Extract* rather than *Develop*?
- What did I use to extract my conceptual model?
 - Soft Systems Methodology (SSM) a problem structuring method
- Is this novel?
 - No but...
- What do I mean by Complex Integrated System?
 - A system encompassing several single or multifacility health care clinics.

The Intermediate Care System

- The study was part of a larger Intermediate Care (IC) Evaluation study commissioned by local authorities to the University of Kent
- Intermediate Care is about Rehabilitation of Older People
- The system evaluated included 7 rehabilitation wards and 3 “hard core” IC services
 - Community Assessment Rehabilitation Team (CART)
 - Day Hospital
 - Recuperative Care

Understanding the problem

- ❑ Initially I knew that I would use discrete event simulation modelling but could not work out how everything was connected!
- ❑ Nobody with overall knowledge of system...
- ❑ Could not determine a conceptual model!
- ❑ SSM was used to structure the process of understanding in a more rigorous and transparent fashion!

Checkland's 1990 four main activities version of SSM

- 1. Finding out about a problem situation, including culturally/politically;
- 2. Formulate some relevant purposeful activity models;
- 3. Debating the situation, using the models, seeking from that debate both:
 - Changes which could improve the situation and are regarded as both desirable and (culturally) feasible, and
 - The accommodations between conflicting interests which will enable action-to-improve to be taken;
- 4. Taking action in the situation to bring about improvement.

Formulate some relevant purposeful activity models

- The guiding forces in constructing the activity model are:
 - CATWOE [customer, actors, transformation process, weltanschauung, ownership, environmental constraints]
 - Root definition
 - Performance criteria
 - efficacy (does it work?)
 - efficiency (does it use the minimum resources?)
 - effectiveness (does it meet the longer term aim?)

CATWOE

- **Customers:** *Older People over 65 that require rehabilitation or convalescence.*
- The IC customers are the older people that are deemed to require convalescence or rehabilitation in order to improve their current state of health. These older people may come from a number of settings or services including acute hospitals and the community.

CATWOE

- ❑ **Actors** = *Intermediate Care employees i.e. nurses therapists etc.*
- ❑ The number and combination of health care professionals that can be involved in IC services differs from service to service. However, the majority of these resources are nurses, occupational therapists, physiotherapists, doctors and rehabilitation workers.

CATWOE

- ❑ **Transformation Process** = the need to support Intermediate Care in our locality is met by designing and operating a system of strategic and operational level activities.
- ❑ Central to the purposeful activity model!

CATWOE

- **Weltanschauung** = a belief that these strategic and operational level activities are important in providing effective care for the older people.

CATWOE

- **Ownership** = the local health and social care authorities.
- **Environmental Constraints** = local IC funding, Department of Health guidelines etc.

Root definition

- Root Definition (RD) = A local health and social care owned system operated by IC staff, that supports IC in our locality by designing and operating a system of IC strategic and operational activities *in order to* provide effective care for the older people, *whilst* recognising the constraints of local IC funding and Department of Health guidelines.

Performance criteria

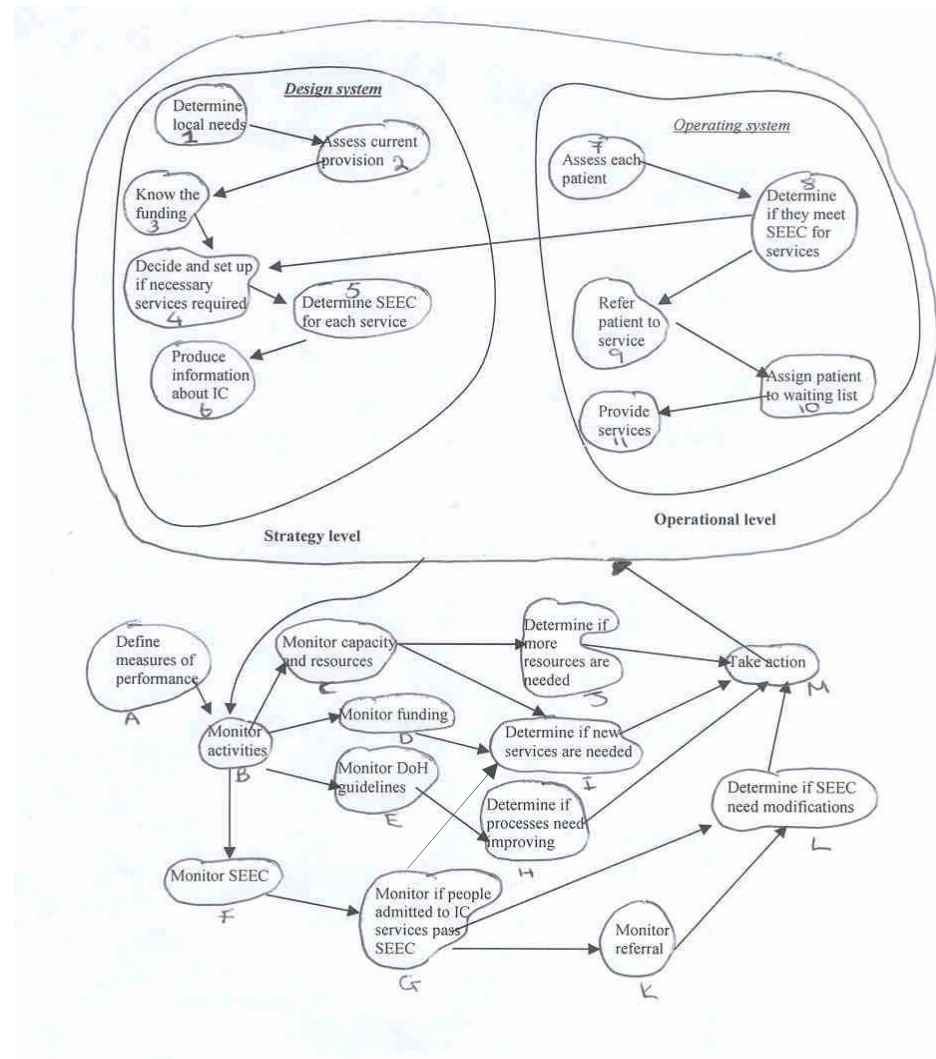
- ❑ E1: the criterion for efficacy is to check that the IC function is supported through IC strategic and operational activities.
- ❑ E2: the criterion for efficiency is to check that the minimum IC resources are used to support the strategic and operational activities.
- ❑ E3: the criterion for effectiveness is to check that the strategic and operational activities enable older people to be rehabilitated in the most appropriate service for their needs

Purposeful Activity Model

Strategic and operational activities

Activities do not necessarily match reality!

Monitoring activities

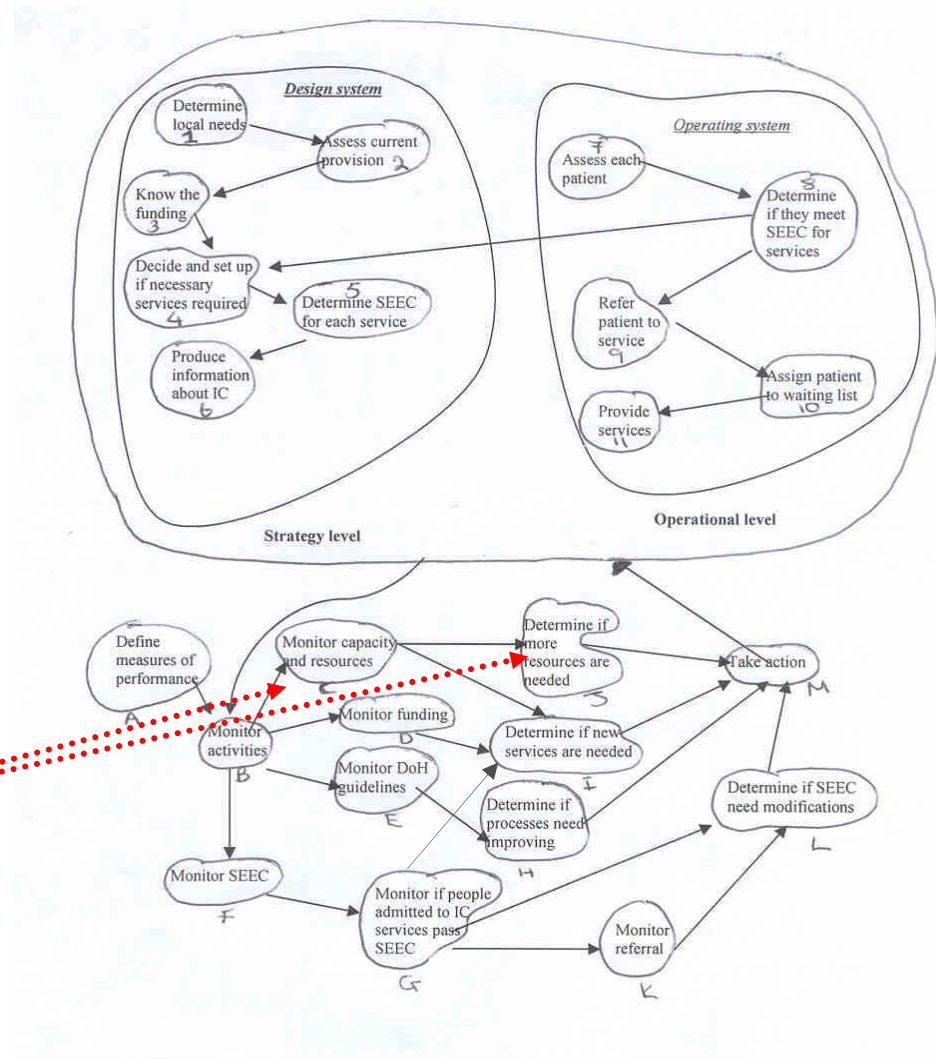


Conceptual model

- Most important part of deriving the conceptual model is determining the simulation study objectives!
- Simulation study objectives:
 - Are the IC services working to their capacity (monitoring activities C, J) ?

Purposeful Activity Model

Strategic and operational activities



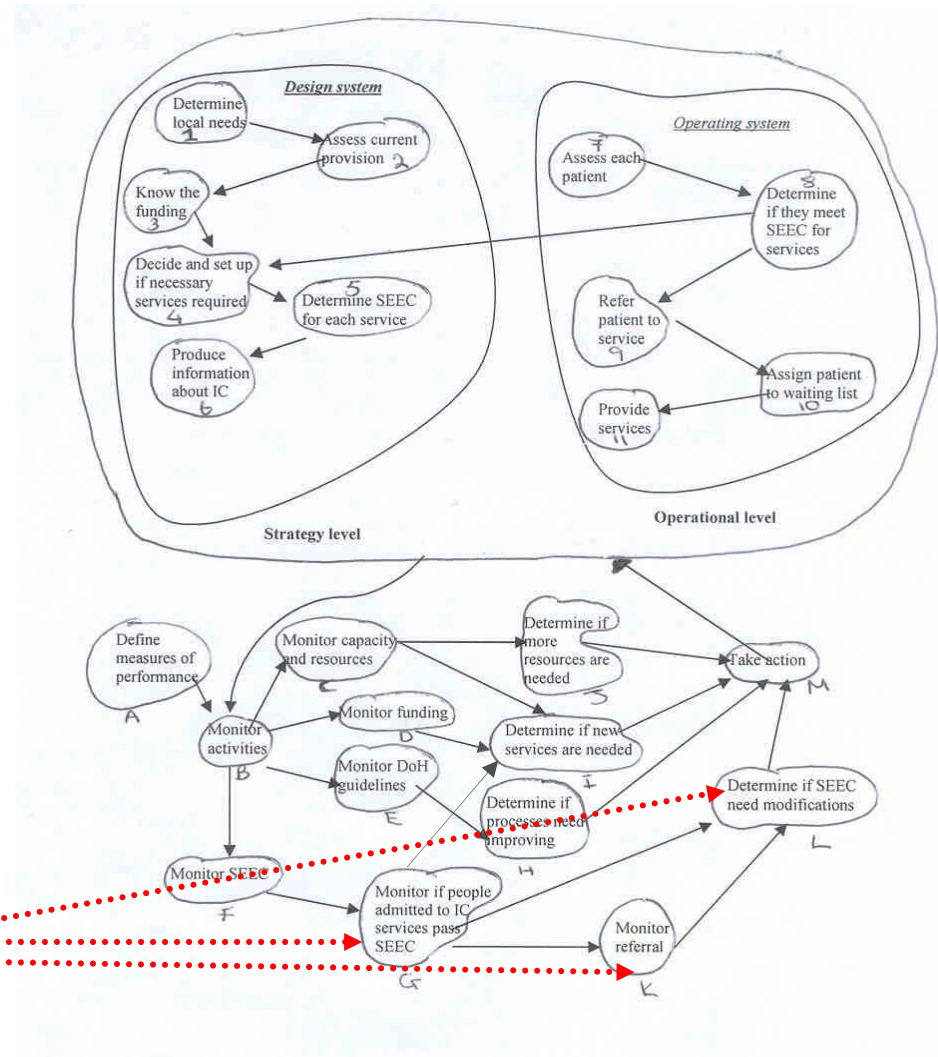
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Purposeful Activity Model

Strategic and operational activities



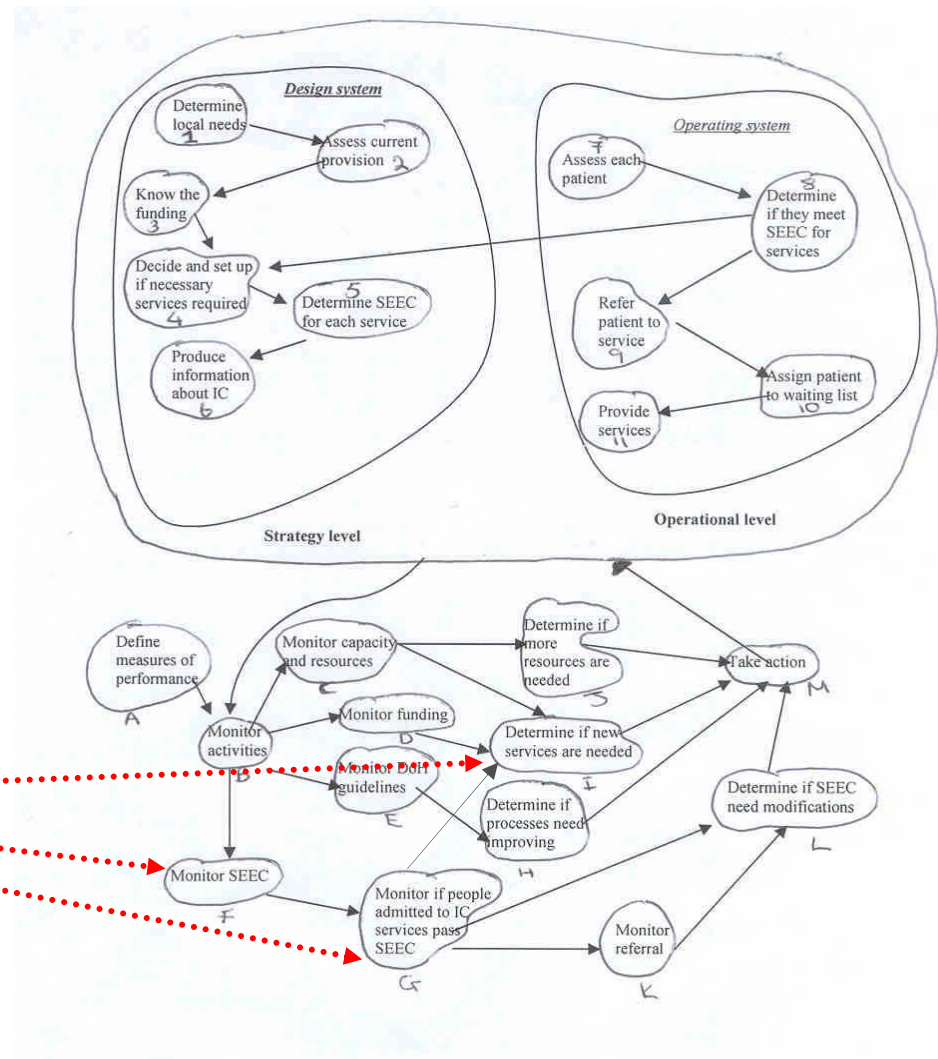
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Conceptual model

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 - Are the IC services working to their capacity (monitoring activities C, J) ?
 - Are the IC patients admitted to the most appropriate service for their needs (monitoring activities G, K, L)?
 - Are there any service gaps (monitoring activities F, G, I)?

Purposeful Activity Model

Strategic and operational activities



Are there any service gaps (monitoring activities F, G, I)?

Any questions?



Thank you