

Data Flow Diagrams - Decomposition, Levelling and use in practice

Data Flow Diagrams

Decomposition and levels of DFDs

Use of DFDs in practice

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Aiding understanding

Single diagram would be complicated, messy, difficult to comprehend

- ▣ Instead use 'Top-Down' approach, look gradually at each area in greater detail in series of DFDs
- ▣ Analogous to using maps.

Break down complex processes into their constituent sub-processes

Produce sets of levelled data flow diagrams, showing the system at different levels

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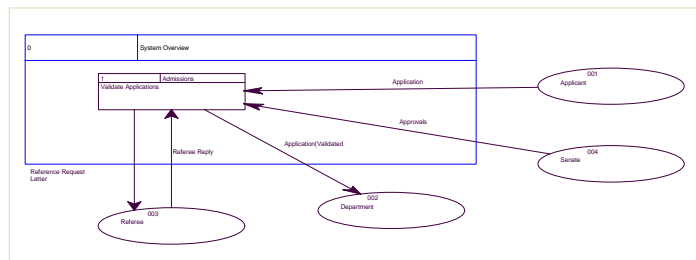
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Context Diagram (Level 0 diagram)

Top level of DFDs

Area of study shown as single process

Defines what is to be studied, what is considered as environment



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Level 1 Diagram

Looks inside the 'black box' of single process in Level 0 diagram

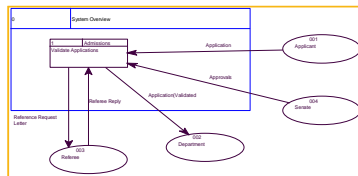
Shows the main processes going on within the system.

No 'right' way to partition - we choose

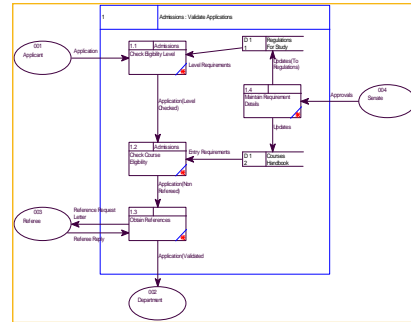
Focus on natural business processes not on the way the organisation presently structured

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Decomposition to Level 1



Level 0 diagram shows a single process



Level 1 diagram shows the sub-processes that constitute that single process

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WHEN DO YOU STOP DECOMPOSING?

Decompose to 'functional primitives'

- ▣ Able to describe concisely the process in words

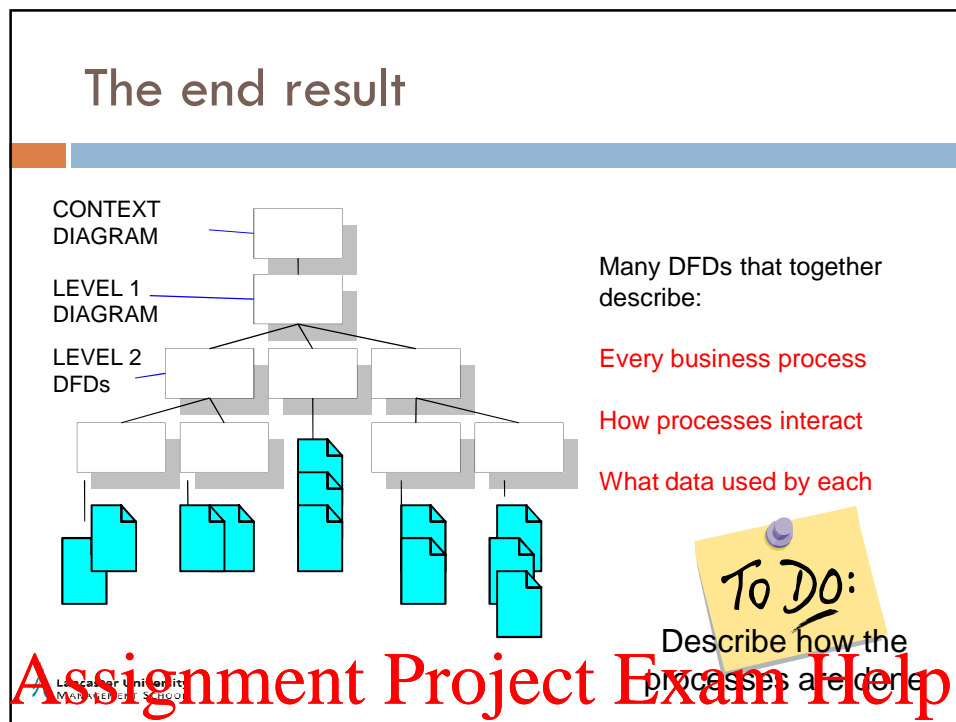
'Mini-specifications'

- ▣ May form basis for program specifications

May make use of Formal Definition Languages

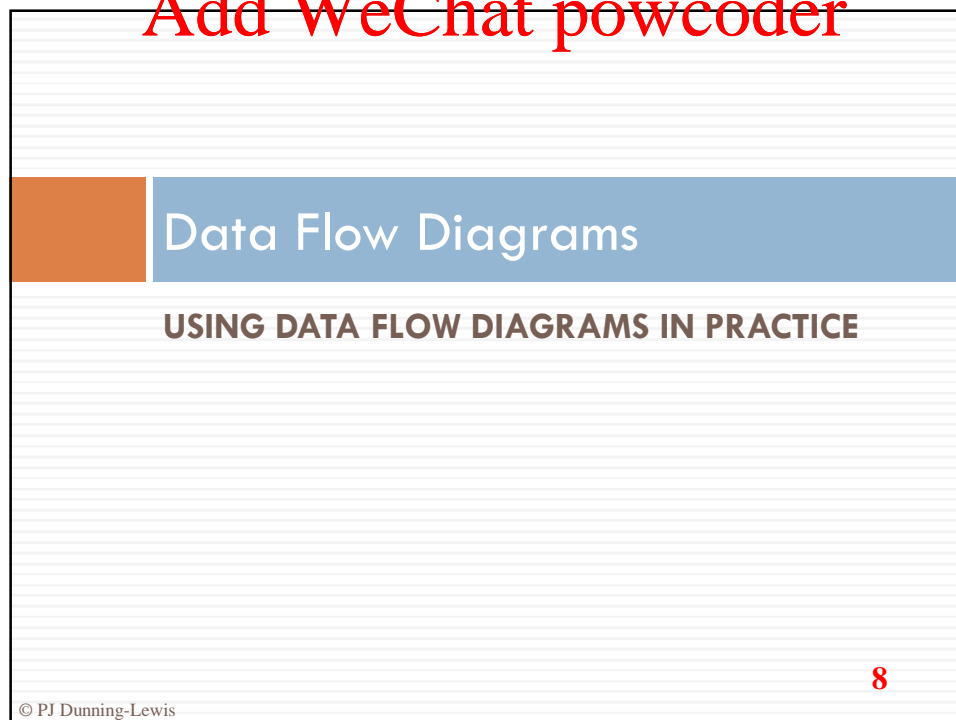
Decision tables for logic

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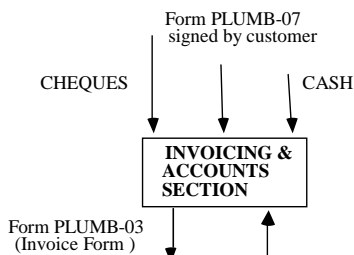


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Four different sets of data flow diagrams

1. DFDs of CURRENT PHYSICAL SYSTEM

- Show how the business operates at the moment
- physical details e.g. forms , individuals
- Built up from extensive interviewing and observation

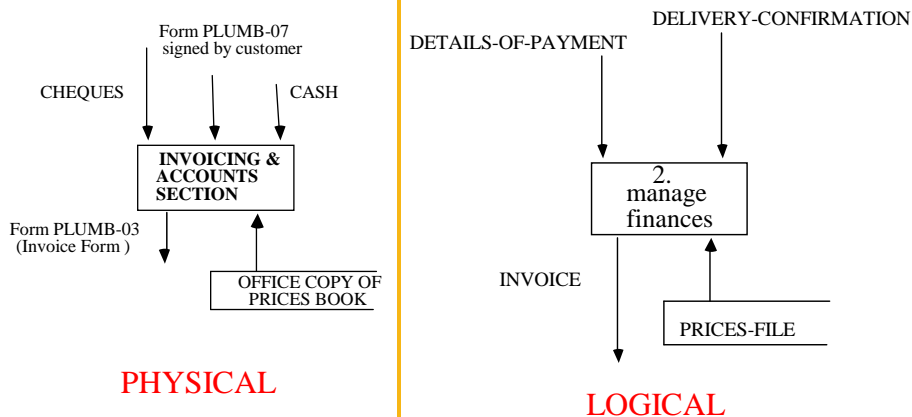


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2. Use DFDs of the Current Logical system



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DFDs of NEW LOGICAL and NEW PHYSICAL

3. NEW LOGICAL

- Consider how to improve the business processes
- Show what the new system should do.
- Users must be closely involved

4. NEW PHYSICAL

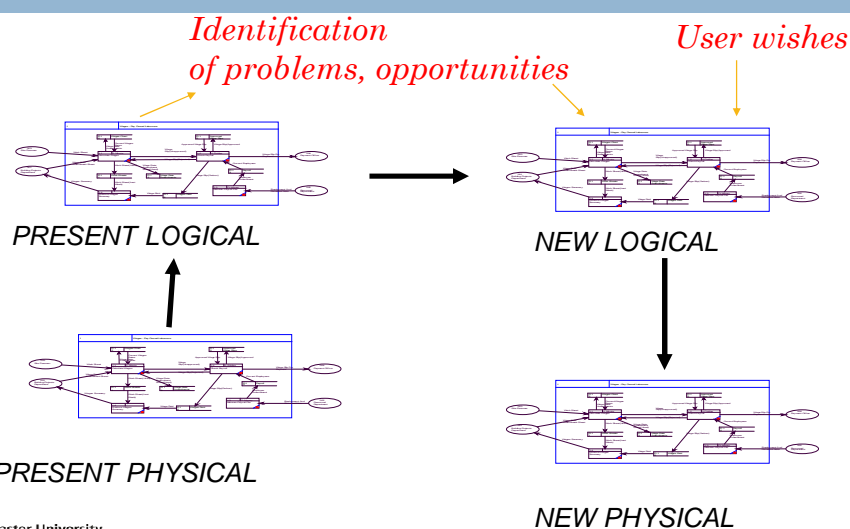
- Defines exactly how the system will work
- What will be computerized : Type of equipment :
- Procedures, forms : Staffing etc

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4 sets of DFD diagram used



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Guidelines

Make sure all processes on particular DFD are at roughly same level of detail

Give processes meaningful, descriptive names

Use verb and noun names for processes

Give data flows clear names

If difficult to name data flow this may be a warning. Are you sure what this is? Is it perhaps 2 data flows?

DFDs should never show mechanics of decisions - only that several outputs may be produced

Check for information traps, update omissions

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