Software Project Management

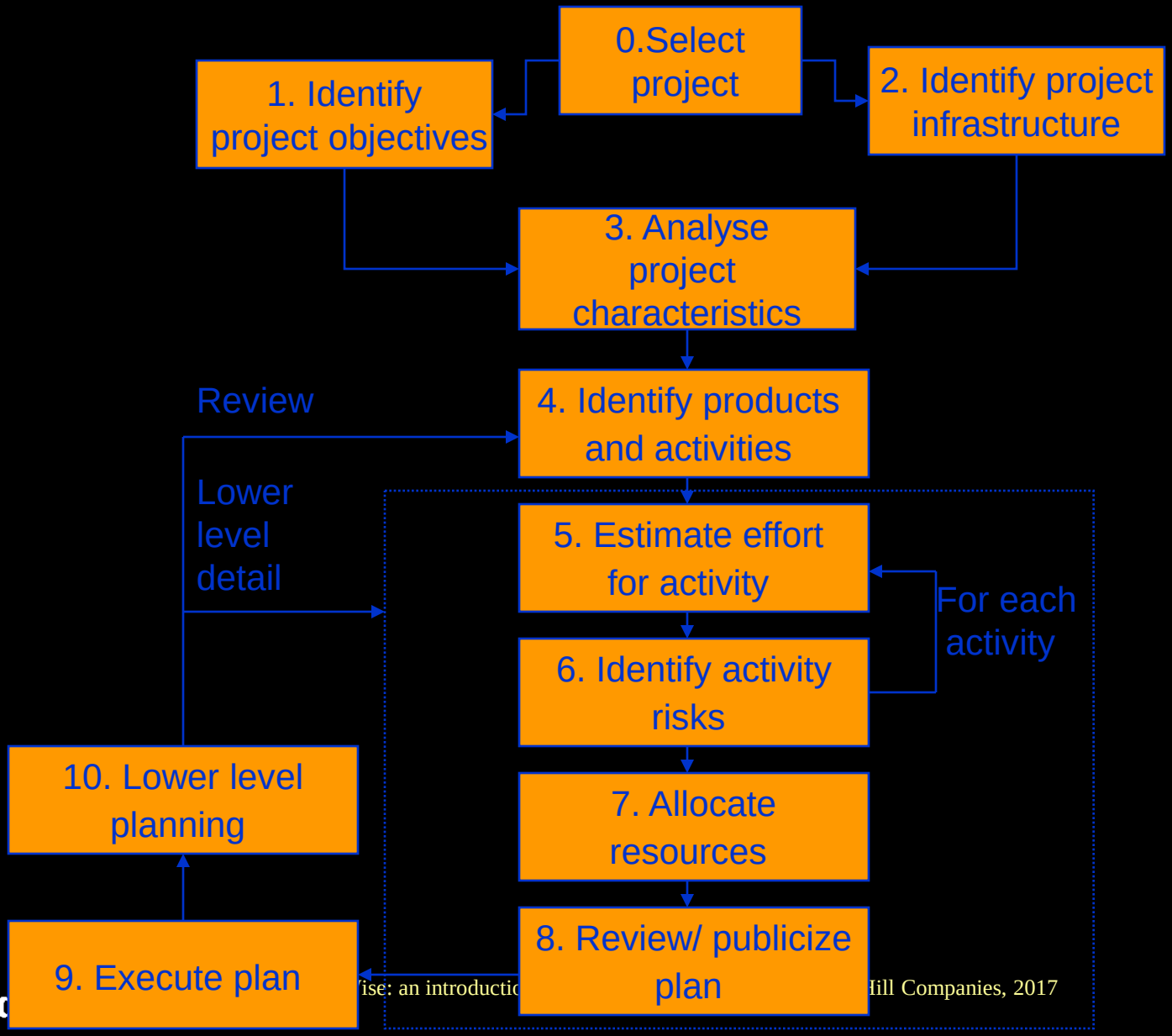
Chapter 3

Step Wise: An approach to planning software projects

‘Step Wise’ - aspirations

- Practicality
  - tries to answer the question ‘what do I do now?’
- Scalability
  - useful for small project as well as large
- Range of application
- Accepted techniques
  - e.g. borrowed from PRINCE etc

‘Step Wise’ - an overview



A project scenario: Brightmouth College Payroll

- College currently has payroll processing carried out by a services company
- This is very expensive and does not allow detailed analysis of personnel data to be carried out
- Decision made to bring payroll ‘in-house’ by acquiring an ‘off-the-shelf’ application

Project scenario - continued

- The use of the off-the-shelf system will require a new, internal, payroll office to be set up
- There will be a need to develop some software ‘add-ons’: one will take payroll data and combine it with time-table data to calculate the staff costs for each course run in the college
- The project manager is Brigette.

Step 1 establish project scope and objectives

- 1.1 Identify objectives and measures of effectiveness
  - ‘how do we know if we have succeeded?’
- 1.2 Establish a project authority
  - ‘who is the boss?’
- 1.3 Identify all stakeholders in the project and their interests
  - ‘who will be affected/involved in the project?’

Step 1 continued

- 1.4 Modify objectives in the light of stakeholder analysis
  - ‘do we need to do things to win over stakeholders?’
- 1.5 Establish methods of communication with all parties
  - ‘how do we keep in contact?’

Back to the scenario

- Project authority

  Brigette finds she has two different clients for the new system: the finance department and the personnel office. A vice principal agrees to be official client, and monthly meetings are chaired by the VP and attended by Brigette and the heads of finance and personnel

  These meetings would also help overcome communication barriers

Back to the scenario - continued

- Stakeholders
  - For example, personnel office would supply details of new staff, leavers and changes (e.g. promotions)
  - To motivate co-operation Brigette might ensure new payroll system produces reports that are useful to personnel staff

Step 2 Establish project infrastructure

- 2.1 Establish link between project and any strategic plan
  - ‘why did they want the project?’
- 2.2 Identify installation standards and procedures
  - ‘what standards do we have to follow?’
- 2.3. Identify project team organization
  - ‘where do I fit in?’

Step 3 Analysis of project characteristics

- 3.1 Distinguish the project as either objective or product-based.
  - Is there more than one way of achieving success?
- 3.2 Analyse other project characteristics (including quality based ones)
  - what is different about this project?

Step 3 continued

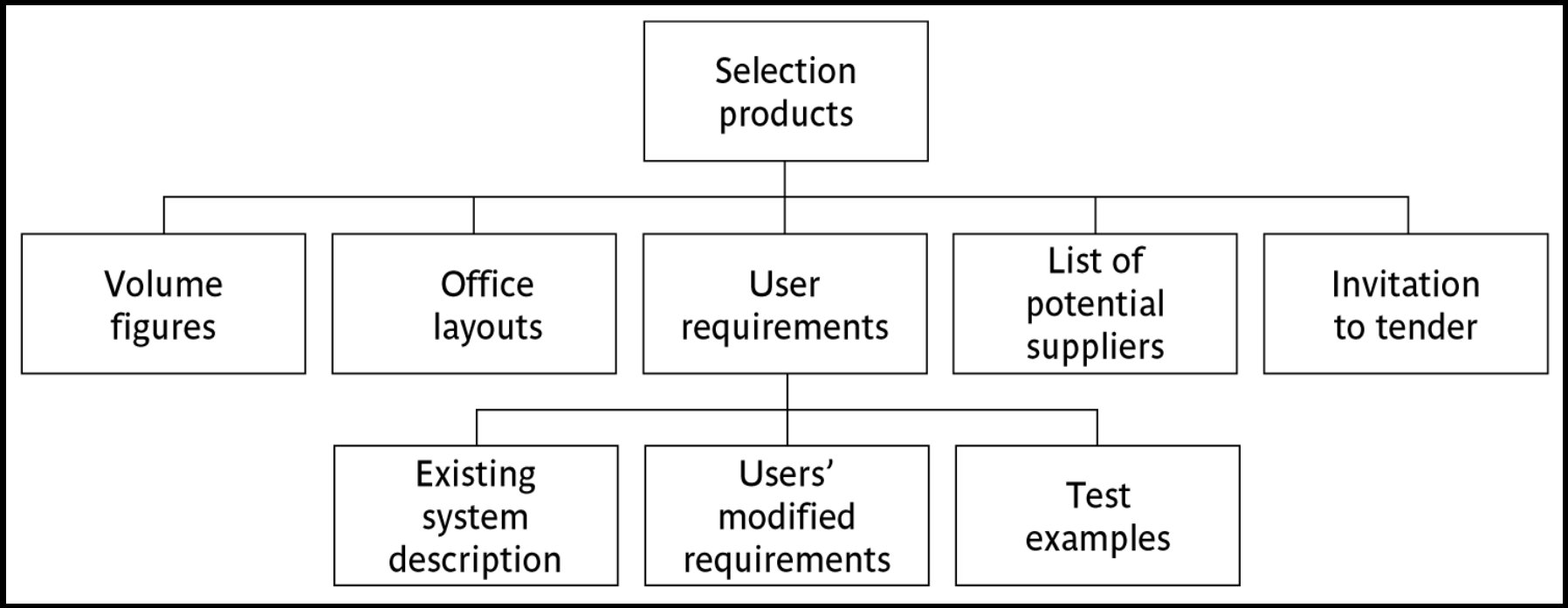
- Identify high level project risks
  - ‘what could go wrong?’
  - ‘what can we do to stop it?’
- Take into account user requirements concerning implementation
- Select general life cycle approach
  - waterfall? Increments? Prototypes?
- Review overall resource estimates
  - ‘does all this increase the cost?’

Back to the scenario

- Objectives vs. products
  - An objective-based approach has been adopted
- Some risks
  - There may not be an off-the-shelf package that caters for the way payroll is processed at Brightmouth College
- Answer?
  - Brigette decides to obtain details of how main candidate packages work as soon as possible; also agreement that if necessary processes will be changed to fit in with new system.

Step 4 Identify project products and activities

- 4.1 Identify and describe project products - ‘what do we have to produce?’



Products

- The result of an activity
- Could be (among other things)
  - physical thing (‘installed pc’),
  - a document (‘logical data structure’)
  - a person (‘trained user’)
  - a new version of an old product (‘updated software’)

Products

- The following are NOT normally products:
  - activities (e.g. ‘training’)
  - events (e.g. ‘interviews completed’)
  - resources and actors (e.g. ‘software developer’) - may be exceptions to this
- Products CAN BE *deliverable* or *intermediate*

Product description (PD)

- Product identity
- Description - what is it?
- Derivation - what is it based on?
- Composition - what does it contain?
- Format
- Relevant standards
- Quality criteria

Create a PD for ‘test data’

Step 4 continued

- 4.2 document generic product flows

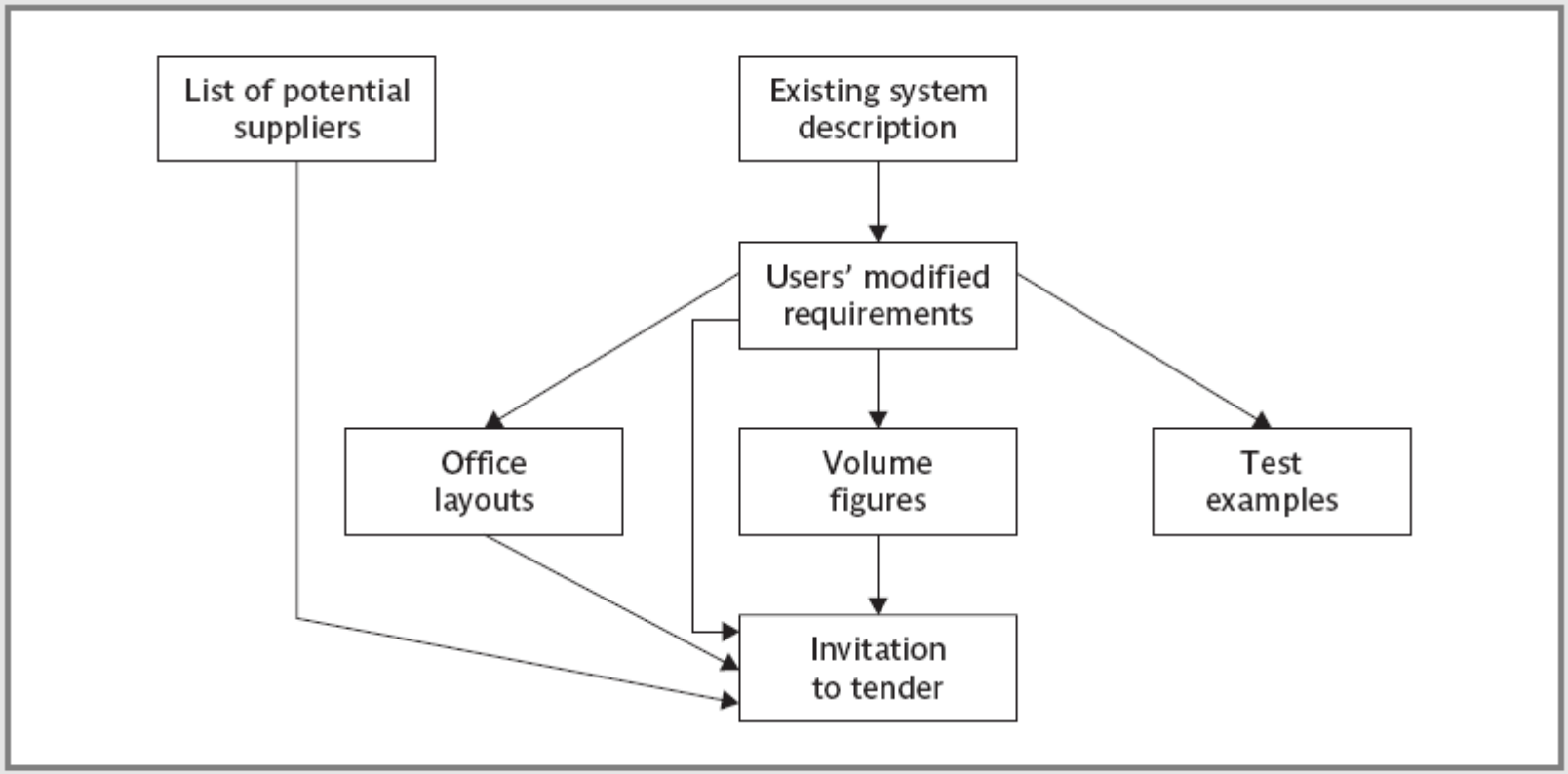


FIGURE B.1 Product Flow Diagram for the creation of an 'invitation to tender'

Step 4.3 Recognize product instances

- The PBS and PFD will probably have identified generic products e.g. ‘software modules’
- It might be possible to identify specific instances e.g. ‘module A’, ‘module B’ …
- But in many cases this will have to be left to later, more detailed, planning

4.4. Produce ideal activity network

- Identify the activities needed to create each product in the PFD
- More than one activity might be needed to create a single product
- Hint: Identify activities by verb + noun but avoid ‘produce…’ (too vague)
- Draw up activity network

An ‘ideal’ activity

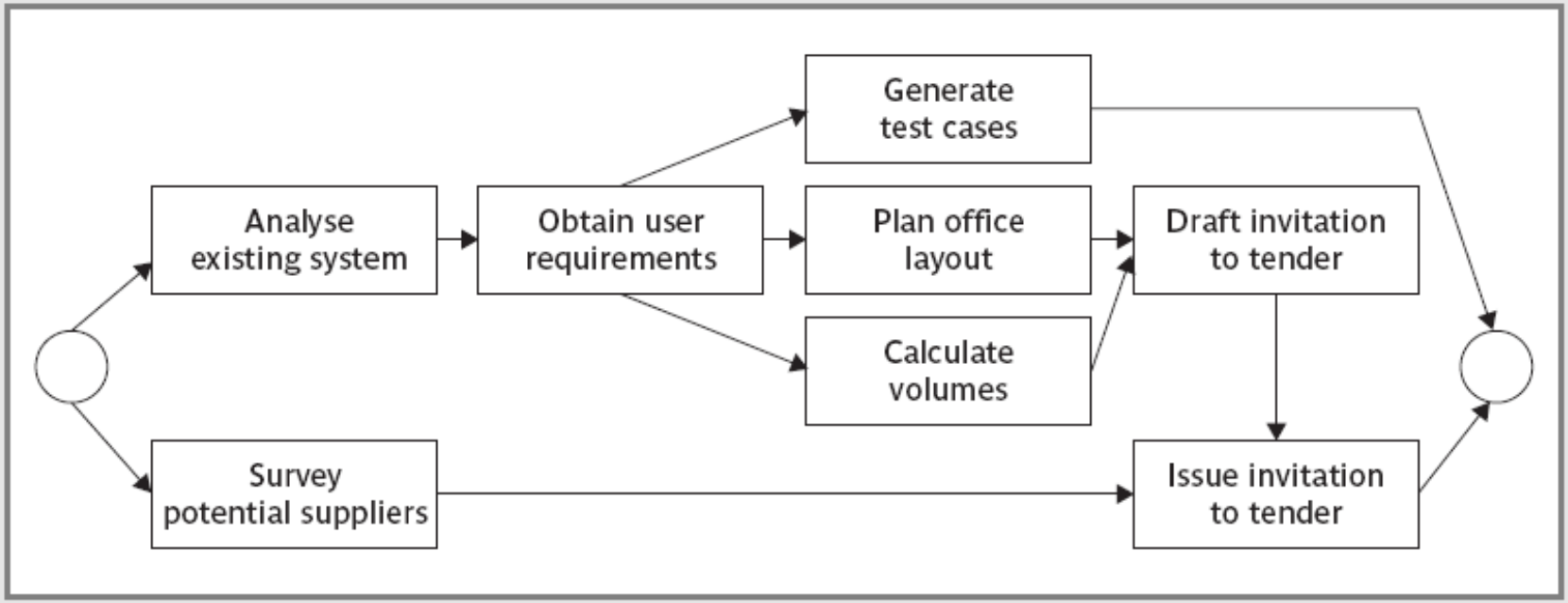
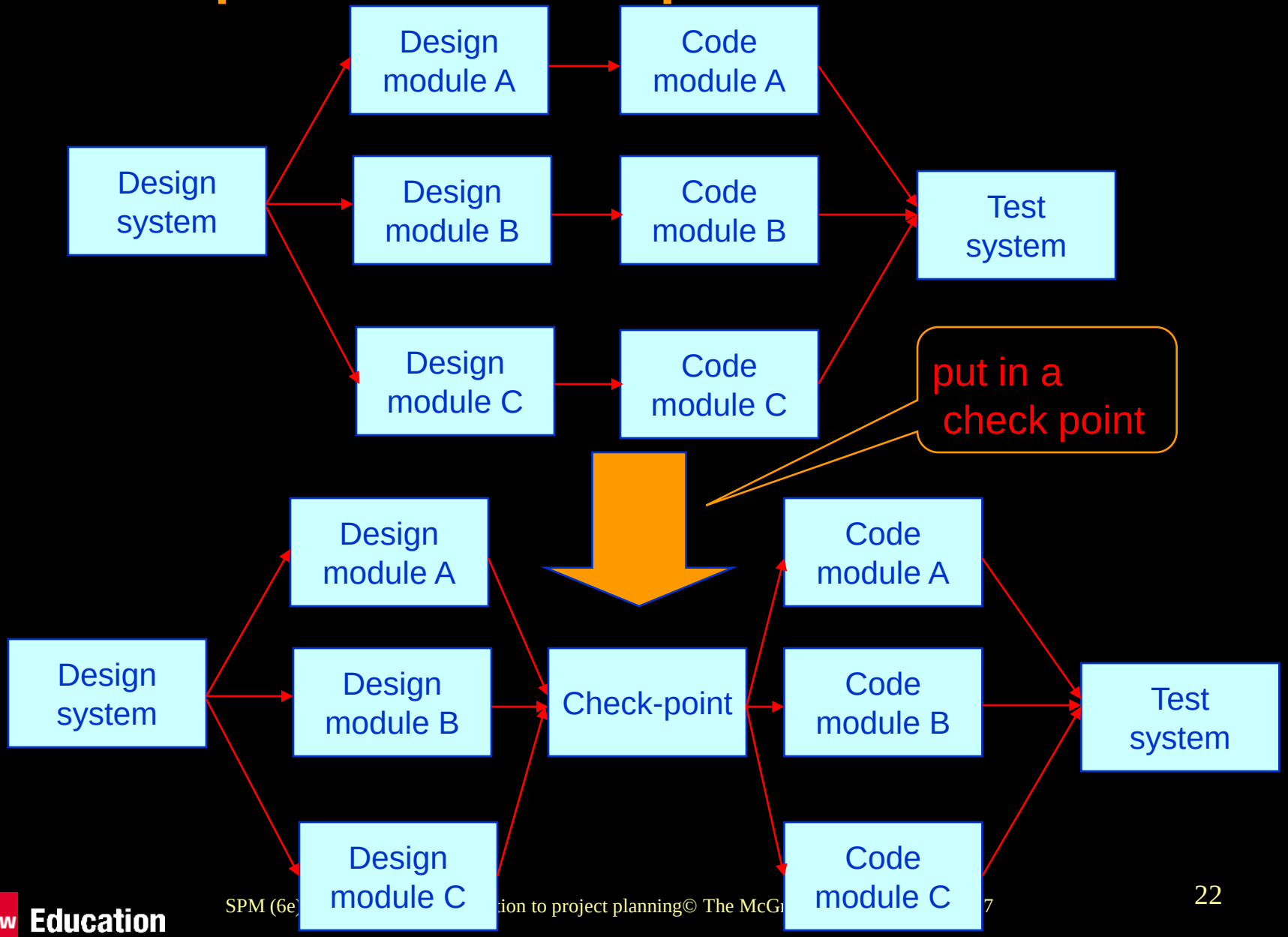


FIGURE B.2 Brightmouth College payroll project activity network fragment

Step 4.5 Add check-points if needed



Step 5:Estimate effort for each activity

- 5.1 Carry out bottom-up estimates
  - distinguish carefully between *effort* and *elapsed* time
- 5.2. Revise plan to create controllable activities
  - break up very long activities into a series of smaller ones
  - bundle up very short activities (create check lists?)

Step 6: Identify activity risks

- 6.1.Identify and quantify risks for activities
  - damage if risk occurs (measure in time lost or money)
  - likelihood if risk occurring
- 6.2. Plan risk reduction and contingency measures
  - risk reduction: activity to stop risk occurring
  - contingency: action if risk does occur

- 6.3 Adjust overall plans and estimates to take account of risks
  - e.g. add new activities which reduce risks associated with other activities e.g. training, pilot trials, information gathering

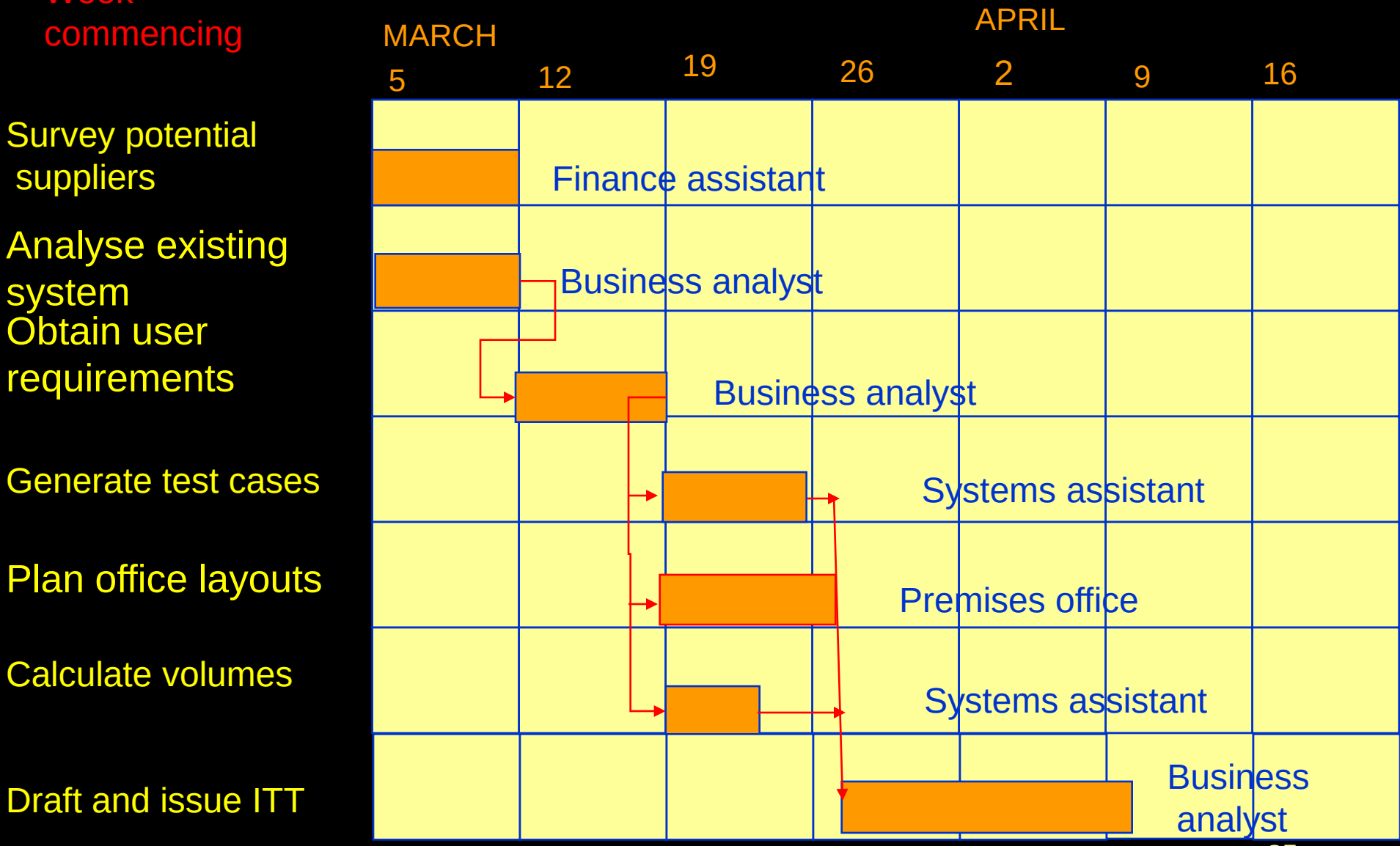
Step 7: Allocate resources

- 7.1 Identify and allocate resources to activities
- 7.2 Revise plans and estimates to take into account resource constraints
  - e.g. staff not being available until a later date
  - non-project activities

Gantt charts

LT = lead tester

TA = testing assistant



Step 8: Review/publicise plan

- 8.1 Review quality aspects of project plan
- 8.2 Document plan and obtain agreement

Step 9 and 10: Execute plan and create lower level plans

Key points

- Establish your objectives
- Think about the characteristics of the project
- Discover/set up the infrastructure to support the project (including standards)
- Identify **products** to be created and the **activities** that will create them
- Allocate resources
- Set up quality processes