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**STRUCTURING TECHNOLOGY
MANAGEMENT PROJECTS**

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Structuring Technology Management Projects

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KKI Associates

From Experience in

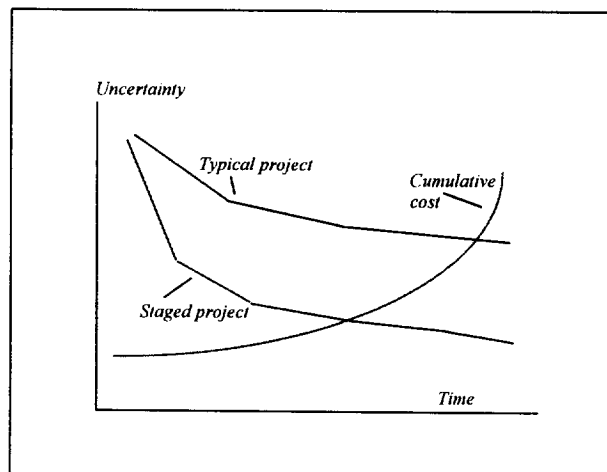
- Research and Market Launch in British Petroleum lubricants
- Post-project appraisal of 50+ BP developments
- Project appraisal methods for Computer games developer
- I.T. procurement process for UK charity
- Project Management of Engineering Design Consortium
- Market launch for Land Management Software
- Restructuring Science institutes in E.Europe

KKI Associates

Risks in R&D Projects

- On average only 1 in 7 development projects are commercially successful
- Of 50+ failed projects, technology factors were responsible for only 2 to 3
- 50-75% of development money is spent on projects that never reach the market
- Most money is spent too late to influence the outcome of the development
- UK growth stuck at 2.5% pa irrespective of macroeconomic policy

Controlling Risks by Reducing Uncertainty



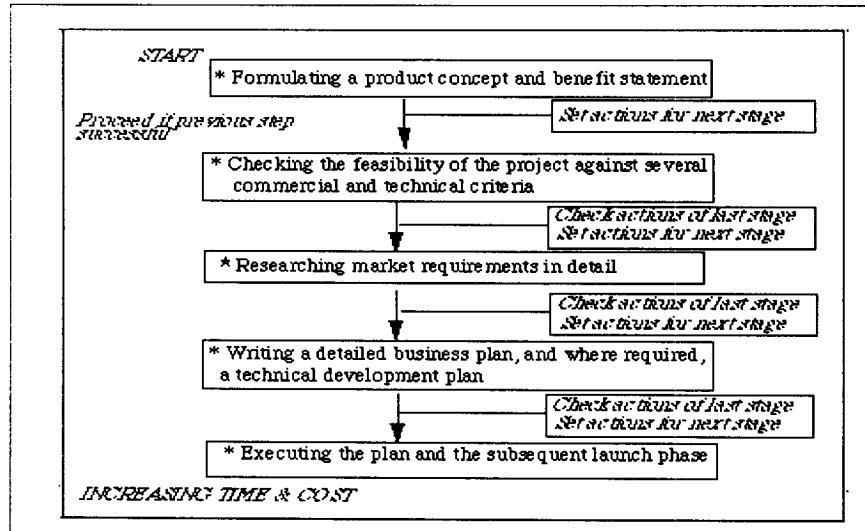
Things that could stop the project

- We do not have the right people (or they leave)
- Our technology is unsafe or dangerous
- Our potential customers go 'out of business'
- Microsoft introduce a competing product and give it away for free

Cheap and Expensive Activities

- Telephoning or meeting potential customers
- Defining a technical specification
- Copyrighting software
- Patenting an advance
- Carrying out a technical development programme
- Getting approval for foods or medicines
- TV advertising
- Building a factory

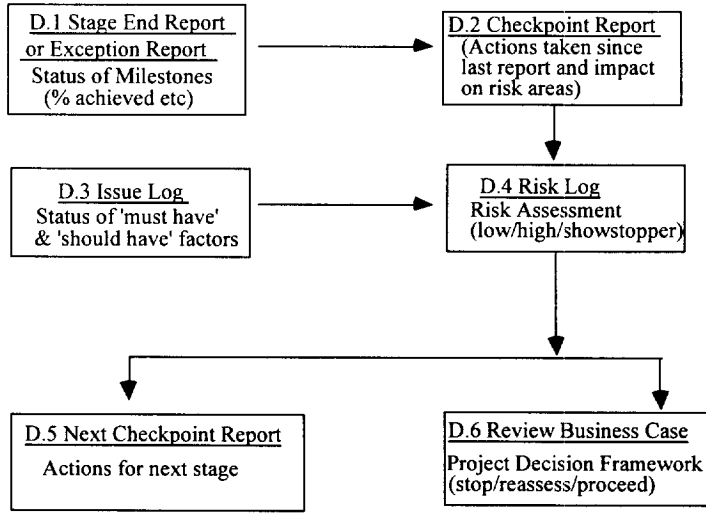
Break the project into Stages



Managing Stages

- Each stage consists of a number of set activities. Budget tied to objectives not time period
- Each stage is multi-disciplinary - engineering, technical, marketing, design, etc
- Each stage usually costs more than the previous one.

Paperwork Assessment During a Project



Role of Senior Managers

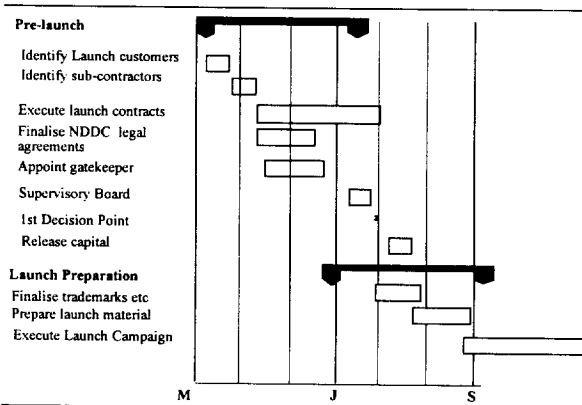
- Senior managers should ask:
 - do we know why we are doing this?
 - what would make us stop doing it?
 - has the previous stage been completed well?
 - does the project still look attractive
 - from a business/financial/commercial view?
 - does the proposed plan of actions still look reasonable?

As Projects grow

- Flow chart the actions and Identify
 - What steps must be carried out before another
 - What must be completed before another step can begin (FS dependency)
 - What must be completed before another can finish (FF dependency)
 - What must be started before another can finish (SF dependency)

Formal PM tools

- Gantt Chart



- Shows tasks against time

Case Study - Medical Instrument Development

- Just about to start a technical development programme of design validation and then prototype construction (if design works)
- We will license successful product to one of 3 major instrument manufacturers
- Exact form of our IP depends on design outcome - elements include physical layout, instrumentation, and algorithms
- Need to check no conflicting patents

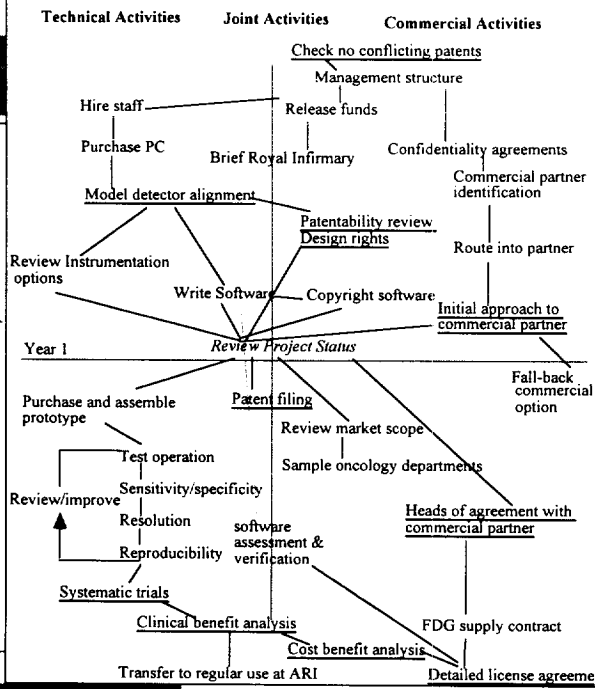
Case Study - Medical Instrument Development

- Need an extra member of staff to do design study
- Will require clinical trials at hospital and FDA approval of software
- Will need to produce and supply certain consumables to commercial partner and their customers
- What should we do first?

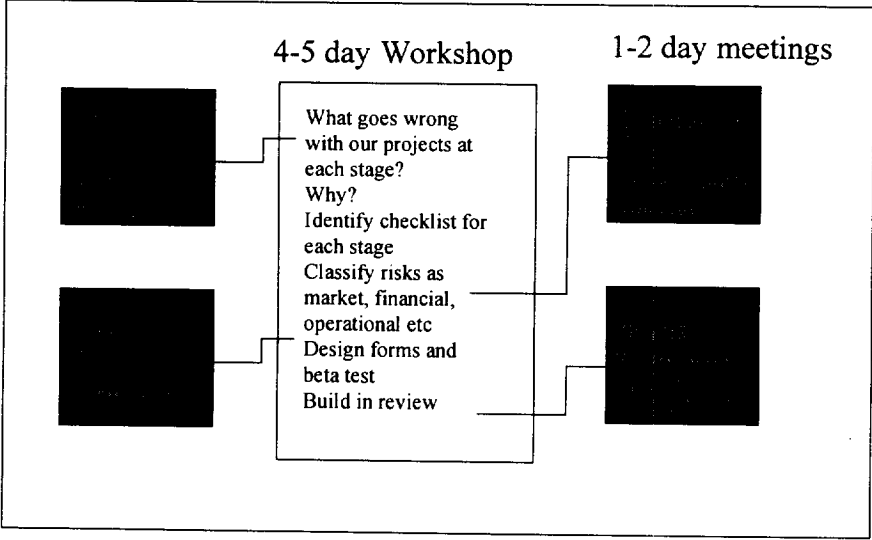


Suddenly an argument took place between the King and the moat contractor

**Example Plan:
Technical Commercial Joint**

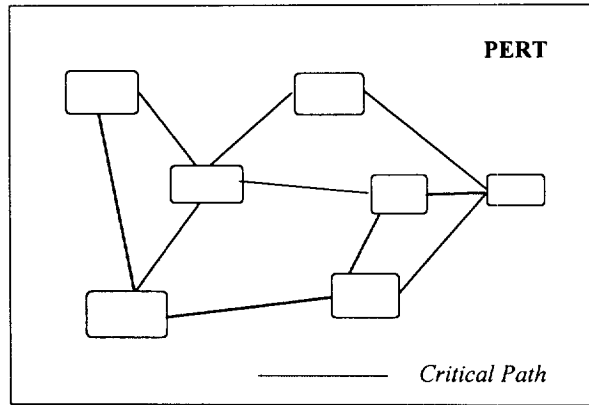


Developing a Process



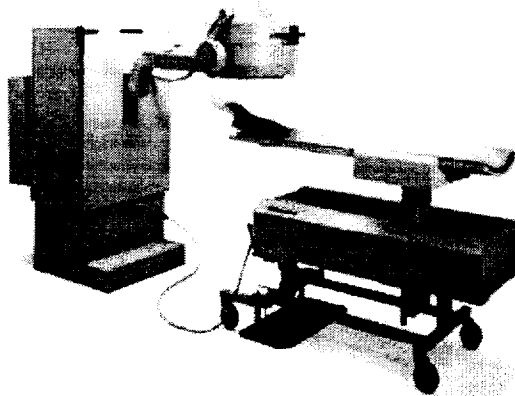
Project Management Tools

- Pert Chart



- Shows task dependencies

Case Study - Wheelchair Development

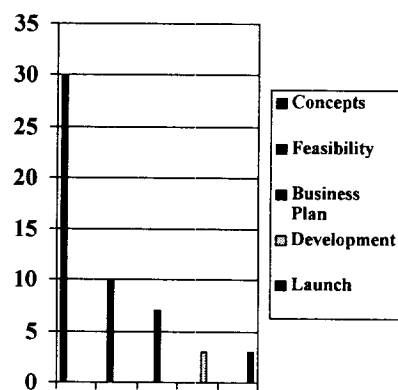


Encouraging Good Decisions

- Senior Managers should ensure
 - There should be no cheating!
 - Don't blame people when stopping projects for good reasons
- Separate Project funding from Annual Budgets
 - Concept stage: days/weeks
 - Feasibility study: weeks/months
 - Market research and business plan: weeks/months
 - Development: years

Typical Project Portfolio

- 30 project concepts
- 10 feasibility studies
- 7 market research and business plan development
- 3 projects in development
- 3 projects launched



Project Initiation Guidelines - Idea Assessment

Assessment Parameter	Agree with proposal?	Comments
1. Scope		
2. Benefits of Project		
3. Timescale		
4. Proposed Solution(s)		
5. Service Level Considerations		
6. Infrastructure requirements		
7. Risk or other points		

Project Initiation Guidelines - Project Decision Factors

Proposed Action	Comments/Reasoning
Rework proposal	[This occurs if assessing group feel proposal is incomplete. Assessors to identify where more work is needed]
Do not proceed at this point	[Reasons should be apparent from idea assessment above.]
Put proposal on hold list	[The idea and proposal are good, but funds are not available at this point]
Proceed to feasibility study	[Or rarely, proceed directly to project plan and implementation]
Incorporate as part of larger project	[Idea fits in well with, or should be coordinated with existing project]

Signed _____

(Proposer)
ciates/BITS Advisor

(Assessor)

Testing the idea

- Before each stage there is a STOP/GO/RECYCLE decision.
- Taken by the project manager, and senior managers in charge of project finance.
- Stop/Go decisions should be conditional on achieving pre-agreed objectives
- Team should always be willing to review and test the project's chance of success

Put Someone in Charge

- Any reasonable size project needs a full time leader
- Especially if it requires co-operation between different groups in the organisation
- Other resources can be brought in as required by the project leader
- Aim is to make it clear who is responsible for what in the project

Topics for discussion

- Is there any way of simply checking an idea without spending any money at all?
- If someone has a sensible idea, what should we do to see whether it is practical?
- Can we define anything about the product specification before we spend a lot of money?
- Do we have structures that allow different parts of the organisation to work together?

Risk Control in Project Management

- Address the areas of biggest uncertainty first..
- Identify the things that could stop the project
- Do the most expensive things as late as possible
- Put someone in charge.
- Keep testing the idea and the technology through the development.

Areas of biggest uncertainty

- Does anyone want this advance?
- Have they got any money?
- Can we achieve the advance?
- How long will it take us?
- Is anyone else trying to do it?
- What happens if they get there first?
- What are the 'must-have' and 'should have' features?

What we are trying to do

- Encourage more, better, project ideas
- Spend more time and money on projects likely to be successful
- Reduce spending on projects that are not likely to be successful
- Develop a system that is transparent in terms of progress and responsibilities

What we are trying to avoid

- ‘Who was in charge of the Project? I suppose I was really’
- *Five different interviewees*