Project management concepts

The project, people, products, process

The Project

- What is a project?
  - Restricted in time
    - Starting time
    - Ending time!!!
  - Definitive aim / purpose / goal
    - The project will produce deliverables!
  - Own organization
    - Project personnel

History of project work

- The project as a way of working is developed
  - 1940’-50’s, military and space programs
    - The Manhattan Project (Atomic Bomb)
    - Apollo
  - Operation analysis, the need for coordinating projects
    - PERT (Program Evaluation and Review Technique)
    - CRM (Critical Path Method)

History ...

- 1960´s
  - long planning horizons
  - project administration was in
- 1970´s
  - leadership
  - team-work, independent teams
- 1980´s
  - PC revolution: Project planning tools
- 1990´s
  - throughput optimization
  - interaction between teams
- 2000´s
  - projects today and tomorrow will be formed by you

The Project

- When is a project successful?
  - keeps on schedule
  - produces what expected
  - keeps on budget
  - people feel happy about the project
    - customers
    - project personnel
    - other stakeholders
  - So your projects can absolutely be successful!

Ex: Project objectives

Rank the following (can't say they are equally important):

- minimal defects
- maximum user satisfaction
- minimal response time
- maintainability
- extendibility
- robustness
- short schedule
- predictable delivery date
- low cost

Project success

- What is the most important to make project work successful?
  - People?
  - Time?
  - Budget?
  - Product / deliverables?
  - Communication?
  - Marketing?

How problems in technology development affect to profits

	%
• product release delayed 6 months	-31,5
• problems in quality assurance	-14,9
• incompatibility with others reduces sales by 10%	-3,8
• product 10% too expensive	-3,8
• product development budget exceeds 30%	-2,3

Source: Samuli Pekkola / Project Management Course: cc.jyu.fi

Why Do Projects Succeed?

- **Executive support**
- User involvement
- Experienced project manager
- Clear business objectives
- Minimized scope
- Standard software infrastructure
- Firm basic requirements
- Formal methodology
- Reliable estimates

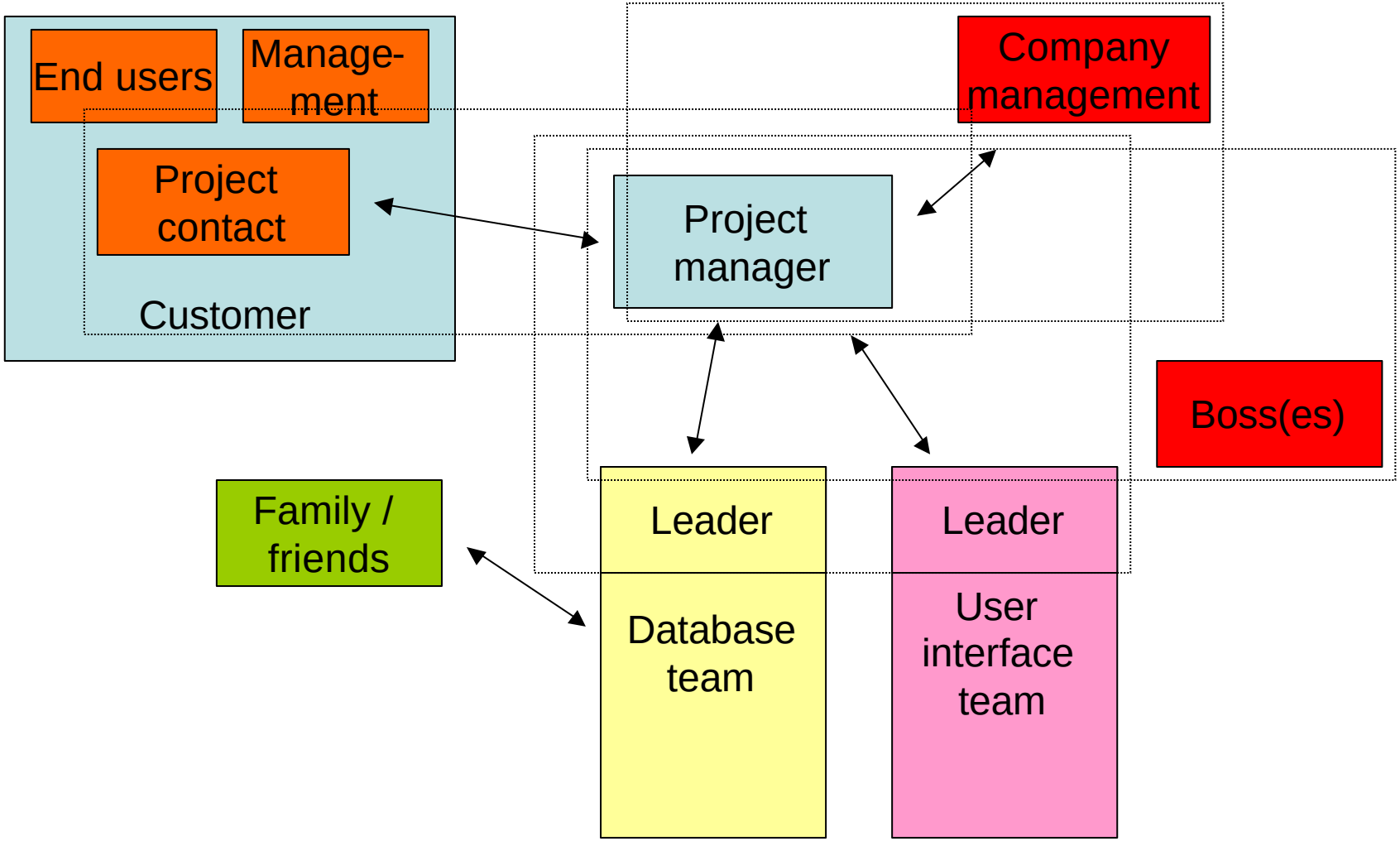
The software project

- Is the software project very different from ”traditional” project?

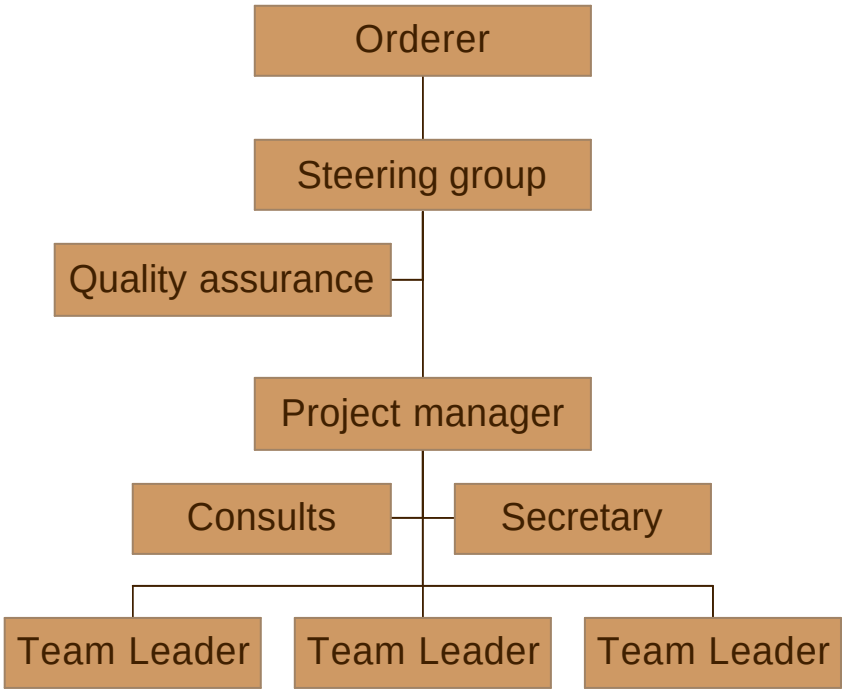
- Startup or shutdown of plant
- Installation of equipment
- Manufacture of aircraft, ships, and large machines
- Space shots
- Auditing accounts
- Fund-raising
- Planning a military invasion

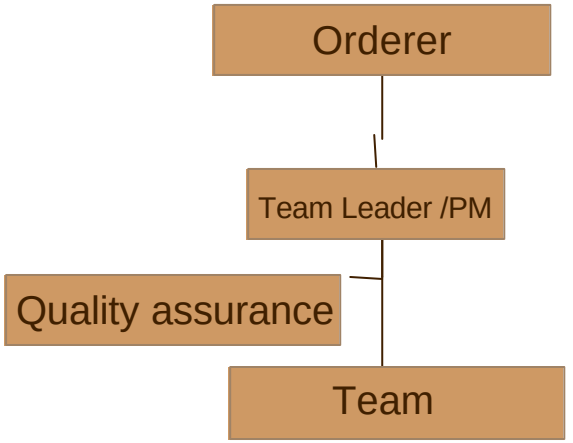
- Building construction
- Movie making
- New product R & D & introduction
- Launching a course
- Designing an advertising campaign
- Computer system development

The project players– one view



Project organization





Organization options (1)

- independent project
  - members have no other tasks (hired to project)
  - total responsibilities (financial, quality)
  - other organizations only guide and help
  - BIG projects
- matrix organization
  - members have no other tasks (lend to project)
  - reports to project manager & organization
  - in charge of objectives & results
  - other organizations as experts

Organization options (2)

- individual organization
  - only project manager is hired
  - project manager “buys” services from organizations
  - those organizations are in charge of results, project manager coordinates

Management...

- Estimation and scheduling
  - estimate the size of project
  - estimate the effort needed to build a product
  - estimate the schedule

  - accurate estimation increases effective planning, which increases efficient development

Management..

- planning activities
  - estimation and scheduling
  - people (how many, skills, when, who)
  - organization of the team(s)
  - lifecycle model
  - risk management
  - strategic decisions
    - features
    - develop or buy

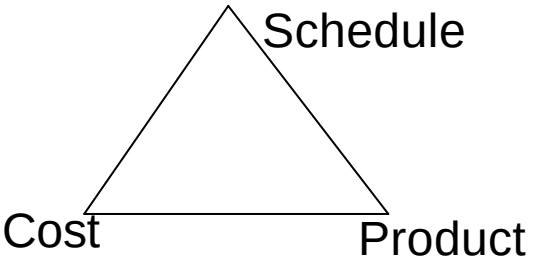
Management

- tracking
  - a project to follow the plan
    - schedule, cost, quality, targets, features
  - management level
    - tasks lists, status meetings & reports, milestone reviews, budget reports, management by walking around
  - technical level
    - technical audits & reviews, quality gates

Project management

- controls three corners of trade-off triangle
  - schedule, cost, product

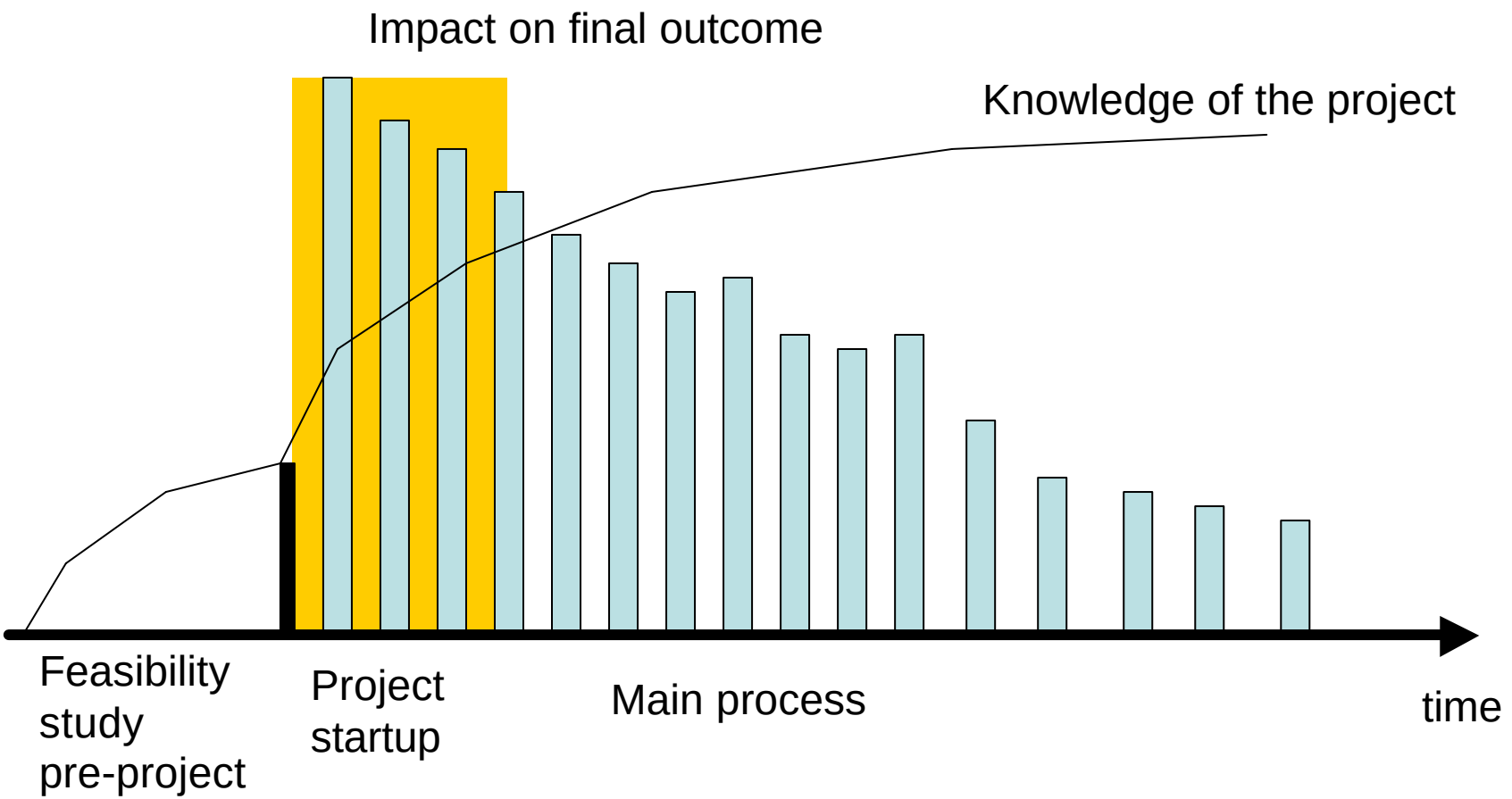
”Pick 2 of 3”



- consists of determining
  - size of product (functionality, complexity)
  - allocating resources
  - creating a plan for applying these resources
  - monitoring & directing the resources

Project timeline

Source: Torbjörn Wenell: Wenell om project



Project and planning tools

- There is a lot of project planning tools and software available
  - Do they really help us?
- The project planners are not any more ”needed” ....

The people

- Project manager
  - The one that should make all happy...
  - Motivation, organization, ideas and innovation
- Team leaders
  - People-intensive activity (good practitioners might make poor team leaders)

Team/project manager

- Set realistic project goals
- Wisely allocate tasks to team members
- Run meetings
- Manage time
- Communicate
- Manage shared group documents
- Roles of team leaders / team members

How to manage a high-performance team ?

- establish a vision
- create change
- manage team as a team
- delegate tasks to the team
- leave details to team
- follow up on decisions (maintain commitment)

What is takes to be a good project manager

Communications (84% of the respondents listed it)
- Listening
- Persuading

Organizational skills (75%)
- Planning
- Goal-setting
- Analyzing

Team Building Skills (72%)
- Empathy
- Motivation

Leadership Skills (68%)
- Sets Example
- Energetic
- Vision (big picture)
- Delegates
- Positive

Coping Skills (59%)
- Flexibility
- Creativity
- Patience
- Persistence

Technological Skills (46%)
- Experience
- Project Knowledge

Skills necessary for effective project managers

Planning

- Work breakdown
- Project scheduling
- Knowledge of PM software
- Budgeting and costing

Organizing

- Team building
- Establishing team structure and reporting assignments
- Define team policies, rules and protocols

Leading

- Motivation
- Conflict management
- Interpersonal skills
- Appreciation of team members' strengths and weaknesses
- Reward systems

Controlling

- Project review techniques
- Meeting skills

Keys to success as a project manager Lientz and Rea (1996):

- Communicate regularly in person with key team members
- Keep management informed
- Keep informed on all aspects of the project
- Delegate tasks to team members
- Listen to input from team members
- Be able to take criticism
- Respond to and/or act on suggestions for improvement
- Develop contingency plans
- Address problems
- Make decisions
- Learn from past experience
- Run an effective meeting
- Set up and manage the project file
- Use project management tools to generate reports
- Understand trade-offs involving schedule and budget
- Have a sense of humor

The team

- The software team
  - What teams to form, size, structure?
  - Distribution of skills
- How to manage the team?
  - Democratic decentralized
  - Controlled decentralized
  - Controlled centralized

Being a team member

- Take responsibility
- The team meeting is your meeting
- Contribute to the process
- Be positive. But do not overdo.
- Have fun, share your fun

About communication

- verbal communication
  - language, quality of spoken lang. , tempo rhythm, pitch articulation
- nonverbal communication
  - appearance, facial expressions
- written
  - books, journals, daily papers, memos etc, emails

Communication & Projects

- Group of experts
- Limited time resources
- Often problem solving situation
- Strong goal orientation
- Responsibilities for other parties

Small group communication

- Groupthink
- Norms
- Agenda setting
- Roles (information giver, information seeker, elaborator, initiator, administrator)
- Leadership (authoritarian, consultative, participative, laissez-faire, shared etc.)

Team communication tools

- E-mail
  - e-mail lists?, who is responsible, moderator?
  - problems with e-mail
- Telephone
  - fast problems solving
  - no ”automatic” documentation
- Computerized project management system (Document databases)

Types of communication

- Formal, impersonal approaches
  - Documents
  - Project milestones
  - Error tracking reports
  - Source code
  - Repository data
  - Project control tools
- Formal, interpersonal procedures
  - Design reviews
  - Requirements reviews
  - Status reviews
  - Code inspections
- Informal interpersonal procedures
  - Group meetings
- Electronic communication
  - Electronic mail
  - Project bulletins
- Interpersonal network
  - Discussions with peers

Effective team meetings

- Use an AGENDA, distributed in advance
  - People should know what is to be discussed
- Use team meeting for
  - Analyzing, reporting what has been done
  - Plan what should be done next
  - Making decisions
  - NOT FOR DOING THE WORK
    - Exception: ”brain-storming activities”

Most important comm. skill

- What are the communication skills needed in a project?
- What is the most important communication skill a person involved / manager should have?

Simple AGENDA

GROUP A MEETING, DC 3101 Nov 7. at 10.15

Present: NN, NN, NN, NN

AGENDA:

* Code status (dev manager)
* Decision on testing tools
* The documentation templates (process manager)
* Test plan (testing manager)
* Next meeting

Agenda distributed 1-10 days before meeting

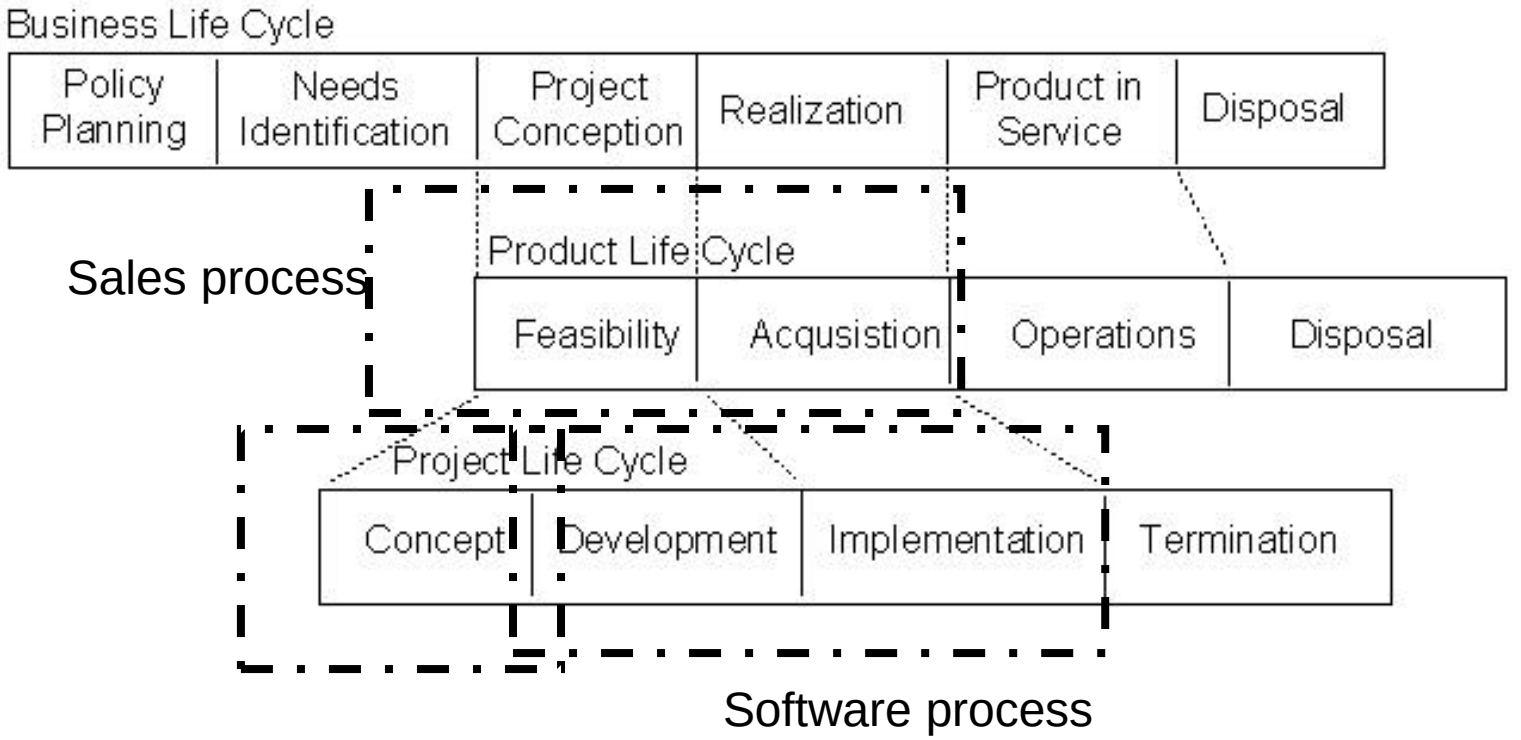
The process

- Some process is normally ;) used for generating software
  - linear
  - prototyping
  - RAD
  - incremental
  - spiral
  - WINWIN
  - component-based
  - formal methods

Process / product

- Example: Software process involving
  - Customer communcation
  - Planning
  - Risk analysis
  - Engineering
  - Construction and relase
  - Customer evaluation
- Map each of these activities to the product functions

Project lifecycle relationships



Finally

- My personal favorit methodology:

Keep

It

Simple

Stupid!

- Break down the big picture to simple sub problems
- Solve the simple problems with simple methods
- Look on the essentials
  - What are we trying to do
  - What will be done, by when?
  - Who is responsible for a function?
  - How will the job be done
  - What resource do wh need