

# **Acquiring and Developing IT Infrastructure**

# IT projects show poor success rate

- Many studies have been made about success of IT projects
- Results of these studies show poor success rate:
  - 35% projects are cancelled during the project
  - Over 50% projects exceed project budget estimate at least by over 150%
  - About 10% of big company, 15% medium size companies, 20% small businesses projects succeed in schedule and budget planning

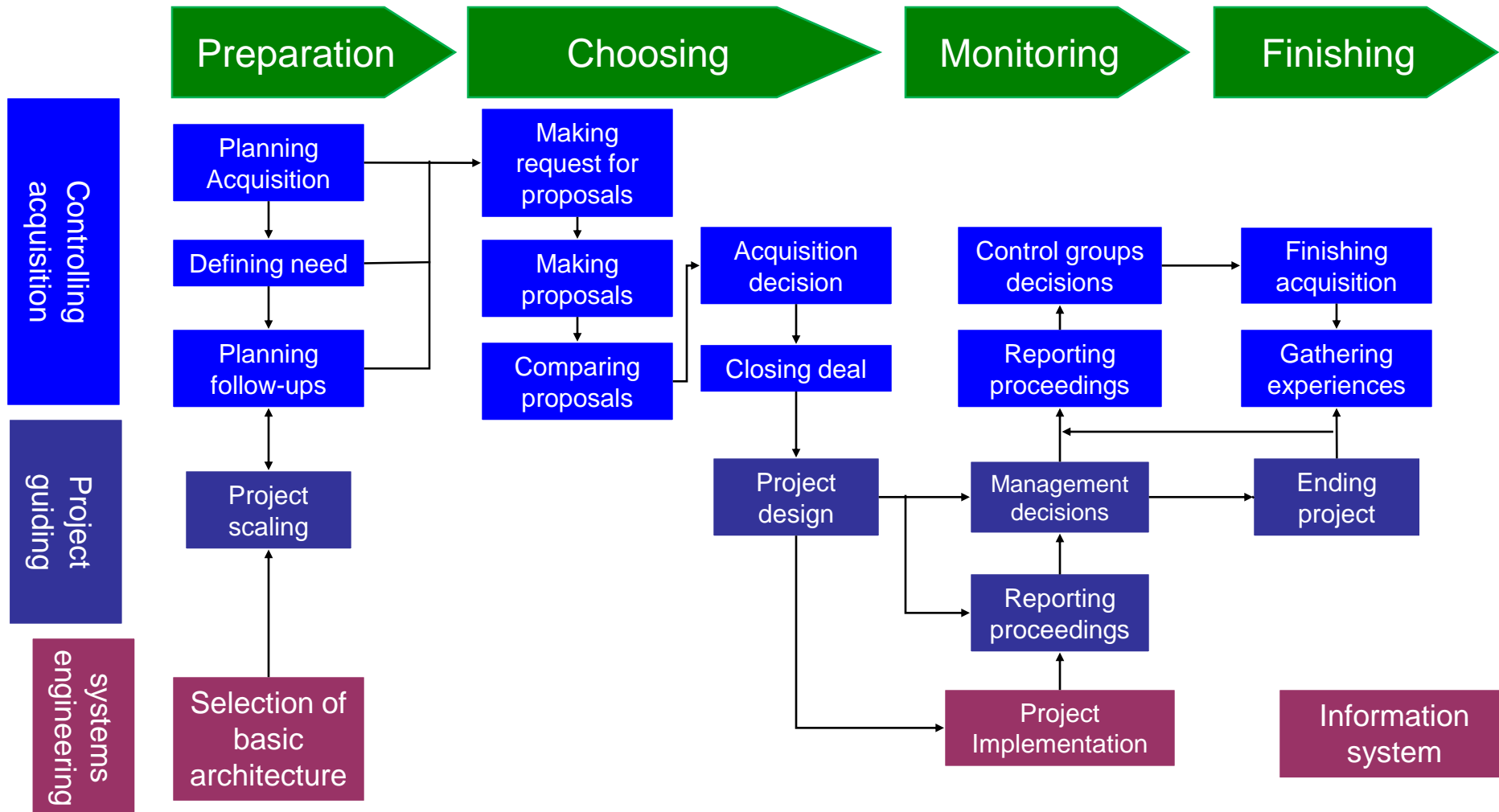
# Factors for success

- Its good to know and realize how hard it is to succeed in IT-project, this helps to put expectations into right place
- There are various reasons why IT-projects fail but what helps to succeed in IT projects?
  - Management support
  - Commitment and feedback from client and end-user
  - Motivated and competent people working in the project
  - Realistic goals
  - Properly done requirements specifications
  - Sufficient monitoring and guiding

# IT Acquisition Model

- A 4 phased model to help in acquisition process and to minimize project risks
  - Preparation
  - Choosing
  - Monitoring
  - Finishing

# IT acquisition process



# Preparation

## ● The overview of acquisition

### ● Strategic planning

- Planning of strategic goals for IT, organizations business activities strategies and operational activities of a company

### ● Yearly plans

- Budgeting for development projects

- More specific plans on goals and business activities regarding IT

## ● Changing organizational functions

- Every IT-project mean a change in the way things have been done before and may require large organizational changes (discussed in previous class)

# Preparation

- Preparing to investment in IT project
  - This takes significant part of managements time and interest
- Choosing between readymade system and tailored system
- Readymade system benefits
  - Possibility to reduce costs if suitable system is found
  - Existing references and support functions
  - Continuous development of system
  - Usually better documentation
  - Fast implementation
  - Less testing needed
  - Functions that were not thought about but are useful

# Preparation

## ● Readymade system downsides

- Costs start to increase if tailoring has to be done
- Maintenance costs may become significant because version upgrades etc.
- TCO (total cost of ownership) costs should be considered and possibly contact references in order to find out hidden costs
- Dependency on vendor
- People have to adapt to system, the system is not made to people
- Also compatibility to customers infrastructure, culture and standards should be checked, integrating to existing systems might be difficult



# Preparing for acquisition

- The bigger the system more careful planning it needs
- Acquisition planning is very important to the success of the project. Most important part of planning is requirements specifications
- Resources invested in planning mostly pay multiple times themselves back in later phases of the project
- Why Business case?
  - Goals
  - Costs vs. profits
    - swot-analyses
  - How to measure success or failure of project

# Preparing for acquisition

- How to lead the project through
  - Scheduling, phases and decision points
  - Resourcing of project
  - Buy or make decision? How to choose a vendor?
  - Project management, who, when, how?
  - Managing documents from project and project documentation
  - Problem solving, responsibilities, criterion for ending the project

# Preparing for acquisition

- Acquisition plan

- Plan is based on scheduling and phasing of project
- Schedule needs flexibility. Also alternative routes to finishing project in problem situations should be considered and planned
- Testing should be considered already at this point incase testing needs special arrangements:
  - Partners and other outer parties involved
  - Is infrastructure sufficient?

# Describing the need

- As part of acquisition plan, the need for acquirement is defined into need for change of present situation
- Benefits have to outweigh the costs, unless the change is forced i.e. changes in laws etc.
- Its best to do requirement specification as detailed as possible before choosing the supplier of IT infrastructure.
- Expectations for the results of the project may differ, so mutual vision of final product with every participating party should be accomplished through communication

# Goals, costs and benefits

- Many companies define that IT-investments should return the investment (TCO) back in 2-3 years time including interests
- Usually investments are big in early stages but benefits grow in the late stages of product lifetime

# Goals, costs and benefits

- Investment calculation

- One-time investments

- Licenses
    - Hardware
    - Bought services (installations etc.)
    - Training of own employees

- Continuous investments

- Maintenance
    - Leasing payments
    - Help-desk services

# Goals, costs and benefits

## ● Examples of benefits:

- Reducing costs in material and/or personnel costs
- Increases in sales
- Competitive advantage
- All benefits can't be measured in money, because all requirements are not quantitative and neither are their benefits

## ● Decision making criterion

- At this point main criterions which are needed for acquiring decision regarding vendor and system are presented
- Also choice of letting present situation continue should be considered

# Scheduling and phases

- The whole project is divided into continuous phases, phases are marked into a schedule, between phases are decision points where decision on moving to next stage is made



# Architecture

## ● Choosing technical architecture depends on:

- Existing architecture and IS 's
- Infrastructure
- Resources and services available
- Functional requirements

# Software components

- Copyright issues should be considered.
- How is future development handled on the part of bought component (especially in case of bankruptcy of vendor)

# Services required

- Responsibilities and work should be divided in a written contract between vendor and customer
- Requirements management can be done by own employees, vendor or outside consultant. This is very important part of project and should be carefully considered between options.
- Outside consultant can be very helpful in:
  - choosing vendor
  - making requirements specifications
  - investigating market for readymade software or components
  - planning testing and approval of final product
  - helping communication between client and vendor

# Acquisition policy

- In most cases call for bids is arranged after decision of using a vendor. It takes time and resources but is the only effective way of making sure that vendor and the price is right
- In acquisition plan, communication and process of dealing with vendors should be stated.

# Acquisition policy

- Many companies have "IT-partners" as a regular vendor, but these companies should also be compared to others
- Contract policy should be stated in the acquisition plan.
- Contract flexibility should also be stated. which are the things that are necessities and which are optional, these constraints should be mentioned also in request for proposal
- Acquisition plan should also tell which standards are used in the project.

# Acquisition organization

- Client should be ready to allocate enough resources for use by vendors who wish to clarify issues from request for proposal. These persons need to have enough technical competence and business understanding to answer the questions.
- Acquisition organization should be shown as part of acquisition plan and it should show:
  - Who prepares and executes the choosing process
  - Who makes the acquisition decision
  - Who participate in execution, controlling, steering and finishing of the project
- Acquisition organization must have the authority to make decisions it needs

# Controlling the whole acquisition

- Responsible people and units for controlling and preparing the decisions have to be named
- A decision group should be formed of technical and business professionals and a project manager should be appointed to lead the group
- A decision group is not necessarily the same as project team who handle the implementation

# Controlling the whole acquisition

- A steering group is formed of business and information management professionals
- Decision for acquiring is made by the responsible party in organization, basing the decision on recommendations by decision group, steering group and management group
- Each project reports proceeding of project to steering group
- Project is formed of project group and management group, both have members from client and vendor. Project group reports to management group.
- In small projects management group and steering group can be the same



# Project management procedure

- Management procedure of project should described for example:
  - Resource control (estimated and used hours and money)
  - Schedule control
  - Documentation plan
  - Problem and risk management
  - Support and quality control plans
  - Criteria for canceling the project

# Problem and risk management procedure

- Risk analysis is used to supplement SWOT-analysis
- In risk analysis threats to accomplishing the goals of a project, evaluation of probability and criticality of risks and measures to minimize effects of risks are researched
- Risk analysis should be done several times in a project
- In next list there are examples of risks that can be noticed in acquisition planning and decision

# Examples of risks

Business risks	<ul style="list-style-type: none"><li>❖Planned change cannot be implemented</li><li>❖Needs or settings of business are changed</li><li>❖Needs of business actions are not known well enough</li></ul>
Risks involving the complexity of project	<ul style="list-style-type: none"><li>❖Project is big</li><li>❖Project is on territory of several organizational units</li><li>❖Project needs uniting of several different skills</li><li>❖Requirements for security and usability are high</li><li>❖Project has several simultaneous phases</li><li>❖Project is not well phased</li><li>❖Project is dependent of results of other projects</li><li>❖Success depends on synchronizing the operations of outside organizations</li><li>❖Success needs combining of different business cultures</li></ul>
Human resource involved risks	<ul style="list-style-type: none"><li>❖Technology used, operating area, methods and working habits are known poorly</li><li>❖Little experience on project work</li><li>❖Poorly motivated and committed users</li><li>❖Users are inexperienced on technology and its implementation, testing and training</li><li>❖Management is not committed to project</li><li>❖Project members do not have enough time</li><li>❖Expected changes in personnel in project members during project</li></ul>

# Examples on risks

Risks in implemented technology	<ul style="list-style-type: none"><li>❖ New and untested technology</li><li>❖ Unestablished technology</li><li>❖ Scaling of capacity is unsuccessful</li><li>❖ Peripherals, computers, software has to be tailored a lot</li></ul>
Risks involving clients, partners and vendors	<ul style="list-style-type: none"><li>❖ Vendor or partner is not financially solid or is wrong size compared to project</li><li>❖ Vendor or partner does not have time for this project</li><li>❖ Many partners in one project</li><li>❖ Responsibilities and who does what is not clear on contract</li><li>❖ Effects on clients functions are not known</li></ul>
Risks in project management	<ul style="list-style-type: none"><li>❖ Poor project culture: Project management processes and techniques are on poor level</li><li>❖ Project manager or project member are not familiar with and/or do not use the newest techniques and instruments</li><li>❖ During project lots of demands for changes arise</li><li>❖ Management or steering group is too big and unefficient</li></ul>

# Examples of risks

## Risks involving outcome of the project

- ❖ Risks of using the projects outcome has not been analyzed properly
- ❖ Reactions of clients, users, etc. are stronger and more negative than expected
- ❖ Outcome of project is too difficult to use
- ❖ Outcome of project is not flexible enough
- ❖ Technology becomes too old-fashioned before the end of products economic life-cycle
- ❖ Availability and continuing of maintenance and support is unsure
- ❖ Security of information is not adequate
- ❖ Currency rates, evolving of prices or taxation becomes uneconomical

# Choosing

- Choosing solution and vendor
  - Making request for proposal
  - Comparing proposals
  - Decision
  - Contract
  - Preliminary project plan

# Starting choosing process

- Before beginning choosing process one should check that acquisition plan is made properly and that requirements specifications are done thoroughly
- It's important to consider choosing as a project with beginning, goals, results, schedule etc.
- Choosing group is ideal with 3-6 persons who have knowledge about buying, project work, technical and methodological knowledge about IT projects and business point of view

# Group that chooses vendor

- Knowledge about buying process
- Knowledge about evaluation of solution requirements, knowledge about functional, technical and quality requirements and features
- Knowledge about IT projects and systems development for estimating project plans schedule and costs
- Evaluation of prices and charging requires economical and investment knowledge as well as knowledge about market prices, cheapest is probably not the best solution, also vendor should have some knowledge of background of a client



# Call for bids

- Call for bids is based on acquisition plan, some parts of acquisition plan are described more specifically, especially evaluation procedure of vendors and proposals
- Should be short and compact, bigger totalities should be presented in appendixes as well as parts that are not as important
- It's important to prepare the call for bids well, because it determines the quality of proposals one is about to receive
- Non-disclosure agreement (NDA) should be made if there is information that company wishes not to be public

# Call for bids

- If a company receives many proposals it is reasonable to make rounds of calls for bids, after every round some of possible vendors are dropped from next round. Usually it is polite to have more specific proposals in the later rounds so that as little extra work as possible is made
- General view of call for bids should be done first
  - Background, need and target of acquisition
  - Goals of acquisition , how functionality of acquisition is linked to needs of change
  - Acquisition interest group are the parties that are involved in using the final product and who are involved in the project
  - Constrains are things that are not included in acquisition

# Phasing, scheduling and responsibilities

- Typically systems development model is used in phasing the project
- In call for bids there is schedule where important dates are, when will the bid have to be in, when decision is made, when the kick-off meeting for project is and when IT should be ready for use
- Project members are probably the most important factor to the success of project, especially project leader, there for, it is recommended to ask the vendor to show CVs of the project members

# Contract terms

- Written contract can be validated by lawyers or experienced person who used to make contracts
- Payments should be phased with project phasing so that vendors' interest is to get phases ready to be paid for them. It's also reasonable to define a warranty sum which is paid after the warranty time is over and certain conditions met.
- It's also wise to determine the costs of maintenance and ownership of source code at the contract
- Also issues of copyright have to be checked

# Pricing

- Its possible to use different pricing models:

- Pricing by the hour

- Risk is mainly on client

- Pricing by contract

- Risk is mainly on vendor

- Pricing by sharing risks

- Vendor represents an estimate from hours needed to finish the project and the costs for it. If the hours are not enough to complete the project the next hours are much cheaper. A certain max sum can be set. There have to be a way for both parties to control the working hours needed for project. If all the hours are not needed the difference can be given to project members as a motivational bonus

# Pricing

- Pricing by function points

- In call for bids the “size” of project is represented and it is asked to give price per function point
- The positive side of this model for vendor is that changes of system will be priced automatically, for client this reduces the risks because the vendor is committed to certain price per point
- Also an effective tool for change management because the price of each change is easily calculated

# Requirements for vendors

- Most important requirements for vendors are
  - financial state of vendor
  - references of vendor
  - using of sub-contractors
- These requirements save time and resources, if a vendor does not meet the criteria they don't make the bid or bid is easy to drop out

# Criteria for evaluation

- Criteria on which the vendor and their solution is evaluated by is listed and described in call for bids
  - Criteria have different value to decision



# Comparing bids

- Bids are evaluated first separately
  - the best offers will be taken to next round (comparing more than three is difficult)
- Then bids are evaluated together and compared to each other, this also may mean new more explicit call for bids for the chosen ones or winner might be chosen through negotiations and more specific evaluation of bids

# Comparing bids

- Giving points
  - Each member of group that chooses vendor gives points to his/hers special knowledge area, after each part of each bid has been thoroughly evaluated the group together decides the points given to the certain answer
  - Points will be put into a chart where bids can be evaluated simultaneously
- After finalists are clear they should be met face to face in order to find out compatibility of habits and organizations, how easy or hard it would be to work together

# Objectives of evaluation in bids

- Organization of vendor
- Vendors view on acquisition
- Offered solutions and services
- Implementation plan
- Project organization and plans
- Prices
- Terms of contract
- Terms of payment and schedule of payment
- Availability of maintenance
- Copyright issues
- Warranty

# Possible problems in comparison

- Functional specifications are not done well enough
- Bids are non-comparable
  - Maybe tactic of vendor to try to underline good sides of own solution
  - Most often is result for call for bids which is not made properly or is contradicted or not enough specific
  - Missing of choosing criterion
  - Wrong people in group that chooses the vendor
  - Hidden costs
  - Effect of emotions in choosing
  - Lack of ability to see the big picture
  - Too much value on points given for bid
  - Foreign vendors

# Making acquisition decision

- Confirms the vendor which had a best bid
- Decides that investment is worth doing
- Argumentation of acquisition
- Checking investment calculations
- Confirming schedule and phasing
- Confirming funding
- Notifying results to all parties involved in process

# Monitoring

- Audits on progress of project should be held with project group and steering group at steady pace
- In planned decision points the results of phases are accepted
- In project group, steering group and management group changes to project are discussed and decided

# Finishing

- On finishing phase, conclusion on acquisition and project are compiled and restored for future learning processes
- Project manager writes final report on project, then the report is compared to original project plan
- It's important to learn from what was done right and what went wrong
- Management group verifies the final report
- Functions of company should be adjusted to new circumstances as rapidly as possible to fully benefit from the new technology