

Fachhochschule Frankfurt am Main
Fachbereich 2: Informatik
SS 2008

IT Project Management

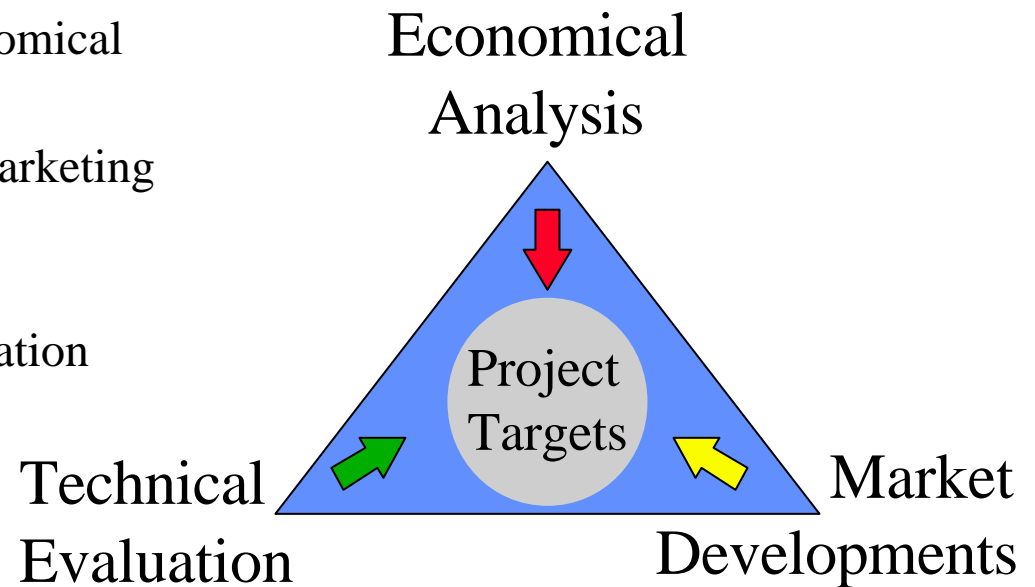
Lecture 2:
Pre-Conditions of Project Management
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The Business Plan

- Projects, and in particular IT projects aim for a certain goal.
- This goal is typical a set of assumptions about the functional (technical) achievements of the project and the corresponding business advantages accompanying the realisation of the project.
- Depending on the project, this might be a
 - direct and measurable economical benefit, or yield
 - an indirect and perhaps a marketing advantage with respect to our competitors, or
 - at least increasing the reputation against our customers, or supplier chain.



External Business Conditions

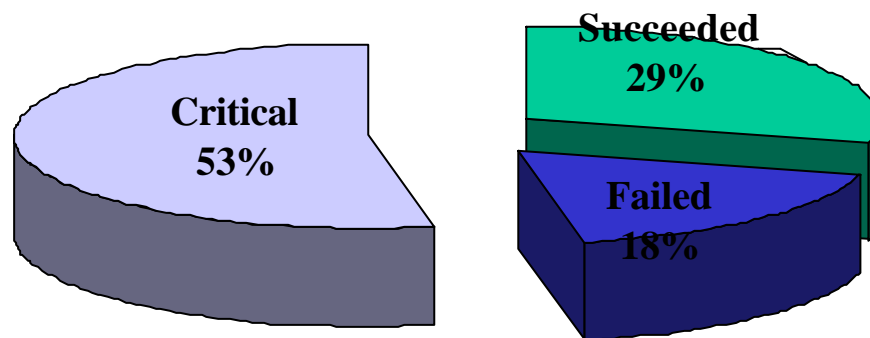
- Most IT projects are driven from outside (except for a few).
 - This makes management 'fed' about IT projects: "Why do we have to spend again money for this development; the old solution is working well".
- IT projects can be characterised to be
 - market driven (by competitors, standardisation requirements, quality standards)
 - cost driven (reduce production/operating/maintenance costs)
 - technical driven (introduce innovation and/or substantial improvements).

Considering the volume of IT projects under the current market situation, the economy, the ratio between these dependencies is about 6:3:1



Business Plan and Moving Markets

- A Business Plan has to be carried out,
 - which incorporates the current decisions and
 - provides a guideline for the Project leader and the Project team - during every phase of the project.
 - A lot of IT projects focus on solutions for which the original assumption has already been superseded.
 - The reason for this situation can be characterised due to
 - external factors: competition, moving market situation, technical risks
 - internal factors: limited resources, challenging time-line, underestimated budget

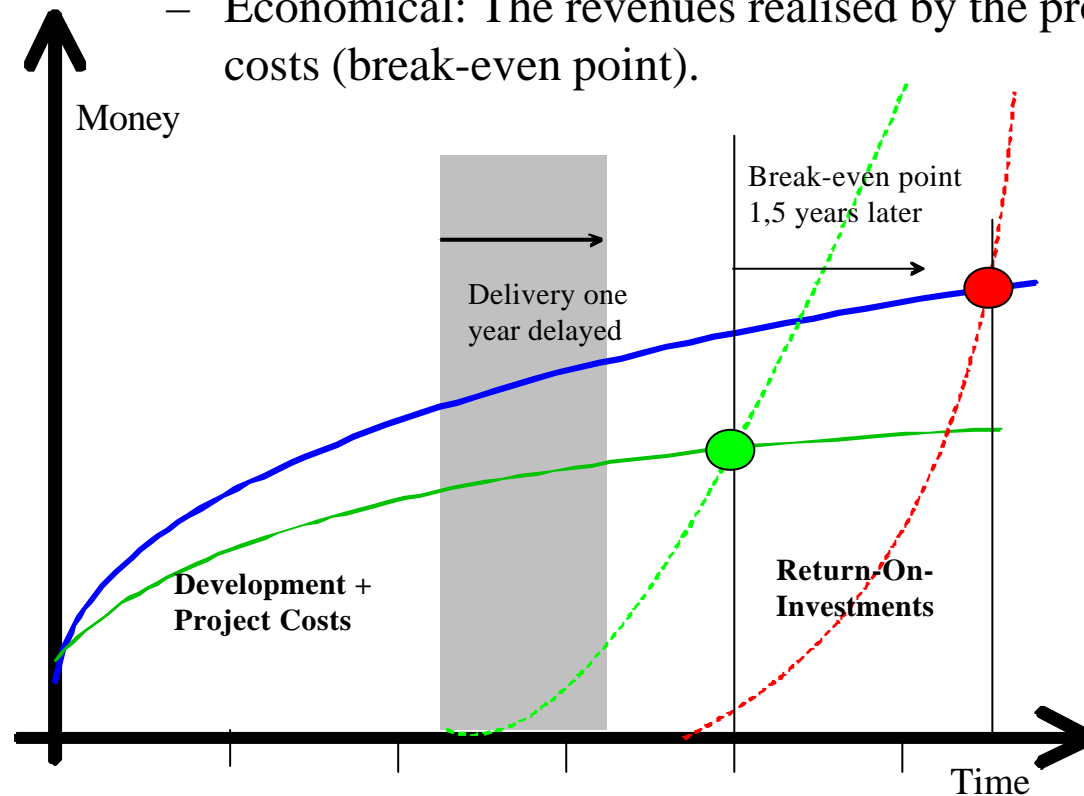


[Standish Group 2004]



Return on Investment (ROI)

- From the company's perspective an IT project can be considered successfully, in case one of the following targets have been met:
 - Functional: The product fulfils it's technical requirements.
 - Market share: The products helps to improve the company's market position.
 - Economical: The revenues realised by the product exceed the development costs (break-even point).



Project Mission Statement

- Once the projects targets are defined and upper management has finally committed to provide the required resources (during the time, the project spans), the final 'Go' for the project has to be announced with the project's Mission statement.
- The Mission statement has to fulfil the following criterion's:
 - Formal: The wording has to be clear and concise; usual phrases have to be avoided (i.e. 'most important', 'lighthouse project'), the targets of the projects have to be named explicitly.
 - Content: The project's targets have to be reachable; they have to be confined, thus do not depend on external circumstances.

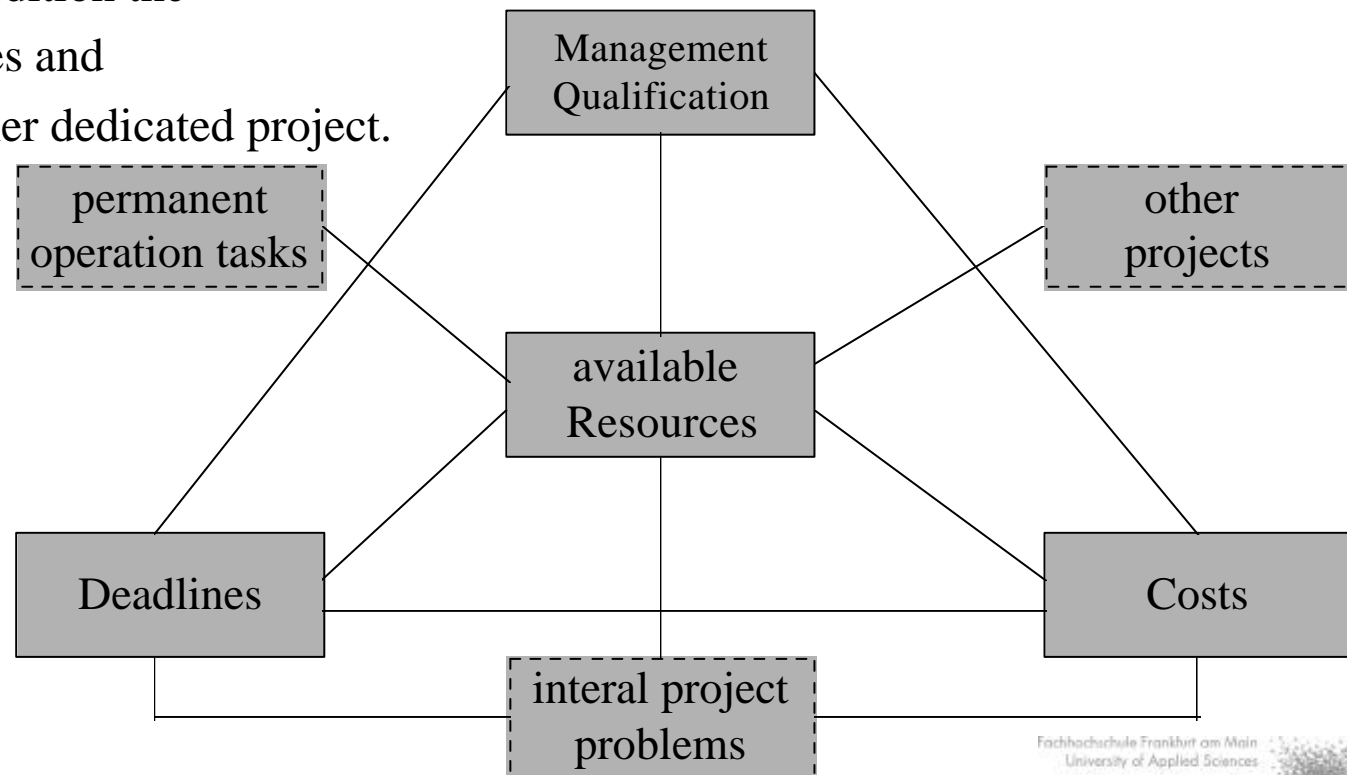
The Mission statement should act as guideline for all project team members and of course the PLs.

Upper management has to convince everybody that they stand undoubtedly behind the Mission statement and that the success or failure of the project is considered their own success or failure.



Project Management in Conflict

- IT projects have to deal with
 - limited resources and
 - competition among other projects.
- It is one of the initial task of project management not only identify
 - the risks but in addition the
 - potential shortages and
 - conflicts for his/her dedicated project.



[~Litke2007]

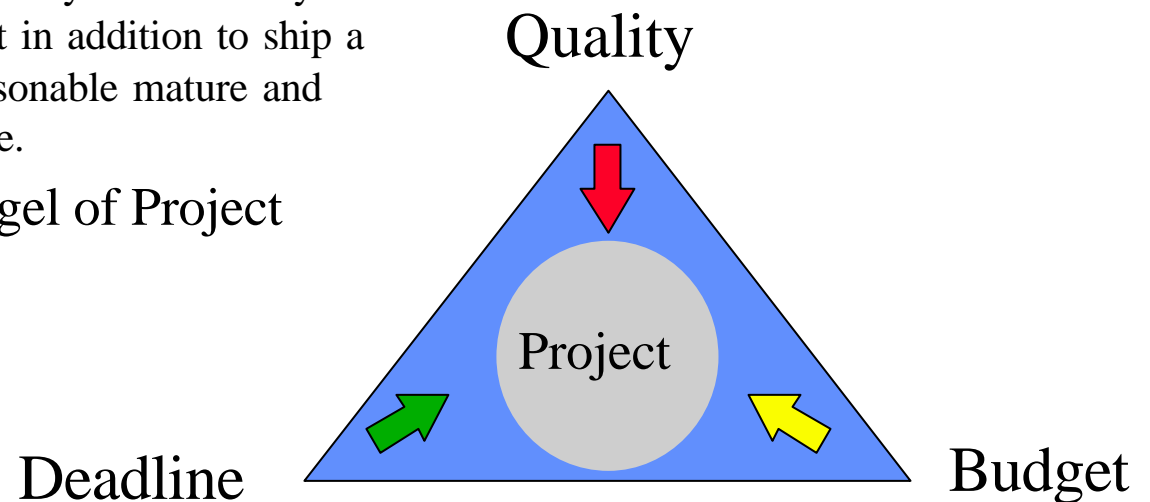


Balancing Budget, Deadline, and Quality

- The responsibilities of IT project management is
 - to provide the product in time,
 - to meet the forecasted budgets and
 - to achieve a customer-acceptable quality.

This includes not only to meet the functional requirements (as probably beacons by marking already), but in addition to ship a product which is reasonable mature and considerable bug-free.

- This is the Magical Triangel of Project Management:



Effectiveness vs. Efficiency

- Limited resources not allow demand *effectiveness* but in addition *efficiency*:
 - The goal has to be reached with as little as possible resources.
- Common guidelines:
 - Avoid complex project structures and project plans; complexity is often aligned with imponderability.
 - Allocate resources when it is required and don't delay them; delay is typically a synonym for less efficiency.
 - Identify problems and solve them as soon as possible; otherwise problems will turn into risks.



[~WieczorrekMertens2007]



Project Conditions

- IT projects don't happen in a virgin environment;
 - rather they are set up by companies which have already finished several other projects.
- The foreseen project leader has to make himself (or herself) familiar with the existing conditions the forthcoming project has to be carried out under:
 - the existing technical framework,
 - the organisational circumstances, and - most important -
 - the administrative competencies and reporting structure



Technical Frameworks (1)

- Development frameworks
 - Integrated Development Environments (IDEs) are typical for certain computer languages.
 - Today's, those framework allows to collaborate; thus developer share a common repository and the access may be client/server or web-based.
 - The development frameworks may additionally include software modelling techniques which in today's understanding is UML (Unified Modelling Language).

Those frameworks have to stay ahead the current state and version of the software modelling language. From here class- and object hierarchies can be retrieved, which makes coding effective and efficient; though not guaranteeing that the code is efficient as well.



Technical Frameworks (2)

- Source Control
 - While occasionally IDEs include a (favourite) source control system, in general this is set up distinct.
 - Typical choices are the client/server based systems Subversion or CrossVC to mention the public domain tools in the first place and IBM's (Rational's) ClearCase.
 - Most of the systems provide a commonly shared repository to be accessed by UNIX and Windows clients, which is not uncommon for e.g. Java software projects.
 - Of course these systems differ significantly the way the code is represented to the developer and how to derive a 'release' out of the sources which is called the 'build' process.



Technical Frameworks (3)

- Document Management

- Though, it is not uncommon to store development documents in the Source Control system as well, more practical and more efficient is to use a dedicated system which allows to organise and to review the documents having one central repository.
- While developers have access to and work with their IDE, architects, quality managers, and stakeholders included for revisiting the documents require a separate document management system automatically changing revision numbers, indexing the document, and providing a history of changes.

However, in practice often documents are send by mail, and the last version resides in a private folder without changed the document's revision.

- In addition, a clear structure and reliable filing to the documents is required, not to search for documents to long.

Thus the document filing should be realised in terms of URLs (Universal Resource Locators) which is commonly called hyperlinking.

A good system achieves this not only per document but rather per section, in case the document templates are structured adequately and obey a defined hierarchy.



Technical Frameworks (4)

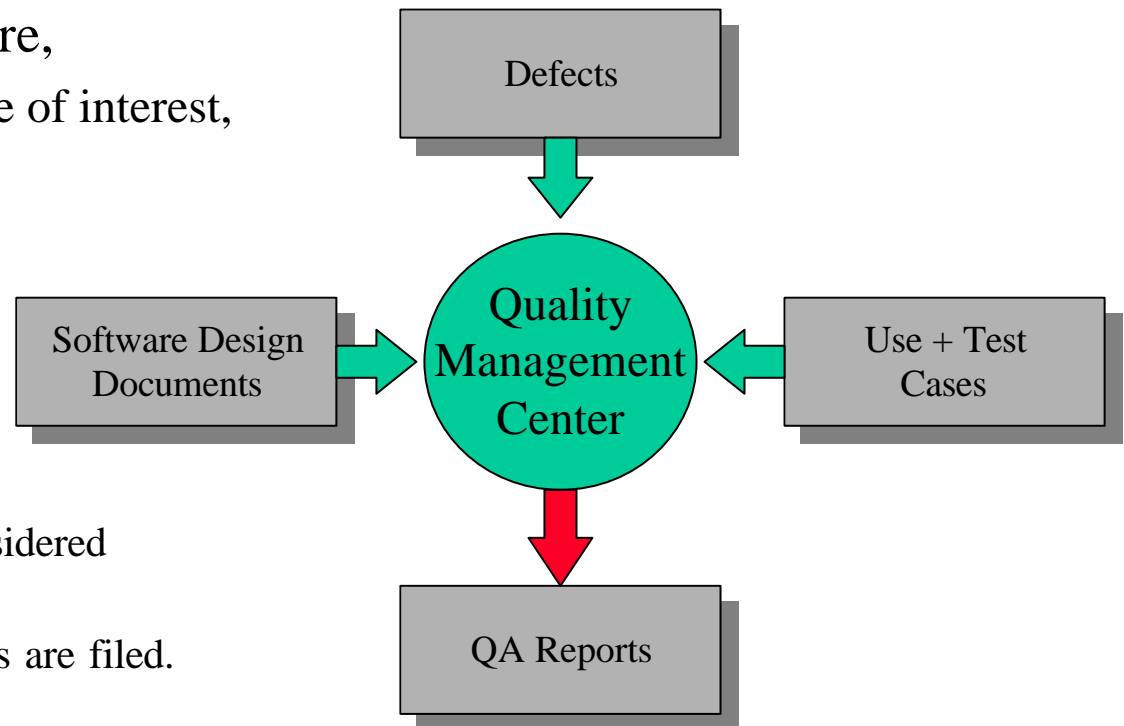
- Quality Management
 - Quality Managers can be set up in the current project as sub project leaders or they may be organised separately. In this case, they report directly to upper management and don't need to follow the advises of the PL.
 - Typically the quality of software is tracked by a special tool, which is essentially a database application with a (Web) front-end to enter and to follow bug reports.
 - In software development terminology, deviations of the tested software with respect to the specification is called a 'defect'.

Such systems (ie. HP Quality Center) not only allow insert defects, and to define a 'lifeline' for it in terms of the attributes priority and status, but also to combine defects with the same source.



Technical Frameworks (5)

- While the single defect is important for the individual developer,
 - the regular obtained quality report, showing the distribution of defect priorities and correlating them with the sources tells much about the current state of achieved quality.
- In order to obtain a complete picture,
 - not only the individual reports are of interest,
 - but rather how the development of defects took place, in terms what has been tested and how intensive the tests were done.
 - A complete picture can only be obtained, if in addition
 - the Design Documents are considered and
 - the complete Use and Test Cases are filed.



Existing Project Organisation (PO)

- Project Office
 - In order to achieve continuity a well organised Project Office (PO) is indispensable.
 - Filing of documents, ordering of trips and hotel rooms, booking meeting rooms, account management, managing the team's agenda, preparing meeting documents, and many other activities are on the list of support activities.
 - The PO may act in addition as Center of (informal) contact.
 - As project manager make yourself familiar with the organisation of the PO, streamline document filing and co-ordinate important agenda items with the responsible people here.
 - Common and repetitious tasks should be delegated to the PO, which in turn has to understand it's task as Project Assistance and not just administration.



Existing Project Organisation (Time Sheets)

- Time sheets are subject of budget control and thus have to be reported to upper management.
 - Considering the financial foundation of the project, it is important to understand the following distinctive sources of the project budget:
 - Capex (*Capital expenditure*): For the budget a certain fixed amount of money is allocated to be spent until the project is finished. In particular, external consultants (like developers) are hired under the condition of a limited budget or time frame.
 - Opex (*Operational expenditure*): This money is taken out of the budget for general operations. Internal project team members may be funded by Opex means.
- A good on-line reporting system has hooks to the IDE and perhaps the QA system, relieves the team members from stupid recording of the activities and in addition improves the level of correctness.
 - The scope here is, not to control the team members but rather to identify budget and time shortages.



Existing Project Organisation (Heritage)

- It is certainly a good idea to gather information about successful and less successful projects realised by the company or under the current project organisation.
 - The bottom line here is the quality of the information.
- A good project organisation would provide a project completeness report; a badly organised project probably will leave the remnants of its work (directories and files on the file servers, code in the Source Control system) unchanged and visible for everybody.
- In addition it is worthwhile to interview the former project members and perhaps managers for 'lessons learned'.
 - For any company and organisation it is important to steadily improve the quality of project management.
 - This can be done by internal and/or external course, allowing project members to achieve certificates, and file important documents and templates as guideline for future projects.



Project Leader(s) and Rôles

- One of the most important tasks of (new) PL is to discuss and receive the necessary competence's from upper management.
- Bigger projects have at least an
 - *administrative Project Manager* being responsible for risk management and in general controlling, and a
 - *technical Project Manager* in charge of technical co-ordination and quality management. Typically, several Sub Project Leaders (SPLs) are foreseen, dedicated to co-ordinate fixed tasks and reporting PLs.
 - In addition, a *Chief or Business Architect* can be established, who is responsible to co-ordinate development with Demand Management or Marketing and perhaps acts as co-ordinator with respect to customers or partners, to whom interfaces are designed.



Project Manager Reports

- Two types of Project Manager Reports shall be considered:
 - *Standard reports*, defining in a defined and concise way the current status of the project, w.r.t. to particular sub-projects or fields.
 - *Exception reports*, which need to be raised in cases
 - the project runs suddenly out of plan,
 - a particular risk has been identified, or
 - the team (project) suffers due to a substantial crisis.
- Reporting chains and acceleration schemes have to be clearly defined, in order not to deadlock the project.
 - It is the bare responsibility of the PL to react 'well-behaved' during a crisis: regarding the project team and in particular concerning upper management.
 - The current financial crises even of large international banks show clearly their incompetence setting up and utilising corresponding exceptional reporting channels.



Budget Planing, Recruiting, Ordering

- While the budget for the project has to be allocated by upper management, the (efficient) spending of the money is one of the responsibilities of the PL.
- In case the projects does not exceed the allocated budget, certainly it is up the PL to decide where to use the money for.
 - This situation characterises perhaps 2/3 of the project lifetime.
 - Overspending is common for most IT projects.
 - Whether upper management is willing to put more money into the project depends definitively on a convincing PL.
- It is certainly helpful, if the project management made up their homework and could provide that
 - the project until now is under (budget) control,
 - the financial risk of not spending the expected amount of money to (almost) finalised project is higher rather than allocating N more Dollars or Euro to the ongoing project.



Project Controlling

- The main function (according to upper management) of the PL is to control the ongoing project and to focus it in the interests of the company.
 - Controlling is a rational method to estimate risks; thus controlling and risk management's are twins.
 - Of course there exist a thin line between real risks and reported risks.
- The example of the current bank and financial crises shows,
- that real and reported risks might not coincide:
 - In order to estimate real risks one needs measures.
 - In order to convince upper management one needs to present established methods.

In the situation of a PL, an underestimated risk may break the whole project, while an overestimated risk may block it.

Here, a good relationship to upper management is one key to survive and eventually master the crises.

