



Lab Course / Praktikum: *Project Management and Software Development for Medical Applications*

Introduction to Project Management – 02/11/2020

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Project Management – Definition

Project. A **temporary** efforts undertaken to create a **unique** product, service or results

Project management.

The application of **knowledge, skills, tools and techniques** to project activities to meet the project requirements (ISO 21500:2012)

The process of creating, organizing, and executing a **plan** in order to achieve business **objectives**



Fail to Plan, is Planning to Fail.

- Benjamin Franklin (1706-1790)



Project Management is the Key to Your Success

Learn!

Self-management

Use of planning tools

Team-working

Communication skills

Presentation skills

Gain!

Well-prepared for master's thesis and PhD

Ready to enter industry



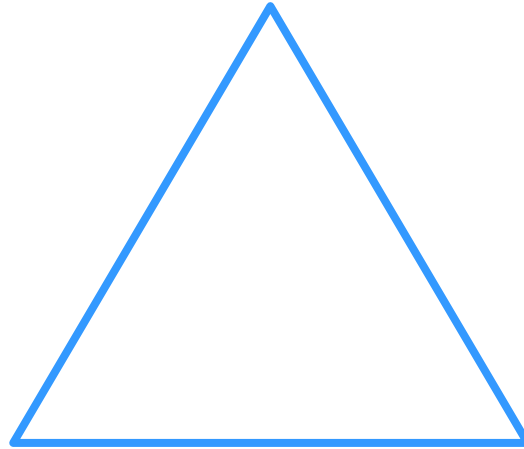
Project Manager

The main task of a **project manager** is to fulfill the stakeholders' expectations towards the project goal.

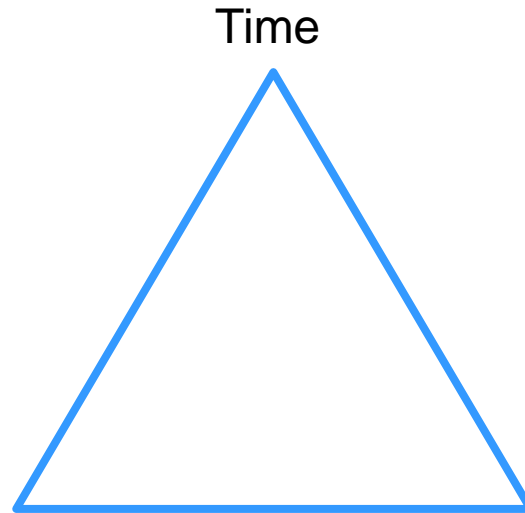
Any person or organization whose interests are affected by the project results is a **stakeholder**.



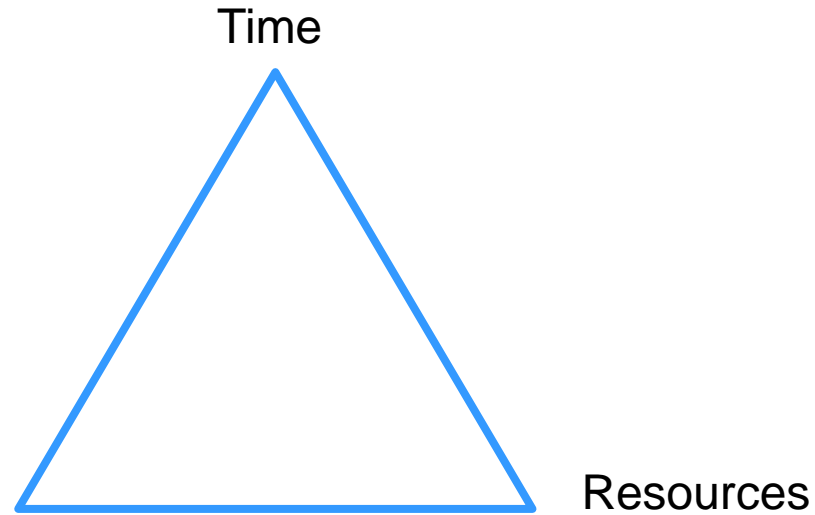
Managing the Triple Constraints: The Magic Triangle



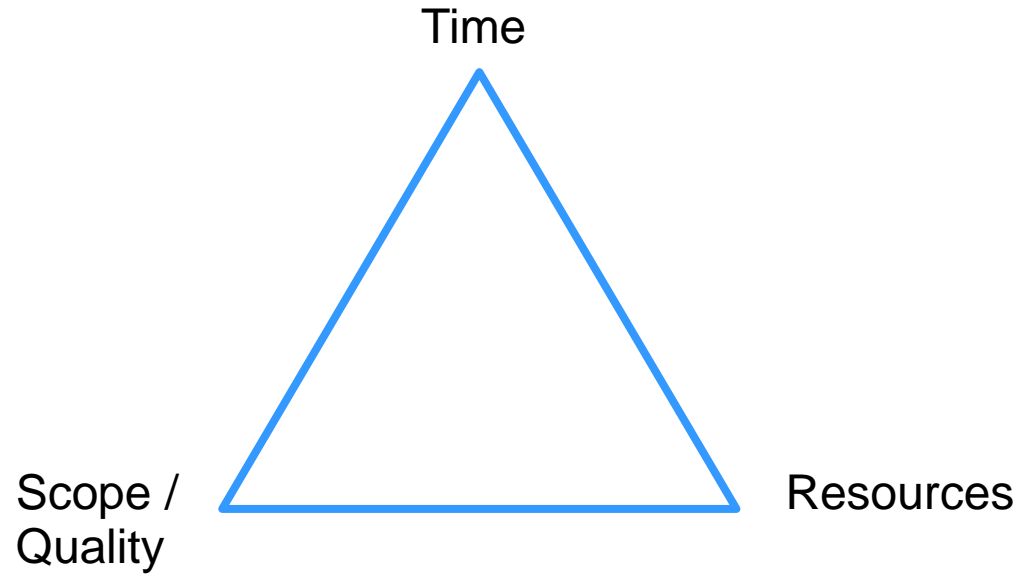
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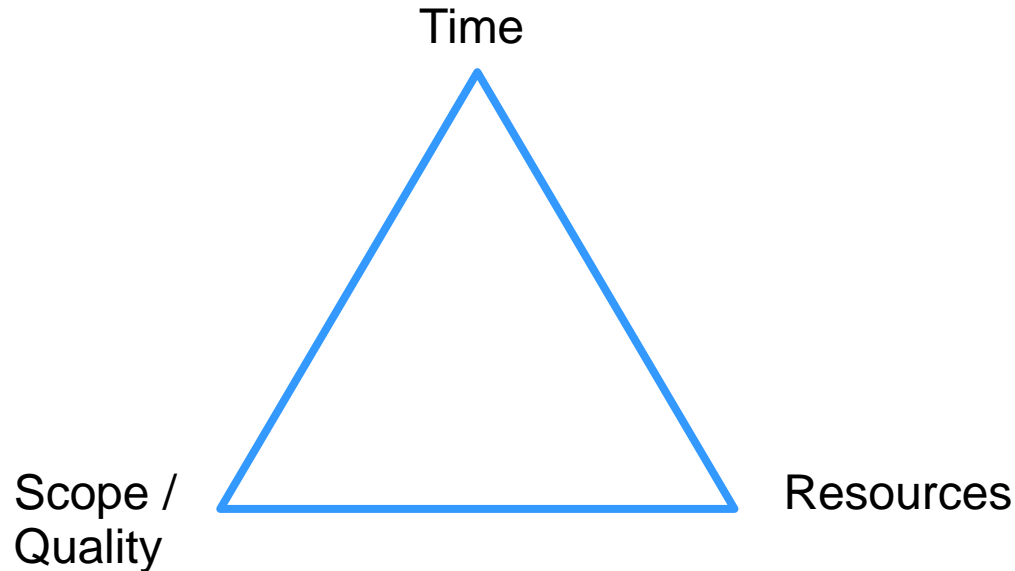
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Managing the Triple Constraints: The Magic Triangle



Keeping up with deadlines (time) might require overtime or additional staff, this increases cost.

To assure quality of the project results, additional testing is implemented, increasing the required time.

At a capped budget, development of some features might be cancelled, decreasing the quality or scope.



Why Do Projects Fail?

Missing Focus

unclear objectives

lack of business focus

Content issues

shifting requirements

technical complexity

Skill Issues

unaligned team

lack of skills

Execution Issues

unrealistic schedule

reactive planning

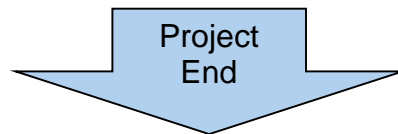
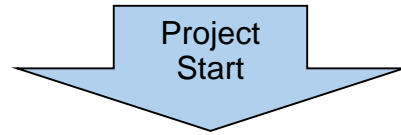




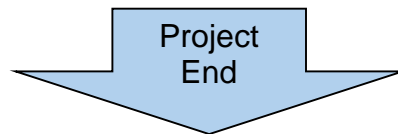
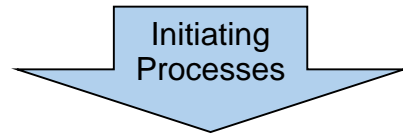
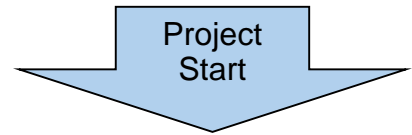
The Project Lifecycle



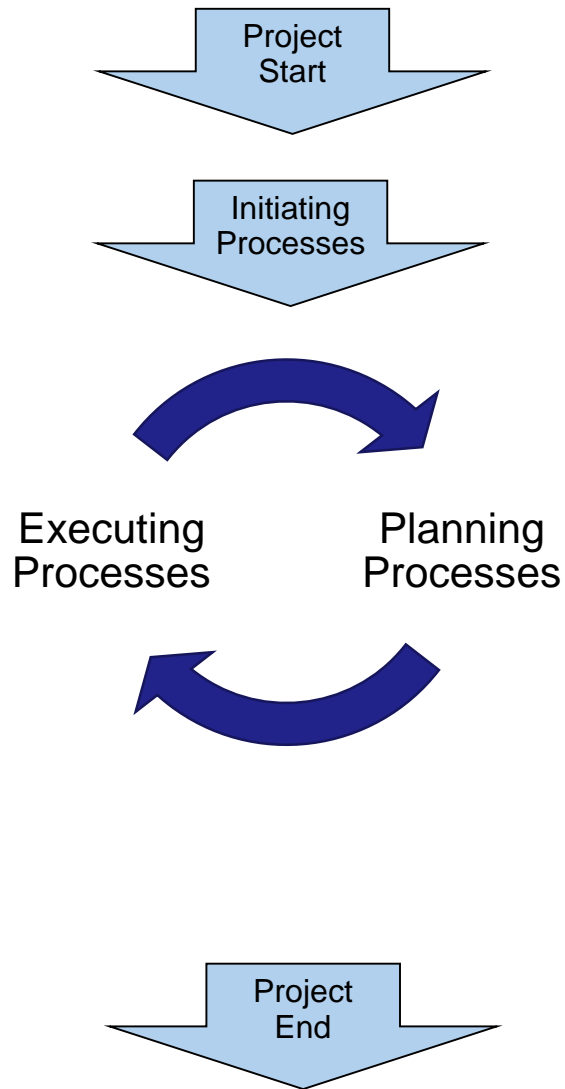
A project can be divided into 5 process groups



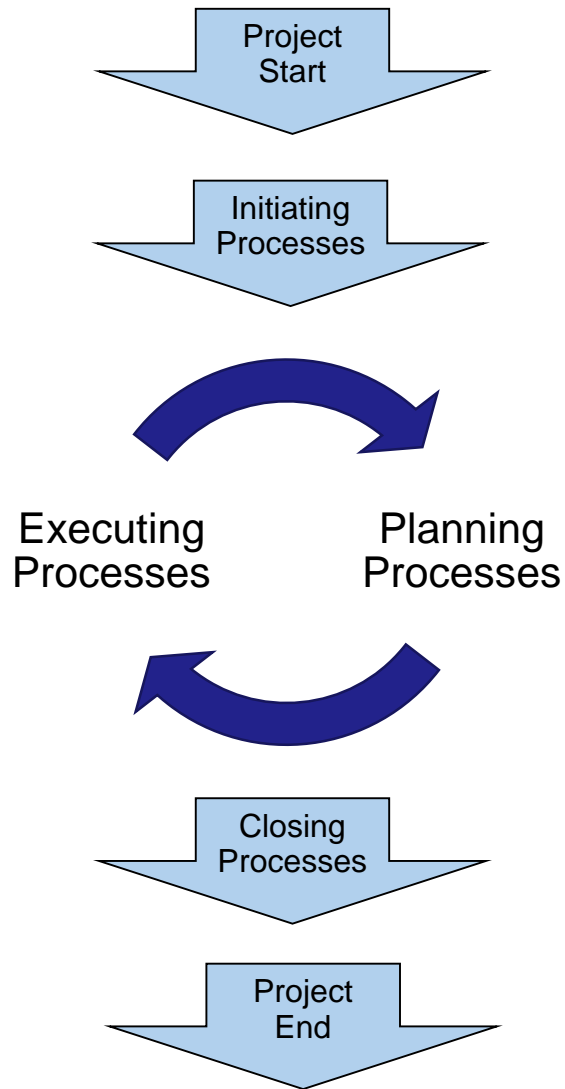
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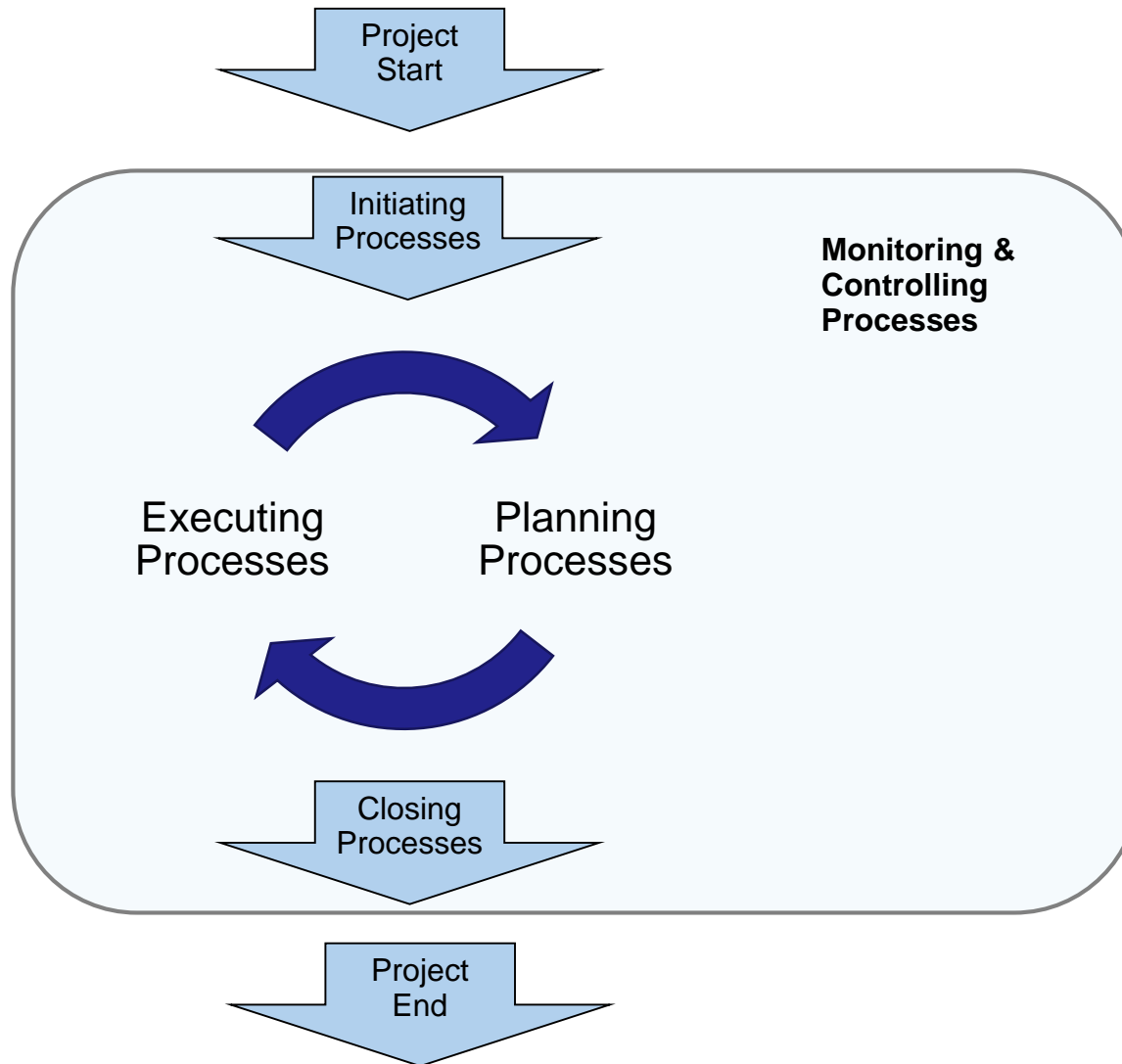
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A project can be divided into 5 process groups



Initiation Defines a New Project

WHAT?

Project scope, objectives and milestones

WHO?

Stakeholders, i.e. all important parties involved

Your tasks for this course?

Develop project charter

Project description

Identify stakeholders

you, your technical supervisor, your course tutors

who else (clinical partner, industrial partner, potential users...)?



SMART Project Goals

When you and your stakeholder(s) define the project goals, use the SMART paradigm:

Specific

Measurable

Achievable

Realistic

Time-Bound



SMART Project Goals

When you and your stakeholder(s) define the project goals, use the SMART paradigm:

Specific

Measurable

Achievable

Realistic

Time-Bound

Evaluated

Reviewed



Planning Consists of Establishing the Total Scope

Project management plan: Decide how you will handle and update all relevant processes

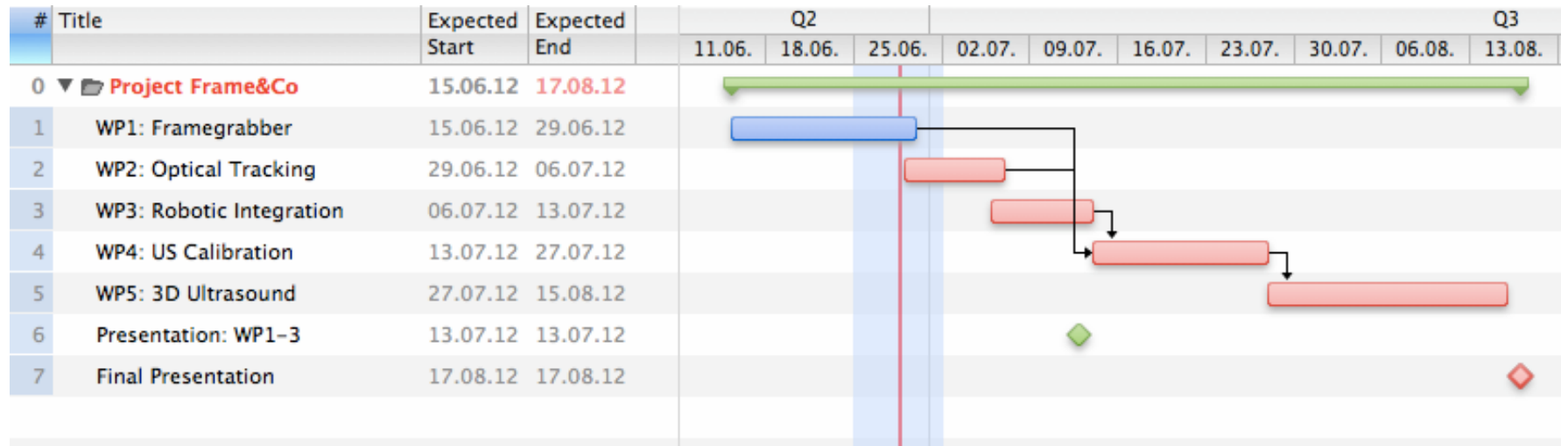
Define scope: Done by and with your supervisor

Collect requirements, identify respective tasks, define breakdown structure of work items (requirements presentation!)

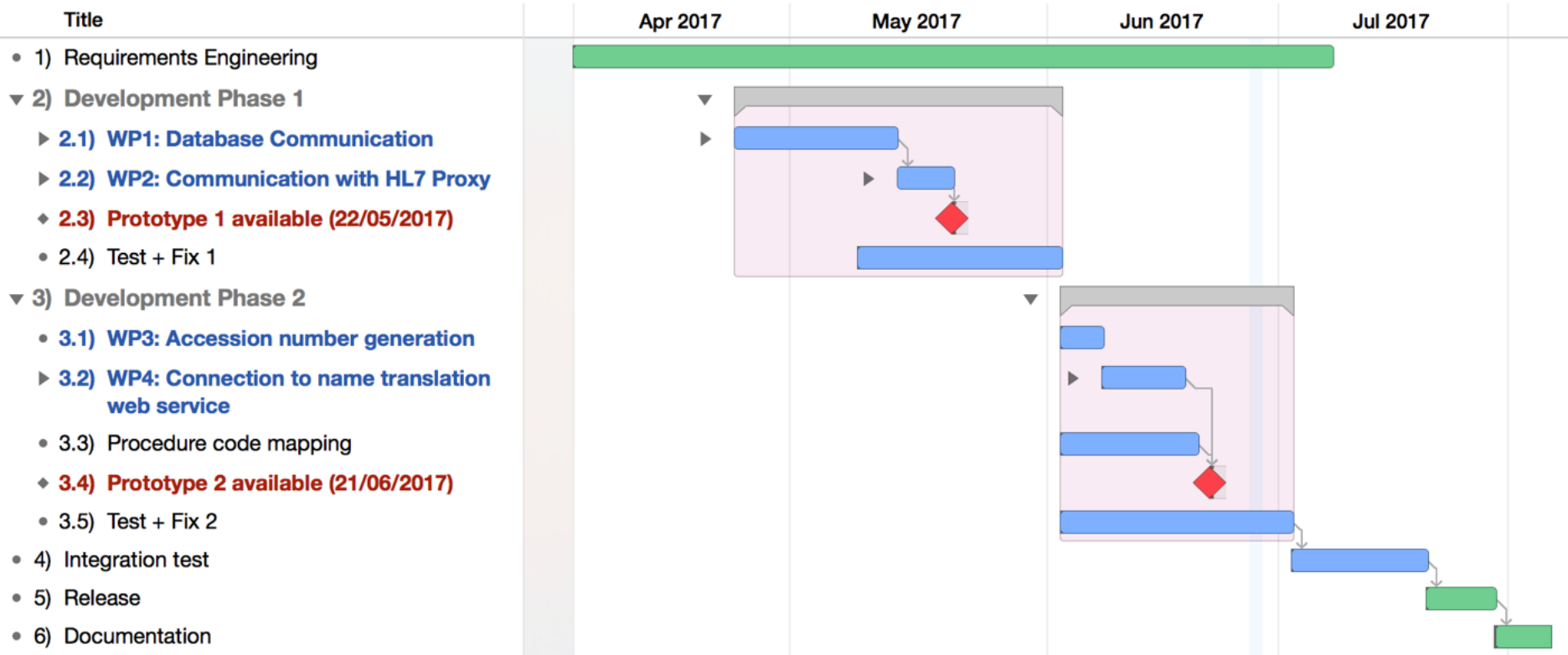
Define activities, sequence activities, estimate activity durations to finally develop a schedule (**GANTT chart!**)



GANTT chart examples



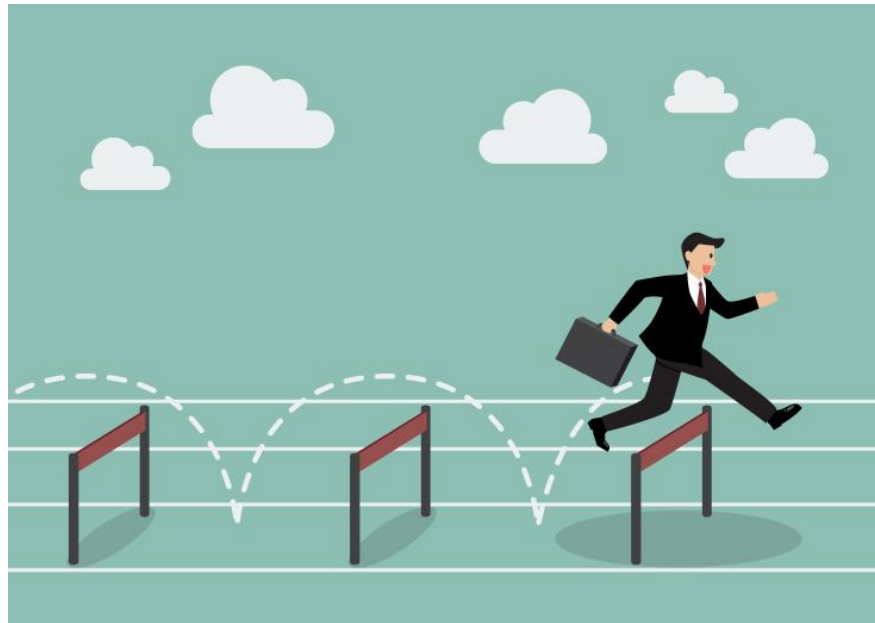
GANTT chart examples



Project Milestones

represent decisive steps during the project

define certain phases of your project and the corresponding costs and results

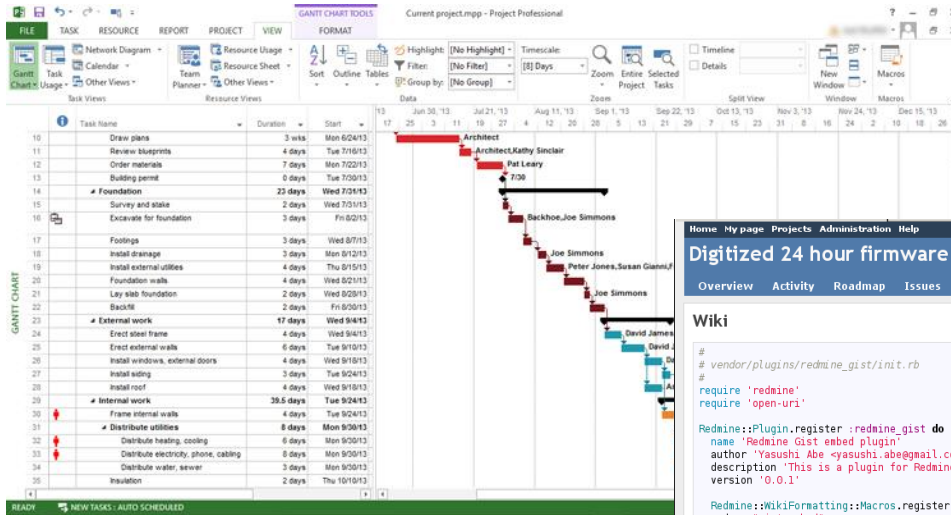


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Project Management Tools, e.g. for GANTT Charts

MS Project *



Redmine (redmine.org)

```
# vendor/plugins/redmine_gist/init.rb
#
require 'redmine'
require 'open-uri'

Redmine::Plugin.register :redmine_gist do
  name 'Redmine Gist embed plugin'
  author 'Yasushi Abe <yasushi.abe@gmail.com>'
  description 'This is a plugin for Redmine'
  version '0.0.1'
end

Redmine::WikiFormatting::Macros.register do
  desc "gist embed"
  macro :gist do |obj, args|
    javascript_tag(
      :src=>"http://gist.github.com/#{args[0]}.js" unless args.empty?
    )
  end
end
```

ProjectLibre (projectlibre.com)

GanttProject (ganttproject.biz)

TeamGantt (teamgantt.com)

etc.

(* free for TUM students @ studisof.de)

Planning Consists in Establishing the Total Scope

Plan Quality Management: How do you document? How do you test?

Plan, analyze and mitigate risks: Which risks (sickness, schedule, code, compatibility...)?

Plan communication management: Who? How often? In which form?

Plan Stakeholder Management: How much do you engage the stakeholders?



Execution Consists in Completing the Work Items

DO!

Getting stuff done...

```
    /*! A test class */  
  
    class Test  
    {  
    public:  
        /** An enum type.  
         * The documentation block cannot be put after the enum!  
         */  
        enum EnumType  
        {  
            int EVal1,      /**< enum value 1 */  
            int EVal2      /**< enum value 2 */  
        };  
        void member();    /*!< a member function.  
  
    protected:  
        int value;        /*!< an integer value */  
    };
```

PMSD

Direct and manage project

Perform Quality Assurance: Test and document code

Manage Communications: Hold project meetings, give course presentations

Manage Stakeholder Engagement: Make sure everybody is informed and involved to the right level



Closing Consists in Concluding All Activities

Finish your project

Obtain acceptance by supervisor

Review project

Archive all documents

Document lessons learned

PMSD

Close project.

Finish project and final tests

Deliver code / tool / documentation to supervisor

Give final presentation



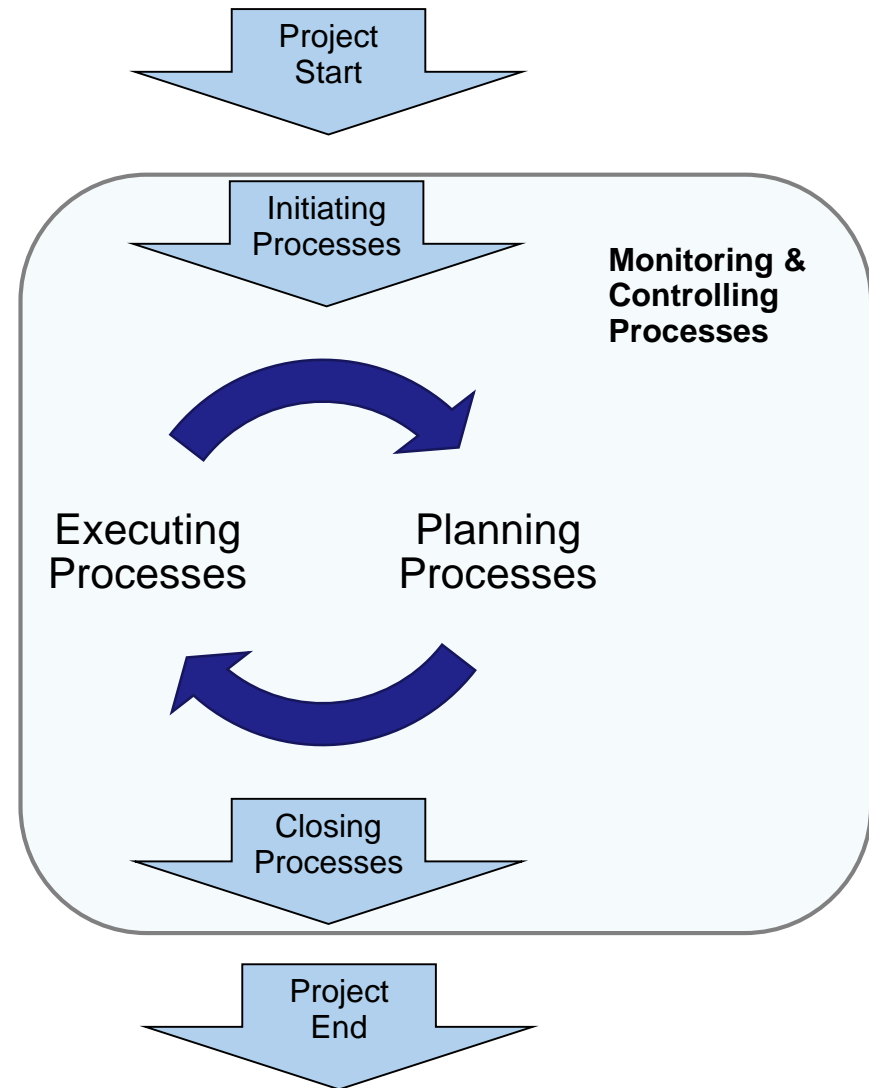
Project Management is Crucial to Success!

Define your scope and objectives
and stick to them!

Spend time monitoring your project

Document what you do!

Communicate efficiently





Thank you!

