



E-kursuse "Project and Quality Management" materjalid

Aine maht 3 EAP

Uku Visnapuu (Tartu Ülikool), 2010

Today's agenda (March 1.st):

- Everybody is tuned in
 - introduction to the aims and means of the course
 - getting to know: experience & expectations
 - settling at the e-learning environment
 - formation of teams of good size
- Getting a first understanding of the main task
- Introduction to project management and first steps: project initiation and needs assessment
- Achieving a good co-working atmosphere

Expected learning outcomes (PM)

1. can compile a basic project with realistic goals and appropriate management
2. can explain the use of basic project management tools
3. knows the basics of project initiation & planning, implementation & analysis
4. is motivated to find and critically apply project management literature/ sources

In the long run you will be able to

- apply project management methods in sustainable energetics
- initiate, implement, seek funding fund (and gradually) to coordinate projects of innovative nature and of wide scope in the field.
- maintain sufficient project sustainability
- find and critically apply management literature/ sources

Expected learning outcomes (QM)

- I. knows the evolutionary steps towards modern understanding of QM
- II. can explain the modern principles of QM
- III. can identify various methods to improve the performance of an organization
- IV. understands the basics of quality infrastructure and can explain the functions of relevant institutions

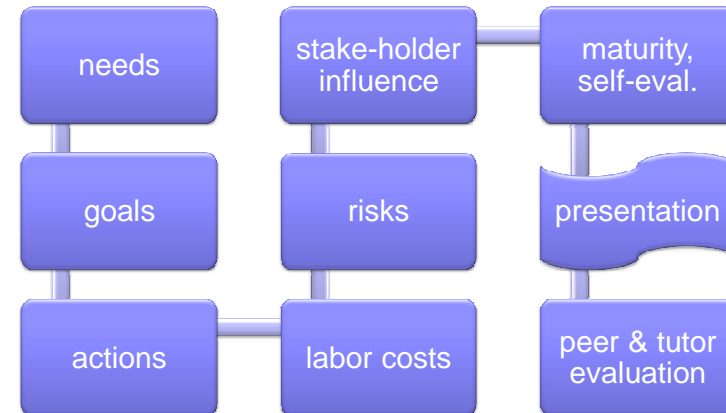
Learning aids

- Syllabus
- List of tasks (GANTT chart)
- Introduction to Moodle
- Self-tests
- Extra reading materials at Moodle
- Your personal learning profffolio

Flow of your learning tasks

- Getting started:
 - Signing up at Moodle
 - project group formation
 - call for tender
- Project management basics: need analysis and planning
- Quality management basics

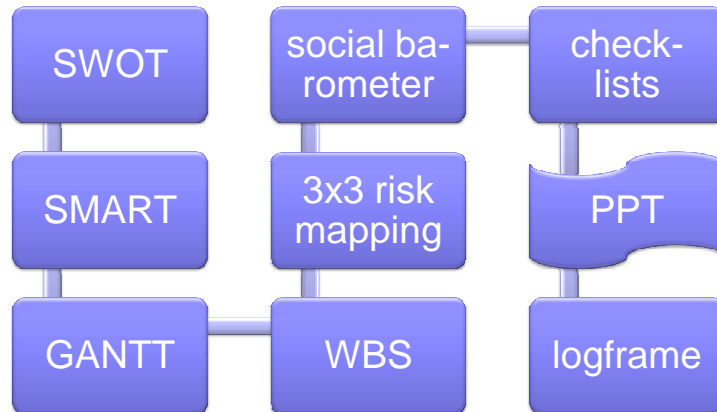
The Flow of Your Learning Project



Flow of your learning tasks (2)

- Test on both P & Q M basics
- Compilation of project proposals
- Presentation of
 - Personal learning portfolios
 - project proposals (with video feedback and peer tutor evaluation)
 - Learning reflection

Tools to support the process



What is a project?

- A project is a unique enterprise to be completed within given constraints such as time, budget, quality requirements
- A project is a set of tasks systematically contributing to a goal within a given deadline

Why project management?

- Greater flexibility through better:
 - needs assessment
 - effort coordination
 - cost and benefit control
- Increase in funds offered for all sectors on a project basis
- Demand for more transparency
- Failures of bureaucracy and *adhoc*cracy

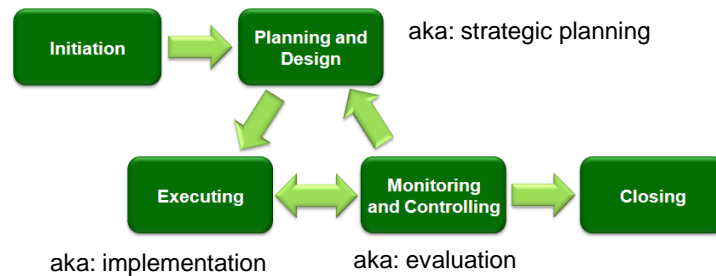


Effective project management relies on:

- Common sense
- Systems thinking incl feedback
- Measurement
 - quality goal setting
 - market analysis
- Creativity
- People skills incl presenting

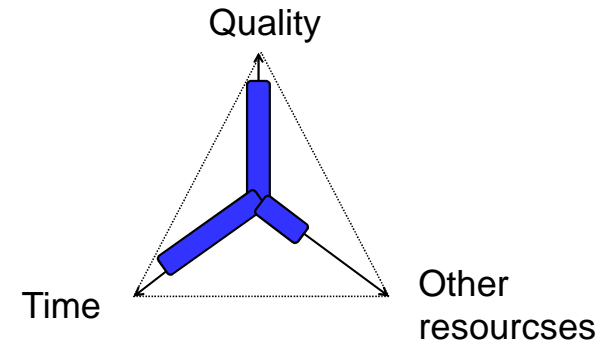
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Traditional project management by PCM – Project Cycle Method

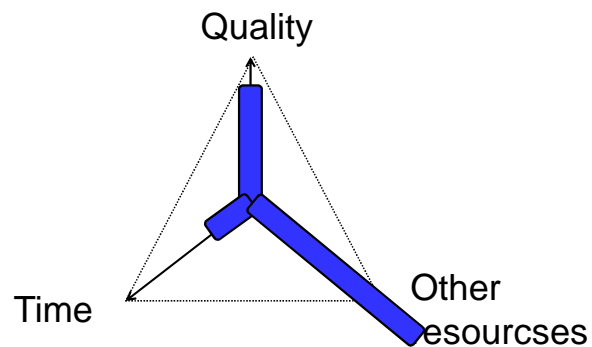


Illustr: Wikimedia Commons user: [Alphamu57](#)

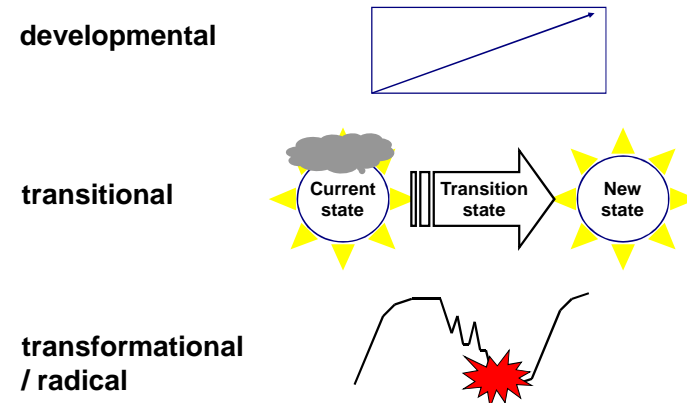
3 constraints of every project



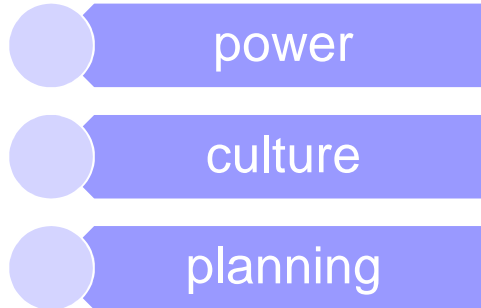
3 constraints of every project



3 types of change after Ackerman

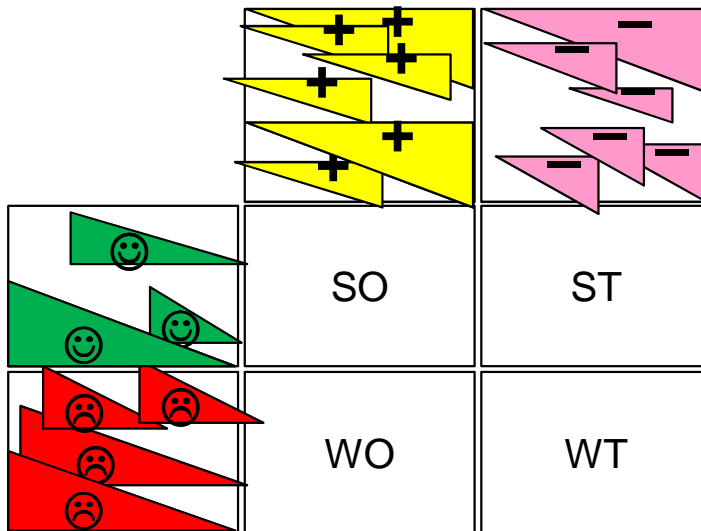


3 lens to look at managing change



Project management can include

- Change management
- Risk and deviation management
- HR/ Human Potential/ knowledge management
- Time management
- Budgeting, accounting ,controlling
- Strategic and Quality management
- ...



5d: peer review of other groups' Gantt charts							15	15										U
5. can collectively compile a simple Gantt chart for a QM implementation project proposal								*										-
6a: group task: risk mapping									20									U
6b: mini-lecture on risk management and social barometer use									15									U
6c: group task: review of group risk mapping and Gantt charts									15									U
6. can collectively compile a simple risk mapping									*									-
7a: mini-lecture on project resource planning									15									U
7b group task: project resource plan compilation									25									U
7. knows how to compile a simple project resource cost plan									*									-
8a: individual research on logframe compilation							45											U
self test on logframe compilaton								15										U
8b: mini-lecture on logframe										10								U
8. knows how to compile a logframe										*								-
9a: individual research on project quality, sustainability and evaluation								60										U
9b: seminar on project quality, sustainability and evaluation										25								U
9c: lecture on specifics of scientific projects										45								M
9d: mini-lecture on project maturity										10								U
self-test on project evaluation: maturity and quality											20							U
9e: individual & group review of completed project materials											25							U
summative test on basic project and quality management knowledge												45						U+M
9f: individual & group task: preparations for project presentation												135						U
group rep. sends tender document													*					-
group presentation of project proposals for peer and tutor feedback														90	90			U+M
9. can collectively compile and present a systematic project proposal															*			-
individual learning portfolio compilation																		U
handing in a structured individual learning portfolio for tutor review															*			U
individual reflection on project and quality m.-t learning and future learning plans																		U
posting an individual learning reflection for tutor review																	*	U
	M	2	Th	F	2	M	Tu	W	Th	F	2	M	2	Th	F	Th		
	01.3	2.-3.03	04.3	05.3	6.-7.03	08.3	09.3	10.3	11.3	12.3	13.-14.03	15.3	16.-17.03	18.3	19.3	13.5		

* mile stone

10 activity duration

activity period with no predetermined duration

~Read this first~

By going through this short text you'll have a smooth start with the course and the basics of this e-learning environment.

All learning tasks and resources are presented in a chronological order - just open them as you proceed with the course.

Please note that:

1. All the elements that are normally aligned are meant for each student to use.
2. Elements aligned a bit to right are either supplementary resources or tasks useful if you missed the class or want to get the task's instruction again.
3. Materials will become visible step by step. Self-tests will be closed after a pre-announced deadline to encourage their timely use

You will have a variety of learning tools such as different forums, assignments, self-tests and so on. The specifics of those will be explained upon first encounter. In addition to the chronological order you can access all tools **by type** from the "Activities" pane on the left at the main page.

Now, please also take a look at the **progress bar** at the bottom of the left side of the main page. This will indicate your advances (and hopefully not: misses) along the key elements of the e-learning site.

Take a look at the [Tasks and Deadlines for the course](#)

The course has 3 levels of expected results:

1. The smallest units are **learning objectives**. These are combined into chapters (presented together in big boxes on the main page)
2. As you achieve learning objectives you move gradually towards **course outcomes**.
3. Course outcomes contribute to wider **long-term goals - the competences** you should still have years after the successful completion of the course.

For example:

Learning objective 1: You can individually and collectively compile a simple SWOT with strategies contributes to **You know the basics of project initiation and planning** and this in turn to **You can apply project management methods in sustainable energetics**.

Grading is specified at the syllabus available on the Study Information System of Tartu University and will be abundantly explained at our first eye-to-eye encounter.

We are making an effort to design Moodle as user-friendly as we can. It is probably not next to perfect yet. So, if you get into trouble with the environment, feel free to start a topic at the Free for all forum (top of the main page). So others with the same issue will find help in advance (or can provide some help themselves). Enjoy the learning!

For your and our enjoyment, please make sure you have a photo on your profile. We can do without, but this makes the site much cozier for all.

Mart & Uku

What is a project?

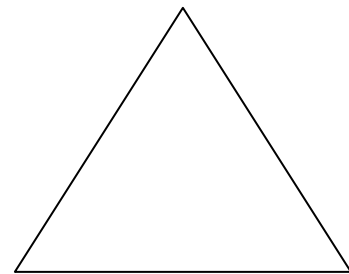
- A project is a unique enterprise to be completed within given constraints such as time, budget, and quality requirements.
- A project is a set of tasks systematically contributing to a goal within a given deadline

What are projects useful for?

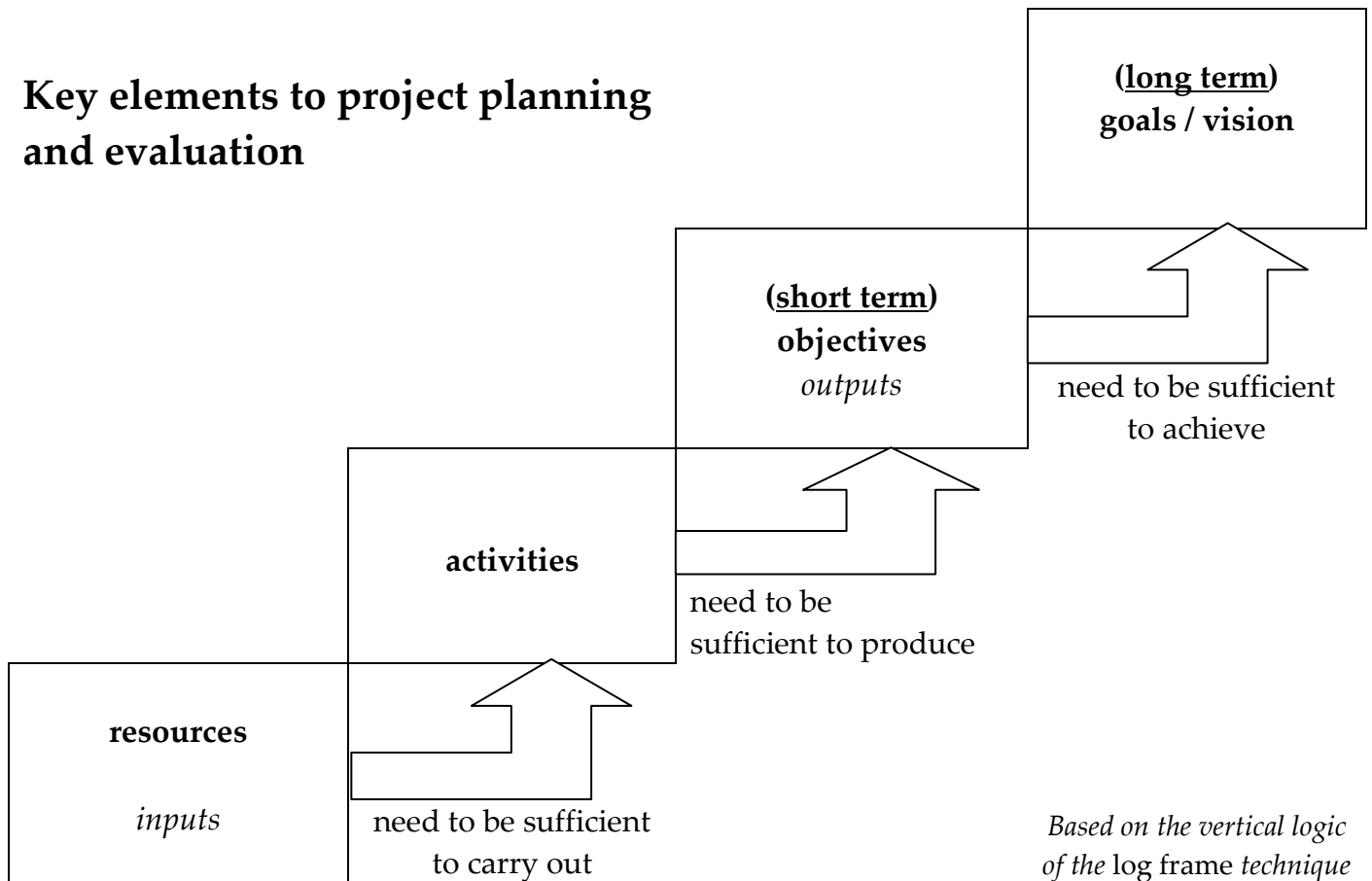
- problem solving
- idea implementation
- organizational development
- effective management
-
-

the project cycle

the project triangle



Key elements to project planning and evaluation



Based on the vertical logic of the log frame technique

Guidelines for individual learning portfolio creation

This task is necessary to maximize your gain from the course and the future use of course materials. Next time when faced with a project and/or quality management task you'll have a valuable material at hand (rather than wasting time on searching for separate sheets).

A learning portfolio can include whatever printed materials you find useful in addition to the handouts provided at class.

There are only two pointers to success with this task:

1. you will need to compile a portfolio that is useful for you during and after the course. This places the sole responsibility for the task to you. This is wise because only you can understand your needs best - today and in the future.
2. the portfolio has to be structured: include a table of contents, divide it to thematic chapters and write page numbers all sheets. Structuring the materials will foster deep learning as it will help you to prepare for the test and for the presentation of project proposals.

As some are usually puzzled by this task and others have made it their natural habit to do so, we suggest you ask each other for an exchange of ideas and examples for extra materials. For example, can do so at the Free for All forum.

You will need to hand in the portfolio by March 18th and you'll get the portfolio back the next day. Students who do not present a portfolio will not pass the course, but the task does not affect the grade.

As we can not assess your benefit from the task just by looking at the portfolio and would rather not take time to have all the participants interviewed we will give a "pass" to any portfolio that meets the abovementioned formal criteria (see pt 2)

You may want to merge these materials with your previous management learning portfolio to accommodate that structure or rearrange it to a new structure.

Task: group analysis of call for tender materials and SWOT compilation

You need to have a unified understanding of all the important data provided by the call (or any task). An efficient way to do that is to rephrase and restructure the information together, discussing the possible ambivalent elements and diverging interpretations on the way. This can save a lot of mishap at later stages of the work.

WHERE TO START: You can find the current version of call for tender materials at the "Resources for the duration of the course" section - the top section at the main page.

Together go through the important aspects of call for tender and, compose such a SWOT that is clear and concrete enough to be understandable outside of your team.

This involves good universally understandable phrasing of SWOT elements and careful consideration of the placement of internal and external factors.

The SWOT should focus on your task at hand, so focus the analysis on the readiness of the organization to implement a quality management system. This will save you from the task getting overwhelming and the document too long.

Putting good effort into a quality SWOT will pay off in later stages of the project tasks as you will shortly see. Already the very next task you will undertake (problem tree) builds directly on SWOT.

This team effort should take around 35-45 minutes.

task 2b: group task: problem tree compilation

It pays off to train compiling easy to understand and convincing problem trees. The mastery of this technique allows to clarify the importance of your initiative, justify (and rejustify) project costs and call for all sorts of stakeholder and sponsors' attention and support.

YOUR TASK: Based on relevant key findings of SWOT, together build a problem tree about the organization. Keep in mind that for every element in the tree it must be possible to justify it's logical location in the chain of cause-effect relationship.

In the case of our course, the problem tree is sufficiently completed when all the important relevant problems concerning the organization have been mapped so that a person (key decider for instance) outside the project team can be convinced that it is in fact absolutely necessary to start implementing a quality management system.

WHERE TO START: take a look at your SWOT

Use either software (such as easy to use freeware [Process Modeler](#)) or medium sized post-it sheets and a flip chart sheet to build the tree. This will enable easy collaborative compilation, easy improval (in practice it is almost always necessary to re-arrange the items along the tree) and presentation.

WHERE TO FINISH: It is important that you arrive at an easy to follow visual for the whole group. If you opt for a flip-chart presentation, stick the sheet to a wall to a place that is good to use for presenting. If you prefer a computer-approach take time to copy it to a .jpg?lukk=key123 or .pdf file on an USB-stick or test your computer - video projector compatibility

YOUR EXPECTED TIME COST: This group effort should take 45 minutes plus about (5 project groups x 6 mins) presentation time, incl questions.

GRADING: There will be no grading for this task. However, you will get real time peer and tutor feedback.

To sum up: a good problem tree helps to explain clearly that there is actually a real need to address the issues that you want to address.

Group task: analysis of example (corresponding) goal trees

A problem tree alone is just one half of the egg. By adding a corresponding goal tree (or at least a well-selected branch) you can take a further constructive approach to the situation.

WHERE TO START: continue in your team analyzing the example goal tree from the Project Cycle Handbook which corresponds to the problem tree you analyzed individually at task 2a.

Take turns explaining to the group the differences as you perceive them. This should take about 15 minutes and enable you to have a mutual understanding at the next step - your team goal tree branch creation. Explaining things to one another also helps to power up your team.

You will need this shared understanding of the technique at the next task.

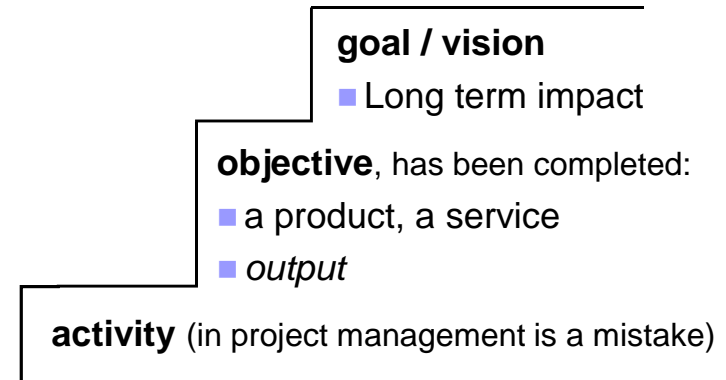
Today's agenda (March 4.rd):

- A Short refreshment of tasks of the last time
- Questions about possible puzzling aspects of the course so far
- Understanding of project management basics
- How to:
 - set objectives
 - compile a WBS and GANTT chart
- Teams are able to compile a internally consistent problem-goal table
- Everybody starts with individual WBS

High Quality objectives are:

- S – specific
 - not vague
 - relevant to the problem at hand
- M - measurable
- A - achievable
- R - realistic
- T – time-bound

Three levels of goal setting:



Example Problem-Goal table

Low foreign investments hinder economic growth	The level of foreign investments has risen 5 % by 2020
Foreign investors lack interest	The interest of foreign investors is sufficient
High corruption in public sector	Corruption in public sector under control
Officials ignorant of public ethics code	80% of key officials trained in public ethics by 2018

Quality Management Evolution

- I. Quality Management Evolution
- II. Quality Infrastructure
- III. Standardised Management Systems

What is Quality?

✓

2

Quality is....

ISO 9000:2005. Quality management systems
– Fundamentals and vocabulary:

.... degree to which a set of inherent characteristic fulfills requirements.

3

Two ways to understand

1. Quality is how a product meets defined specifications
2. Quality is the measure of the clients' satisfaction. Regardless of conformity with the specifications, a "high quality product" meets the expectations of the customer

4

Quality around us

- ✓ We want to buy only high quality products
- ✓ Paying for 1 litre milk, we want to get at least 1,000 liters of milk
- ✓ We do not want to be crashed by a building, a bridge, a tunnel
- ✓ Police radars can give wrong readings only towards lower speeds!
- ✓ We want to watch only movies we like

5

Quality Management is....

ISO 9000. Quality management systems –
Fundamentals and vocabulary:

.... a method for ensuring that all the activities necessary to design, develop and implement a product or service are effective and efficient with respect to the system and its performance.

6

Outline 1

- ✓ **Quality in craftsmanship.** Professional pride of Masters. Guilds and their code of practice.
- ✓ **Industrialization.** Anonymous relationship between the worker and the product. Responsibility of the management. Quality control.
- ✓ **Mass Production.** Problems with the Quality Control at the end of the production line. Statistical control. W. A. Shewhart
- ✓ **Statistics in Quality Control.** Distribution functions. Normal distribution, standard deviation, average. Central Limit Theorem (CLT). Control charts.
- ✓ **Evolution of Quality Management after the WWII.** USA and Japan. Joseph Moses Juran.

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Outline 2

- ✓ **Theories of Deming.** From production to management. Kvaliteedi tagamine tootmisest juhtimisse. 14 Points of Management. The Deming Cycle
- ✓ **The others:** J. M. Juran. Quality Management is a part of Management. Pareto Principle in Quality Management
A. Feigenbaum and TQC. Kaoru Ishikawa and TQM. Philip B Crosby. Walter Masing
- ✓ **TQM and 6- σ**
- ✓ **Different regional approaches.** USA vs Japan vs EU
- ✓ **Quality standards.** ISO 9001, ISO 14001, OHSAS 18001, ISO 17025.

8

Craftsmanship



- ✓ Production linked to the Master
- ✓ Quality is assured by the good name of the Master
 - Buyer prefers a well known Master
 - Big variations in quality
 - Short warranty – until the Master is available.
 - The buyer takes the risk

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Guilds

- ✓ Guild – medieval association of craftsmen in a particular trade
- ✓ Part of medieval quality infrastructure
- ✓ Charter of Guild – the rules of the Guild, often approved by the local authorities – the first Quality Manual
 - The oldest Charter in Estonia is from the 13. century



Sculptor's Workshop. c. 1416, Nanni di Banco

10

Charter

Elements of modern quality management:

- ✓ *For the guild not to suffer losses...*
 - The interests of the guild come first
 - The interests of the clients come next
- ✓ Low quality production prohibited
- ✓ Defines rules of training and practice required to become a Master
 - 3-4 years apprentice
 - 4 years journeyman
- ✓ Detailed procedures: working hours, time of the lunch brake etc.

11

Process management in Charter

"The Guild lords and masters will be called with their wives and daughters, for what he (the candidate) has to provide two barrels of high-quality beer and in good quantity of a good wine, he has to invite two city musicians and celebrate in such a way that the masters and the Guild would not feel themselves insulted." (J.Rannu, "Et tsunit milleski kahju ei kannataks...")

- Definition of the Quality based on the satisfaction of the clients. (note that the different divisions of an organization can be considered clients in respect to each other).

"If it happens though that a brother kills someone strange for the Guild, then the brother witnessing that has to help him with all his means to get away... If needed, gets him a ship... If needed, gives the brother his own horse." (Tallinna Püha Ihu gildi skraast, I.Pötsam)

- Detailed instruction for a procedure.

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Industrialization (XIX century)

- Industrialization reduced the connection between the worker and the end product.
 - The worker performs only a limited procedure in the manufacturing process
 - Many workers perform the same procedure simultaneously (no clear responsibility)
- The management has to take the responsibility
- Introduction of the Quality Controllers to inspect the product.

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Mass Production (early XX cent.)

- Large quantities
 - Quality Control Departments
 - Big losses arising from the defective products
 - Impossible (too expensive) to check 100 % of the production
- Most of the developments in the USA
- Statistical control
 - Only a selected sample is checked
 - Introduction of the control charts

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Walter Andrew Shewhart (1891-1967)



- ✓ Physicist-mathematician
- ✓ On of the first to introduce the statistical control
- ✓ Worked at Bell Telephone Laboratories
- ✓ The problem was the extreme difficulties to replace defective communication instrumentation (long distances, remote locations)
- ✓ Replaced the 100-percent control with the statistical control
- ✓ It was still just the control of the product!

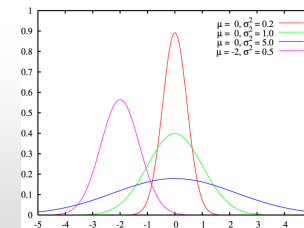
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Statistical Process Control

- Normal Distribution (Gaussian distribution)
 - Brown movement
 - Deviation of bullets at a target

$$\frac{1}{\sigma\sqrt{2\pi}} \exp\left(-\frac{(x - \mu)^2}{2\sigma^2}\right)$$

$$\sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (x_i - \bar{x})^2}$$



16

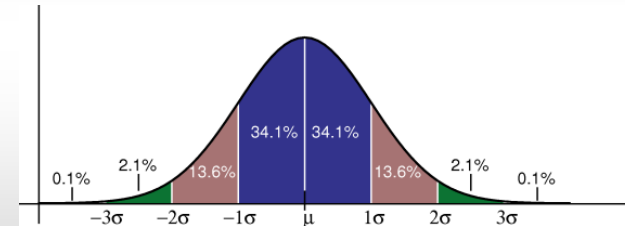
Central Limit Theorem (CLT)

- The sum of a large number of independent random variables each with finite mean and variance will be approximately normally distributed
 - In production, the result often depends on a large number of independent factors
 - CLT allows the use of the normal distribution for statistical analysis of the manufacturing processes

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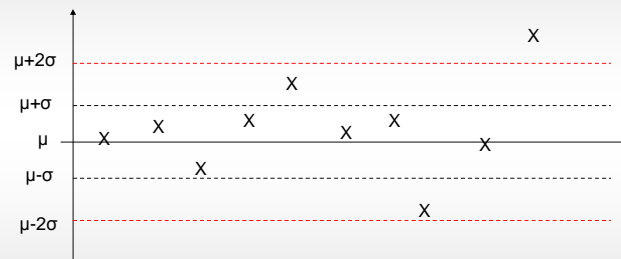
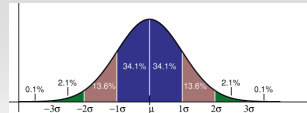
Sampling

- Random sample is selected from the population
- Histogram based on the sample
- The result can be applied for the whole population



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Control Chart



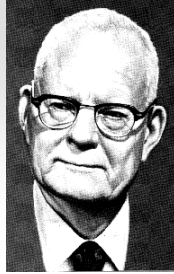
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After the WWII

- Economies in Europe and Asia destroyed
- Huge demand for the USA export
 - Need regardless of the quality
 - Stagnation in Quality
- Japan is rebuilt under the US supervision
 - Occupation Forces under general MacArthur's coordination 1945-1951
 - Experts W. Edwards Deming and Joseph Moses Juran called to join in
- Testing ground for the innovative ideas
 - Results apparent in 80's

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W. Edwards Deming (1900-1993)



- Mathematician
- Inspiration from Shewhart
- Found out that the quality control methods can be applied also in management
- Quality through prevention
- Arguably the most influential foreigner in Japanese economy

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14 Points of Management

Deming offered fourteen key principles for management for transforming business effectiveness:

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and stay in business, and to provide jobs.

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14 Points of Management

2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.

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14 Points of Management

4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move towards a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease cost.
6. Institute training on the job.

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14 Points of Management

7. Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers.
8. Drive out fear, so that everyone may work effectively for the company.

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14 Points of Management

9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.
10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.

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14 Points of Management

11. Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.
12. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.
13. Institute a vigorous program of education and self-improvement.
14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's work.

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Seven Deadly Diseases

1. Lack of constancy of purpose.
2. Emphasis on short-term profits.
3. Evaluation by performance, merit rating, or annual review of performance.
4. Mobility of management.
5. Running a company on visible figures alone.
6. Excessive medical costs.
7. Excessive costs of warranty, fueled by lawyers who work for contingency fees.

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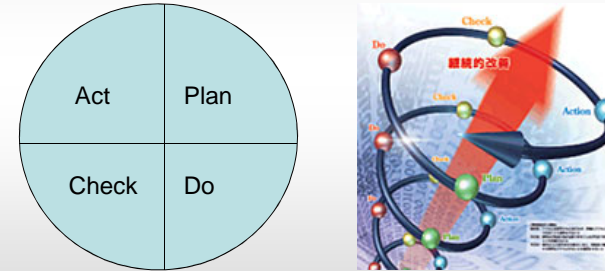
A Lesser Category of Obstacles

1. Neglecting long-range planning.
2. Relying on technology to solve problems.
3. Seeking examples to follow rather than developing solutions.
4. Excuses, such as "Our problems are different."

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Deming Cycle

- Cycle of the Continuous improvement (PDCA)
- Principle of the Learning Organization
- "Experience by itself teaches nothing."



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Deming and Ford

- ✓ Deming was hired by Ford in 1980
- ✓ "To Ford's surprise, Deming talked not about quality but about management."
- ✓ By 1986, Ford was the most profitable car industry in the USA

Reason - Deming or



?

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More from Deming

- ✓ If the organisation focusses on

$$Quality = \frac{Results\ of\ work\ efforts}{Total\ costs}$$

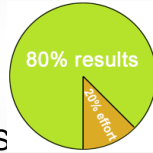
The quality improves and costs reduce;

- ✓ If organization focusses on cost reduction, the costs will increase instead

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Joseph Moses Juran (1904)

- ✓ Active in Japan
- ✓ In quality management, the most critical is to educate the management
- ✓ Pareto principle in QM
 - 80 % of problems
 - are caused by 20 % of factors
- ✓ Quality circles introduced in the US
 - voluntary activity (contribution) of the employees



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Joseph Moses Juran

- QM is a part of management
 - Quality Council for coordination and consultations
 - Clearly defined quality policy
 - Measurable quality objectives
- Management provides the resources to achieve the objectives
 - Money
 - People
 - Training

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Armand Feigenbaum (1922)

- Total Quality Control – integration of different techniques
 - Quality system
 - Integrated into management
 - Statistical process control
- “*Because quality is everybody's job, it may become nobody's job*”
 - To avoid that, the issues relevant for the quality, have to be discussed at all levels of management

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Many more...

- Kaoru Ishikawa (1915-1989)
 - Total Quality Management (TQM)
- Philip B Crosby (1926-2001)
 - Do it right the first time
 - Quality is free
 - *the management system is prevention*
 - *the performance standard is zero defects*
 - *the measurement system is the cost of quality*

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Walter Masing (1915- 2004)

- ✓ Prof. Dr. rer. nat. Dr. oec.
h.c. Dr.-Ing
- ✓ University of Tartu
- ✓ Long time president of the
German Quality Union



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1960 – 21. century

- By the 1980's, Japan was highly competitive because of the high quality of its products
 - Good Quality Management?
 - Cultural reasons?
- In the USA, the QM was more valued only after losing its lead

38

Total Quality Management (TQM)

"TQM is a management approach for an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society." ISO 8402:1994

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Total Quality Management (TQM)

- Based on the works of Deming, Feigenbaum, Ishikawa, Juran and Crosby
- Starts with Deming in Japan, later in the USA



North Island Naval Aviation Depot, San Diego, California – first TQM in the USA

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Total Quality Management (TQM)

- ✓ All employees, team work
- ✓ Everybody is responsible for the quality
- ✓ All levels of management, all processes
- ✓ Systematic planning and thinking; “big picture”

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Total Quality Management (TQM)

- ✓ Focus on Client (internal, external)
- ✓ Continuous improvement
- ✓ Technical: training
- ✓ Human factor: innovative, creative thinking

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Total Quality Management (TQM)

- ✓ Top management involvement and support
- ✓ Delegation of the responsibility
- ✓ Clear statement of objectives
- ✓ Leadership
- ✓ Changes in the culture in the organization
- ✓ Learning organization

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TQM key concepts

1. Focus on Clients
2. Leadership and dedication of the top management
3. Planning and organizing
4. Active use of quality management methods and tools
5. Training and education
6. Team work
7. Measurement and feedback
8. Change of the culture

44

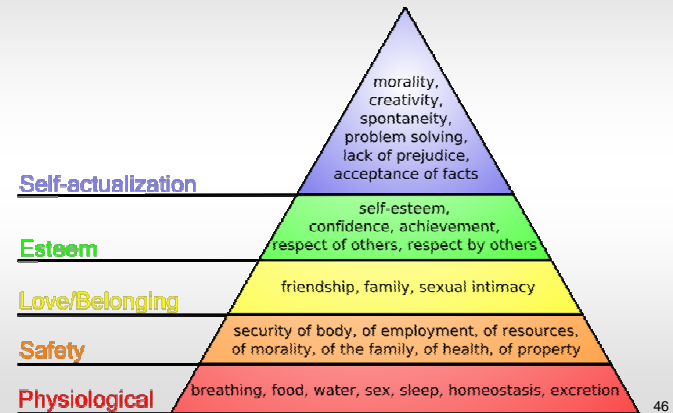
Excercise: We Care

Analyse the text to find the issues relevant to quality management

1. Find conflicts with the Deming 14 points
2. Propose actions

45

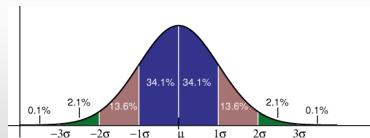
Maslow hierarchy of needs



46

Six Sigma (6-σ)

- Business management strategy, originally developed by Motorola
- Used for example by Elqotec, Nokia etc.
- Based on TQM
- Name related to statistics – 6 times the standard deviation, 99.9997% efficiency



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6-σ

- Continuous efforts to achieve stable and predictable process results (i.e. reduce process variation) are of vital importance to business success
- 6-σ is based on:
 1. Quality management
 2. Data analysis
 3. Continuous trainign of all members of the organization

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6- σ features

- Clear focus on achieving measurable and quantifiable financial returns from any Six Sigma project
- Increased emphasis on strong and passionate management leadership and support
- Special infrastructure of "Champions," "Master Black Belts," "Black Belts," etc. to lead and implement the Six Sigma approach
- Clear commitment to making decisions on the basis of verifiable data, rather than assumptions and guesswork

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Management fads

- Changes in philosophy or operations that sweeps through businesses and institution.
- Some fads may become established aspects of business, sustaining themselves over several years.
- Others may disappear when initial enthusiasm wanes.
- Actively promoted by the interested parties

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QM Standards

- ISO 9000 series: Quality management systems
- ISO 14000 series: Environmental management
- EVS 18001:2006 Occupational health and safety (BS/TS OHSAS 18001:1999)
- EVS-EN ISO/IEC 17025:2006 General requirements for the competence of testing and calibration laboratories

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Summary

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Different options for QM

There are several ways to improve the quality of an organization:

- Intuitive approach by the CEO or the owner
- Implementation of the recommendations from the experts
 - TQM
 - 6- σ
 - etc.
- Quality standards
- Excellence Awards (EFQM)
 - Comparison to the other organisations; benchmarking
- Standards + TQM + intuition + ...

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Different regional developments

- Japan:
 - Total Quality
 - Team work
 - Perfection
 - Dedication to work
 - Need for achievement

54

Different regional developments

- USA:
 - Dynamic society
 - Improvement programs and –systems
 - Focus on client
 - Everybody tries to be a winner (focus on individual achievements)
 - Top quality experts

55

Different regional developments

- European Union:
 - Stability, normatives
 - Quality infrastructure: standards, certification, accreditation
 - Uniformity of all Member States

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Checklist on QM evolution

- ✓ Individual relationships/responsibility
- ✓ Interests of the Organization come first/quality requirements
- ✓ Industrialisation and quality control
- ✓ Mass production and statistic control
- ✓ Prevention
- ✓ Quality comes from the management
- ✓ Key to success: the Happy client
- ✓ Quality can be achieved only through cooperation
- ✓ Continuous improvement

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Next topic...

Quality infrastructure

Quality Infrastructure

- I. Quality Management Evolution
- II. **Quality Infrastructure**
- III. Standardized Management Systems

Excercise

Roles of EC and State in Quality assurance

2

Outline

- ✓ **European Union**
 - ✓ Why Quality Infrastructure?
 - ✓ EU legal acts
- ✓ **National Quality Infrastructure**
 - ✓ Why?
 - ✓ Responsibilities of the government
 - ✓ Activities

3

From the previous lectures

1. Quality is how a product meets defined **specifications**
2. Quality is the measure of the clients' satisfaction. Regardless of conformity with the specifications, a "high quality product" meets the expectations of the customer

Quality Management – method to achieve the quality

4

From the previous chapter....

- Japan:
 - Total Quality
 - Team work
 - Perfection
 - Dedication to work
 - Need for achievement
- USA:
 - Dynamic society
 - Improvement programs and –systems
 - Focus on client
 - Everybody tries to be a winner (focus on individual achievements)
 - Top quality experts
- European Union:
 - Stability, normatives
 - **Quality infrastructure: standards, certification, accreditation**
 - Uniformity of all Member States

5

What are the interests of the EU?

European Union establishes conditions for the free movement of goods and services within the Union

- ✓ Requirements for safety and conformity
- ✓ Requirements for national legislation
 - “safe” in Estonian = “safe” in Romania
- ✓ Requirements on supporting national infrastructures
 - Understandable procedures
 - Transparency of the actions

6

European Union

- ✓ Removal of the trade barriers
 - Harmonization of legislation;
 - Mutual recognition of the procedures
 - Accreditation, conformity assessment, calibration etc.
- ✓ Safety
 - Requirements for the products
 - Directives
 - Standards
 - Labels on the products (CE)

7

EU legal acts

- **Treaties** between the Member States
- **Directive** is a legislative act of the European Union which requires member states to achieve a particular result without dictating the means of achieving that result.
- **Regulation** is a legislative act of the European Union which becomes immediately enforceable as law in all member states simultaneously.
- **Decisions** only affect the parties to whom they are addressed (individuals, corporations, or member states)
- **Recommendations and opinions** are legal acts, which are not obligatory.

8

EU “old” and “new” approach

- **“Old approach”** (1970 - 1985) trade barriers were reduced by detailed technical descriptions in directives.
 - Decision-making process very long
 - Directives very technical
 - Needed to be changed quite often

9

EU “old” and “new” approach

- **New Approach directives concentrate on essential safety requirements**
 - Technical specifications, which comply with the directive, are given by European standards.
 - Companies can choose between using the standards or to prove by some other means that their product comply with the directive.

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New approach directives 1(2)

90/396/EEC Appliances burning gaseous fuels
2000/9/EC Cableway installations designed to carry persons
89/106/EEC Construction products
2004/108/EC Electromagnetic compatibility
94/9/EC Equipment and protective systems in potentially explosive atmospheres
93/15/EEC Explosives for civil uses
95/16/EC Lifts
2006/95/EC Low voltage equipment
98/37/EC Machinery safety
2004/22/EEC Measuring instruments
90/385/EEC Medical devices: Active implantable
93/42/EEC Medical devices: General
98/79/EC Medical devices: In vitro diagnostic

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New approach directives 2(2)

92/42/EEC New hot-water boilers fired with liquid or gaseous fluids (efficiency requirements)
90/384/EEC Non-automatic weighing instruments
94/62/EC Packaging and packaging waste
89/686/EEC Personal protective equipment
97/23/EC Pressure equipment
1999/5/EC Radio and telecommunications terminal equipment
94/25/EC Recreational craft
87/404/EEC Simple pressure vessels
88/378/EEC Toys safety

More information:

<http://www.newapproach.org/Directives/Default.asp>

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Due to the EU membership

- Requirements of EU legal acts have been adopted to Estonian legislation.
 - Pre-requirement to join EU
 - Free movement of goods
- European Standards have to be adopted as Estonian Standards for the same reasons

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Responsibility of National Government

To ensure quality, safety and competitiveness of the industry

- Legislation
 - Product Conformity Attestation Act;
 - Measurement Act;
 - Technical Regulations and Standards Act;
 - Safety of Products and Services Act;
 - Decisions, regulations etc.
- Institutions
 - To carry out the activities to implement the laws
- Surveillance

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Quality Infrastructure



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Ministry of Economic Affairs and Communications



- Minister Juhan Parts
 - Secretary General Marika Priske
 - Deputy Secretary General for Internal Markets
- Merike Kompus**

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Ministry of Economic Affairs and Communications

- The objectives is to create overall conditions for the growth of the competitiveness of the Estonian economy and its balanced and vital development.
- Establishment and managemet of the institutions for quality infrastructure (agencies, foundations, state-controlled companies etc.)

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Quality Infrastructure

- **Standardization;**
- Conformity assessment;
 - certification;
 - accreditation;
 - assessment of technical competence ;
 - inspection;
- registration;
- metrology;
- market surveillance.

18

Standard and standardization

A standard is a document that establishes uniform engineering or technical specifications, criteria, methods, processes, or practices.

Standardization is the process of developing and agreeing upon technical standards

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Objects of standardization

- Products
 - Instruments
 - Materials
 - Connectors
- Services
 - Conformity assessment
 - Certification
- Processes
 - Methods
 - Protocols

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Legal acts vs. standards

- Legal acts are obligatory
- Standards are voluntary
- Standards can be referred to by legal acts
 - Exclusively by making the standard obligatory
 - Indicatively by listing standard as an option to meet the requirements set by the legal act
- In private deals, parties can refer to standards.

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Standards...

- Help to improve the quality and safety of products
- Help to reduce unnecessary variations
- Help to reduce costs
- Help to save environment and health
- Help to unify the terminology
- Help to reduce trade barriers

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Harmonized standards

- Harmonized standards follow the EU “new approach” directives
- Harmonized standards ensure conformity with the requirements of the directives; thus the standards are the easiest way to prove the conformity with the “new approach” directives
- Harmonized standards are published in the EC’s Official Journal

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Development of standards

- All interested parties should be involved
- The final draft is a compromise, approved by the majority
- As a rule, the process is managed by the technical committees of the standardization bodies
- The initiative for a new standards can come from
 - International standardization organizations (ISO, IEC, CEN, CENELEC) based on the interests of the national members
 - European Committee
 - Agencies, organizations, private persons
- EU Member States have to adopt all European standards as their national standards.
 - Important to participate in international collaboration already at the preparation phase of new standards to protect the national interests

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Eesti Standardikeskus



- Estonian Center for Standardization is a non-profit organization
- Establishers:
 - Estonian Chamber for Trade and Industry
 - Union of Industry and Employers
 - Ministry for Economic Affairs and Communication
- Agreement with the Ministry to perform tasks of the standardization body, described in the legal acts

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Responsibilities of EVS

- Adopt international, European and other standards
- Original national standards
- Represents Estonia in international standardization organisations
- Information dissemination activities to rise the awareness about standards

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International organizations

- International Standardization Organization, ISO
- International Electrotechnical Commission, IEC
- International Telecommunication Union, ITU
 - Estonian representative Estonian Technical Surveillance Authority



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European organisations

- European Standardization Committee, CEN
- European Committee for Electrotechnical Standardization, CENELEC
- European Telecommunication Standards Institute, ETSI



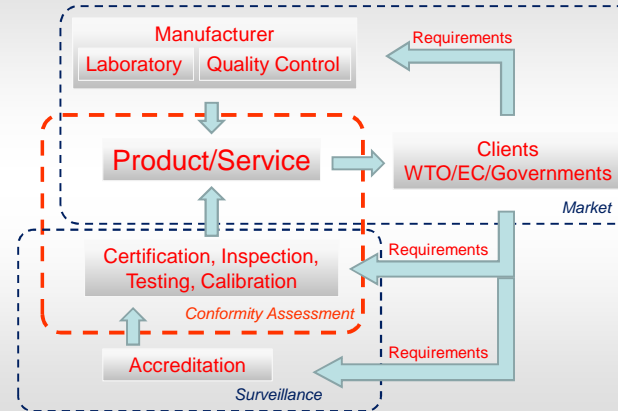
28

Quality Infrastructure

- Standardization;
- **Conformity assessment;**
 - certification;
 - accreditation;
 - assessment of technical competence ;
 - inspection;
- registration;
- metrology;
- market surveillance.

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Quality Infrastructure



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Conformity Assessment

- **Conformity assessment is any activity to determine, directly or indirectly, that a process, product, or service meets relevant standards and fulfills relevant requirements.**
- Activities of CA:
 - Certification
 - Testing
 - Surveillance
 - Inspection
 - Auditing
 - Registration
 - Accreditation

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Certification

- **Certification** refers to the confirmation of certain characteristics of an object, person, or organization, provided by some form of external review, education, or assessment.
- **Product certification** is the process of certifying that a certain product has passed performance and quality assurance tests or qualification requirements stipulated in regulations

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Objects of certification

- Products
- Quality Management Systems
- Environment Management Systems
- Personnel

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Product certification

- During certification, the conformity of a product to a standard is verified
- Consists of two processes:
 - First assessment, incl. testing
 - Surveillance over the validity period of the certificate
- After successful certification, a corresponding label can be attached to the product

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Certification of Quality Systems

- Ability of the manufacturer to produce products at the stated quality level is assessed
- Includes only assessment of the quality management system
- Certificate is issued in case of positive assessment

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Professional certification

- **Professional certification** is a designation earned by a person to assure that he/she is qualified to perform a job or task.
 - Accountants
 - Pilots
 - Electric engineers

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Example

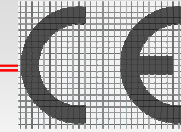
- **Estonian law on qualification and certification of electrical engineers:**

§ 7. Professional certification

(1) Professional certification body, following the requirements of standard EVS-EN ISO/IEC 17024, assesses the conformity of applicant's earlier work experience and the results of the qualification exam to the required qualification, based on the documentation provided by the applicant.

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CE marking



- By affixing the CE marking, the manufacturer, its authorized representative, or person placing the product on the market or putting it into service asserts that the item meets all the essential requirements of the relevant European Directive(s).
- CE applies for the “new approach” directives

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CE does not apply for

- Motor vehicles
- Pharmaceuticals
- Cosmetics etc.
- Those are covered by the “old approach” directives

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CE requirements

- To permit the use of a CE mark on a product, proof that the item meets the relevant requirements must be documented
- 3rd party can be used for testing or certification (Notified Body)
- Can be based on a company-internal self-certification process.
- The responsible organization (manufacturer, representative, importer) has to issue a **EC-Declaration of Conformity** (EC-DoC) indicating
 - his identity (location, etc.),
 - the list of European Directives he declares compliance with,
 - a list of standards the product complies with,
 - and a legally binding signature on behalf of the organization.

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Registration

- **Action** to inform the European Commission and Member States that some conformity assessment body fulfills corresponding requirements and has been designated to carry out conformity assessment tasks described in one or more “new approach” directives.
- Responsibility of National Governments

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Notified bodies in Estonia

http://ec.europa.eu/enterprise/newapproach/nando/index.cfm?fuseaction=countrynotifiedbody&country_id=233

3P [ER TEST SERVICE OU](#)
 AB [TALLINNA TEHNIKAÜLIKOOL](#)
 NB 1336 [TEHNOKONTROLLIKESKUS OÜ \(TTK\)](#)
 NB 1402 [OÜ KSERTEKS](#)
 NB 1403 [AS TEEDE TEHNOEKESKUS](#)
 NB 1504 [TALLINNA TEHNIKAÜLIKOOL SERTIFITSEERIMISASUTUS](#)
 NB 1526 [TUV Eesti OU](#)
 NB 1527 [SERTIFITSEERIMISBUROO ESTCERT OU](#)
 LVD [ELEKTRIKONTROLLIKESKUS AS \(EKK\)](#)
 NB 1543 [AS METROSERT](#)

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Certification bodies in Estonia

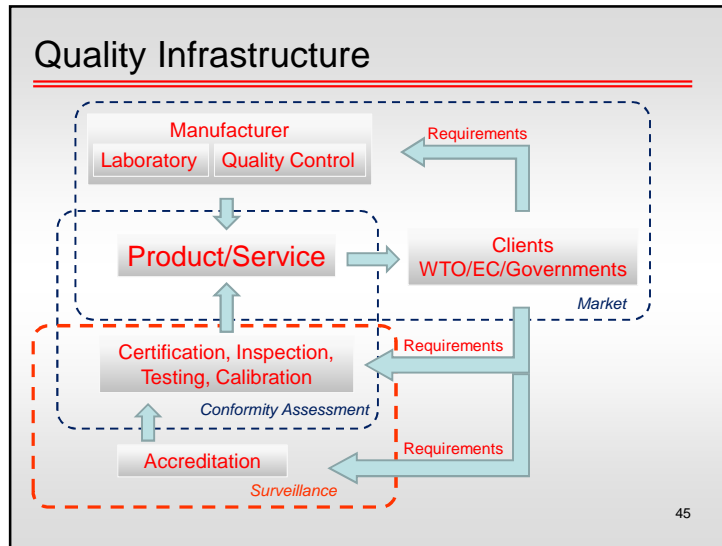
- Dominated by the branches of well-known international companies
 - Det Norske Veritas Eesti OÜ
 - Bureau Veritas Eesti OÜ
 - Lloyd's Register EMEA Eesti filiaal
 - TÜV Nord Baltik OÜ
- Local players
 - Certification Center of Tallinn University of Technology
 - Metrosert AS

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Quality Infrastructure

- Standardization;
- Conformity assessment;
 - certification;
 - accreditation;
 - assessment of technical competence ;
 - inspection;
- registration;
- metrology;
- market surveillance.

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Accreditation

- **Accreditation** is assessment and confirmation of compliance of testing and calibration laboratories as well as certification and inspection bodies with the requirements of international standards establishing criteria for competence of laboratories/bodies.

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Objects of accreditation

- Testing and calibration laboratories;
- Medical laboratories;
- Inspection bodies;
- Certification bodies;

www.eak.ee

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Estonian Center for Accreditation

- The Estonian Accreditation Centre is a private non-profit organisation, established by the State.
- Governing Board appointed by the Minister of Economic Affairs and Communication.

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Quality Infrastructure

- Standardization;
- Conformity assessment;
 - certification;
 - accreditation;
 - assessment of technical competence ;
 - **inspection**;
- registration;
- metrology;
- market surveillance.

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Inspection

- **Inspection** is assessment of conformity of a product, process or service using evaluation or testing the corresponding characteristics
- Related mainly to safety of products

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Inspection bodies

- OÜ Tehnokontrollikeskus
 - Pressured vessels;
 - lifts;
 - Gas heating equipment;
 - machinery.

- Many others

www.eak.ee

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Quality Infrastructure

- Standardization;
- Conformity assessment;
 - certification;
 - accreditation;
 - assessment of technical competence ;
 - inspection;
- registration;
- **metrology**;
- market surveillance.

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Metrology and quality

- Traceability of measurements
 - Economic return
 - Safety and environmental protection
- Industrial metrology
 - Reduction of costs
 - Removal of trade barriers

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Quality Infrastructure

- Standardization;
- Conformity assessment;
 - certification;
 - accreditation;
 - assessment of technical competence ;
 - inspection;
- registration;
- metrology;
- market surveillance.

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Market Surveillance

- Market Surveillance Authority
- Consumer Protection Board
- Conformity assessment bodies

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Today's agenda (March 8-th):

- A video or two on PM shortcomings
- A list of key terms on PM so far
- Understanding of the flow of project planning
- Teams take time to plan team cooperation
 - roles, incl team coordinator
 - available time
 - conclusion about outlook on team success
 - possible change of teams
- Teams update completed tasks



What's the use of a problem tree in PM?

- Gives a systematic **overview** of the problems
- Enables to pick a reasonable **intervention**
 - to choose what to do and what not to do
- Gives an easy basis for **goal and objective** setting
- Provides for the team to have a **unified vision** and coherent **motivation**
- Makes it easy to explain the significance **need** and to reason for
- Develops systems thinking and logical reasoning



Tasks soon to be completed

- Updates of
 - problem and objective trees
 - goal/problem table
- Compiling Individual WBSs, peer review
- Combining team GANTTs from ind WBS-s
- peer review of other teams' GANTTs
- Individual research on:
 - Logframe (tomorrow) + self test (March 10th)
 - project quality, sustainability and evaluation (March 10th)



Professional tools for project planning

Tool/ Technique	Can be useful for:
1. SWOT	1. Getting a first overview of the situation/ CfT; gathering first rough ideas on strategy
2. Social Barometer	2. Mapping probable allies, contras, neutrals
3. Problem tree	3. Pinpointing a starting point for the project
4. Goal tree	4. Charting the project strategy
5. SMART-goals	5. Unifying the project strategy
6. WBS	6. Breaking the project to manageable peaces
7. GANTT, PERTT	7. Scheduling

Key terms so far – you should have an understanding of the basic nature and use (in project management) of:

- SWOT analysis, SWOT strategy
- Project cycle, project triangle
- Brain storming
- Components & vertical logic of logframe
- WBS and Gantt
- Root problem, problem and goal tree
- SMART-rule, goal, objective, social barometer

Social barometer approach to stakeholder analysis in projects

1. Who are all possible stakeholders of the project / org
2. How benevolent, hostile or neutral -> hesitant they are
3. And probably for what reasons
4. How to approach them, if possible: how to cooperate

Today's agenda (March 11-th):

- A video on PM shortcomings
- A list of key terms on PM so far
- How to update your WBSs to include indicators and methods of verification based on the **logframe approach**
- group task: peer review of WBS-s of own group members
- When ready with WBS -> group Gantt chart compilation
- Teams update completed tasks



Social barometer enables us to go beyond stereotypes

"Inside" the project			"outside"
Project Structure	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Goal	<i>then</i>		
Purpose	<i>if</i>		<i>and</i>
Outputs	<i>if</i>		<i>and</i>
Activities	<i>if</i>		<i>and</i>

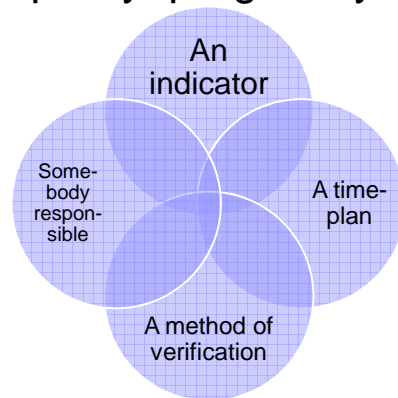
Assumptions and risks e, f, g
Assumptions and risks a, b, c, d
Pre-conditions

Illustr: fao.org

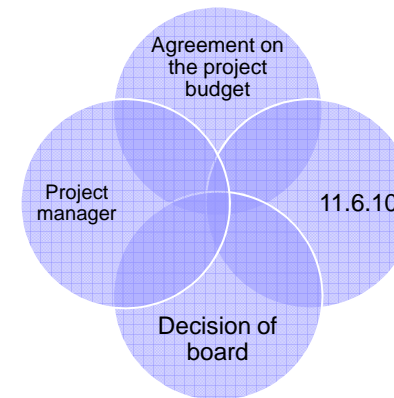
Practical use of *logframe* for your projects

1. **What indicators** can you measure to describe the **project success** in the:
 - phase 1 – strategic planning, incl initiation
 - phase 2 – implementation
 - phase 3 – project closing and evaluation
2. How can you measure those indicators – **where can you get relevant information?**
3. When would be an **appropriate time** to measure them and **how many** measurements do you need to track changes

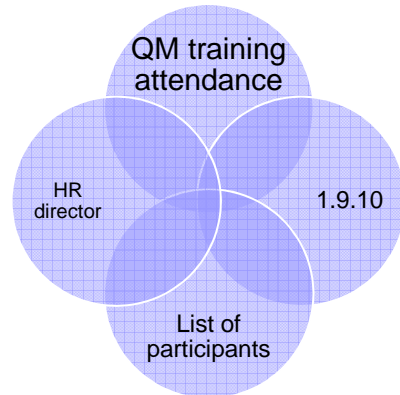
For a convincing measurement of project quality/ progress you need



Example for project phase 1



Example for project phase 2



Project Design

Verification methods

- Surveys
- Beneficiary interviews
- Statistics
- Reports
- Administrative records



Slide from the **Project Cycle Management Handbook**, Ch 3. See *Moodle Section 10*

Phare CBC/ Ministry of Internal Affairs/ ESKO Training and Consulting

Example verification methods

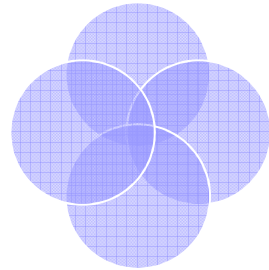
- Administrative records:
 - lists of training / meeting participants
 - accident listings (by type, by department)
 - job descriptions
- Reports
 - Training materials / minutes of meetings
 - accident case analysis
 - reports of updates of job descriptions
- ...

The path of filling a logframe

	Project Logic	Verifiable Indicators	Sources means of verification	Assumptions
Overall objective	1	10	11	
Specific objective	2	12	13	9
Results	3	14	15	8
Activities	4	5	6	7

Illust: migration4development.org

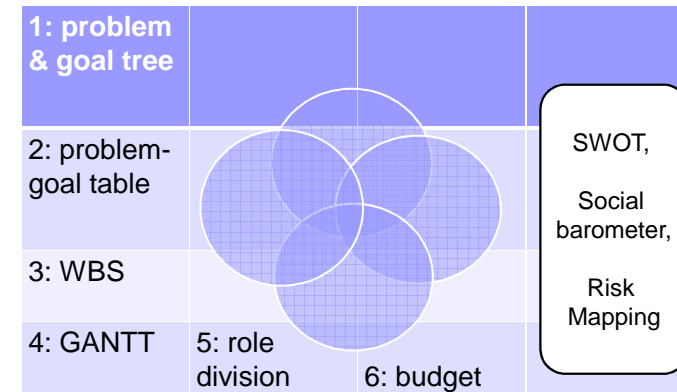
A mini self-test: recall, what 4 aspects do you need to write to project plan for convincing measurement of project quality/ progress?



Today's agenda (March 12-th):

- Q & A on QM, incl standards
- Teams have chosen **mile stones** for each project phase (3 phases) and attributed a relevant indicator with means of verification to each of those
- Compilation of Gantt charts
- group rep. posts their Gantt chart
- peer review of other groups' Gantt charts
- Basics of risk mapping
- Start with group task: project resource plan compilation
- Teams update completed tasks

Tools that can be used for project planning related to the logframe appr.



Monday's agenda (March 15-th):

- mini-lecture on project resource planning
- group task: project resource plan compilation
- seminar on project quality, sustainability and evaluation
- mini-lecture on project maturity
- Teams update completed tasks
- Test on project and quality management basics (13.15 – 14.00 @ 1051 computer class)

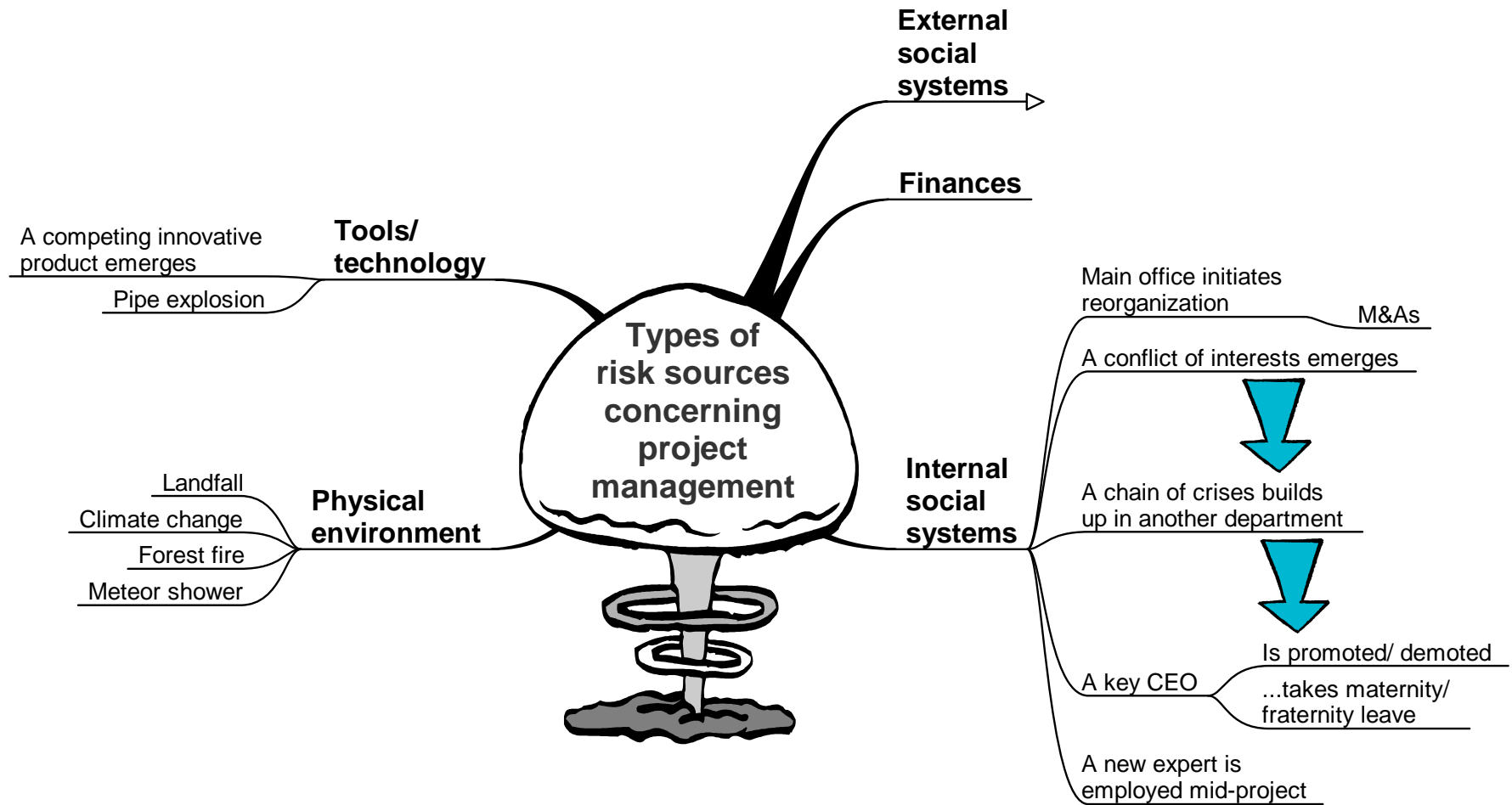
How to achieve realistic project scheduling (and controlling)?

- Backward planning
- $R=(O+Pr+Pe):3$
- WBS: objectives, incl. some SMART ones
- Gantt, PERT charts
- Risk management
 - risk mapping (3x3 impact x probability map)
 - alternatives
 - extra resources





Anticipating project costs based on projects as inherently prone to deviat.

- | | |
|----------------------------------|--|
| ■ The known | ■ SMARTs, cost-based estimates, calculations, WBS, GANTT |
| ■ The “ known unknown ” | ■ Risk mapping; “Plan B”s; alternate strategies with consistent SMARTs etc |
| ■ The “ unknown unknown ” | ■ Extra reserves in human labor and funds |

column 1 after Jessen: 2002



An impact-probability risk mapping worksheet

pot- ential harm		project initiation / planning risks			project implementation risks				project evaluation / closure risks	
										
				likely- hood						



Illustr: author not known

Today's agenda (March 15-th):

- mini-lecture on project resource planning
- group task: project resource plan compilation
- seminar on project quality, sustainability and evaluation
- mini-lecture on project maturity
- Criteria and scale for project presentations
- Teams update completed tasks
- Test on project and quality management basics (13.15 – 14.00 @ 1051 computer class) NB: you need to be a **group member** on Moodle to access the test

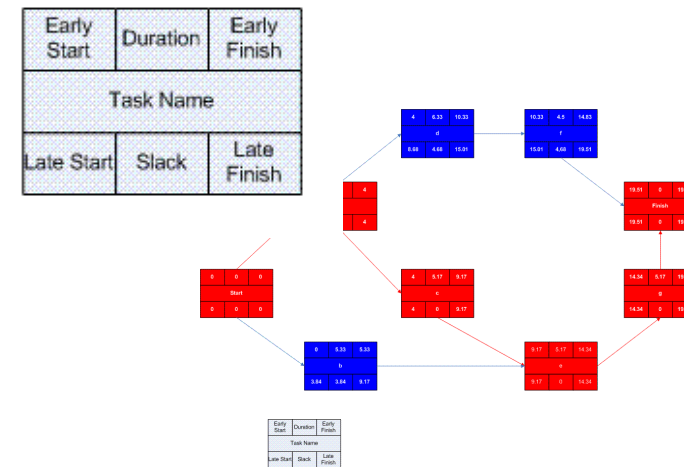
Project inputs

- People: – lists, profiles, proj.org. schemes
 - visionaries, implementers, experts
 - Social capital, power, recommenders
 - Position, visibility, status, public support
 - Info, knowledge, know-how, technology
 - Entrepreneurship
- Finances, tangible means of work, natural recourses – budget, lists of tools
- Time – Schedule, Gantt & PERT Charts
- Market – stakeholder & market mappings

Which planning tool to use

- A **Critical Path Method (CPM)** tool such as a GANTT chart – is appropriate if you
 - can estimate the duration of your planned activities
 - E.G. a training event, a standard lab setup
- An **event-oriented tool** such as PERT (Program Evaluation and Review Technique)
 - if the expected durations are hard to predict
 - or if you want to have uncertainty built in
 - E.G. a radically new product implementation, rescue trip
 - very large-scale, complex, non-routine infrastructure and Research and Development projects.

After Jessen: 2002 & Wikipedia



Illustr: Wikimedia commons user [Dbsheajr](#) Created in MS Visio



Illustr: Wikimedia commons Gordon Dam

What aspects can characterize project quality?

List key **characteristics of a good project** (in all three phases of a project cycle):

1. Taking an outside perspective
2. Taking an inside perspective
3. What can be some dangerous **mistakes** in project planning and initiation ?
4. ... in project implementation and evaluation?

A good project is characterized by:

- Relevance
 - a “hot” problem
 - reasonably selected target groups
 - suitable methodic
- Measurability
 - indicators
 - means of verification
- Sustainability
 - lasting impact
 - financial
 - institutional
- Multiplying effect
- Consistency
- adequate, sufficient solutions
- Ethical soundness
- feasibility



Project consistency with

Internally:

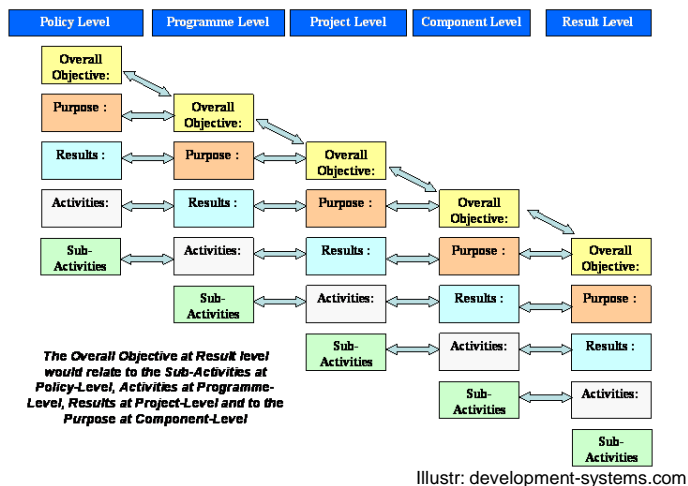
- Problems - goals
- Inputs - actions
- Risks / assumptions
- Personal motivation
- Legal & ethical standards

Externally:

- strategies
- policies
- stakeholders
- other preconditions
- mission & vision of org.
- legal & ethical standards



Achieving project sustainability



Project Maturity evaluation - Commercial Opportunities Appraisal Process (Warwick / Coventry)

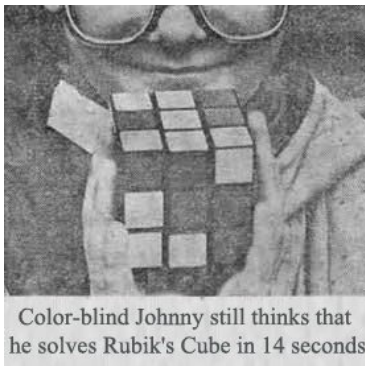
10 “COAP Dimensions”

1. Uniqueness of the technology
2. Readiness of the technology
3. Value of the Market
4. Anticipated Profit Margins
5. Intensity of Competition in the Market
6. Competitive Edge of your Product or Service
7. Ease of Access to the Market
8. Customer Conservatism
9. Commitment of the Team
10. Commercial Experience of the Team

Slide by John Halliday Original idea by David Catton, Sheffield University Enterprises Ltd

Criteria of evaluation for our course projects.
It has been shown convincingly that ...

1. A relevant choice of root problems is targeted
2. Stakeholder interests have been considered
3. the overall goal can be achieved with selected SMART objectives
4. SMART outputs lead sufficiently to objectives
5. Activity plan can produce enough outputs
6. Project risks are been dealt with
7. Inputs are sufficient to carry out activities
8. + *an overall consistency impression*



Illustr: author not known

Scale for evaluation of presentations

- +2 a very convincing and systematic overview is given on the aspect
- + 1 an somewhat convincing
- 0 no information provided or information hard to understand
- - 1 somewhat inconsistent or not realistic
- - 2 totally inconsistent or not realistic at all

Today's agenda (March 18-th):

- Different types of procurement / project calls
- Handing in personal learning portfolios
- Presentation and evaluation of two project proposals
 - tips for presenting
 - tips for asking supportive questions
- Tips for procurement checklist creation
- We maintain a good working atmosphere

Tips for presenting

- Give us a KISS presentation
 - **Keep**
 - **it**
 - **Slow &**
 - **Simple**
- Pause often to let us take notes

Tenderer tasks by info availability

Information / Type	Calls for tender	Open project calls	Home projects
Amount available	Low ... Med	Very low	Med ... Lots
Degree of detail	Low ... Med	Very low	Varies

- Gather information vs suggest reaserach
- Generalize vs rely on internal

Tips for asking questions

- **First** ask about the issues you have a "0" on your evaluation sheet. Any question is a present – it opens the team a possibility!
- Start by a reference to the issue as it was served/ rephrase some of what you heard
- If necessary, ask to show a relevant slide
- Treat the presenters as you would accept to be treated yourselves