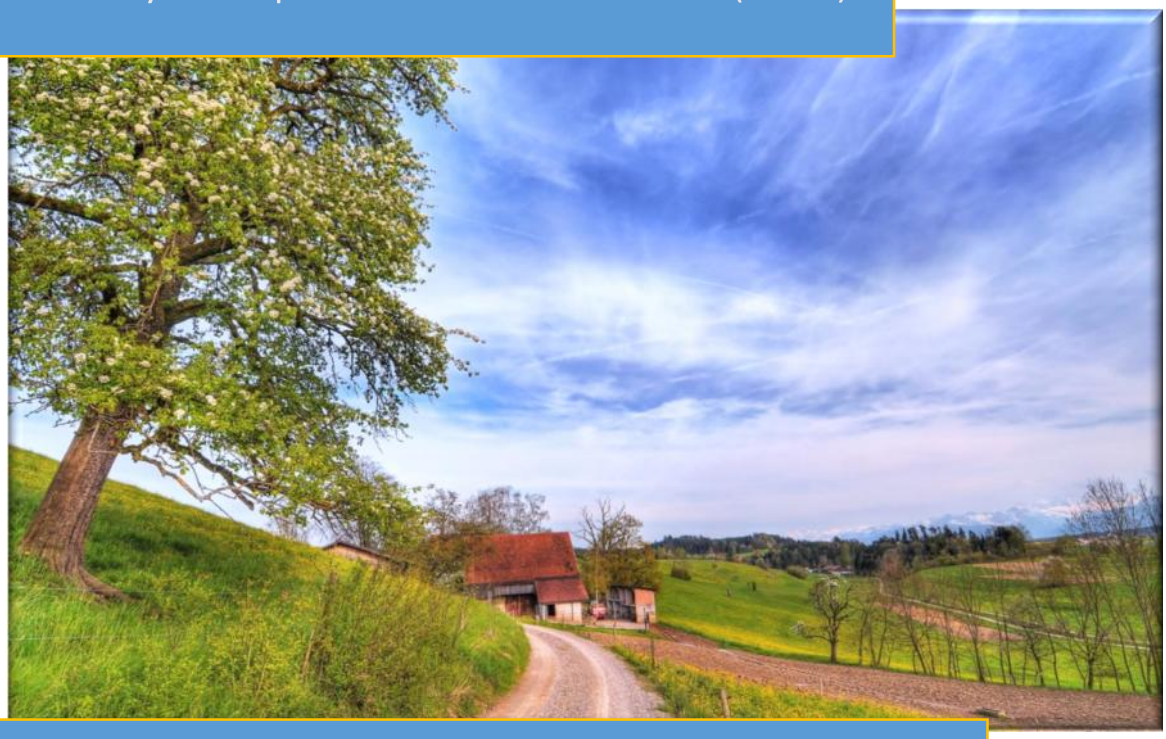
Rural Community Cooperative Facilitator (CCF)



Training Course – Module 3 – Project Implementation

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ENTCOM – Entrepreneurship and Community Cooperatives

Project Number: 2014-1-IT02-KA204-003631

3: Project Implementation

Skill Topic Area: Project Management skills e.g. how to prepare a GANTT Chart, problem solving (how to handle difficult situations).

Project implementation (or project execution) is the phase, where *visions* and *plans* of the possible „community cooperative project", become *reality*, where "*project inputs are converted to project outputs*".

Yes, the green arrow shown on our picture represents all the work that has to be done, all the steps that must be taken, we would like to help you to know and understand. It is a logical step in your project as well as evaluating, deciding, visioning, planning, applying for funds and finding the financial recourses of the project.

In general we could divide the **project management process** into 4 logical phases: Definition, Planning, Implementation and Closure.

Project definition phase is included in first Course Module. Anyway, do not forget that the finalized project goal(s) together with the requirements and specifications of the desired project result are the most important groundwork for further project planning.

Project planning phase is extremely important for the successful implementation and closure of a project. In order to be in control of the project activities and results we need a plan - a "list" of actions and their required results. ***Project implementation phase*** simply means carrying out the activities described in your plan – so it is almost impossible to conduct and manage a project without one.

Project closure phase comes when the real mission of the project is realized, but there are still some tasks to be accomplished – paper work, reporting etc.. We still continue to apply the basic project control cycle and implementation tools until LOP (list of open items) is closed.

In our Project Implementation Course Module we are going to follow this structure:

- 1**. Planning phase** – with its Sub-Topics connected to project implementation:
  - 1.1. **Core of the planning process -** explains what is necessary to plan and we also outline how to do it. (Planning the Scope, Planning the project schedule – Milestones, Network diagram, Gantt chart, Planning the project budget)
  - 1.2. **Project Risk Management** and 1.3. **Project Change Management** - explain that planning should also comprise some flexibility for predictable and also unpredictable events.
  - 1.4. **Project Communication plan -** explain that just like in everyday life the communication is very important,
  - 1.5. **Quality planning -** we also touch the importance of quality management
  - 1.6. **Planning the Controlling Tools -** we will list the most common tools that could be used in the controlling process.
- 2. **Project implementation phase** divided for the needs of our Course Module into following Sub-Topics:
  - 2.1. **Project control cycle -** which shows us how the control process works;
  - 2.2 **Meetings and Workshops -** as a useful platform for comparison results of action with the planned results;
  - 2.3. **Reports** - with the emphasis on Project status report, showing us the overall and structured picture of the on-going project execution;
  - 2.4. **Conclusion of the project implementation phase** – summary and the steps we should take before the project closure phase begins;
  - 2.5. **Project Termination –** about possibility of project failure situation.
- 3. **Solving Problems** – short instruction as we can meet the problems in whole project life cycle.

You may think that next chapters are too sophisticated for a local project in rural areas, but as a CCF you should have in mind the big picture. And prepared plans and charts do not have to be long and huge, but the process of their creation is inevitable part of successful implementation of project, no matter what size it is.

1. Planning phase

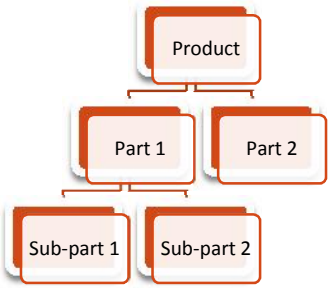
1.1. Core of the planning process

Just like it was said in the previous chapter, there is no possibility to manage a project, without developed project plan. What do we have to plan? Did you guess “just everything”? You were right. And the more detailed your plan is, the better. But of course that to plan everything is not real. Primary we should focus on the classical core of the project planning process - planning scope, schedule, and budget.

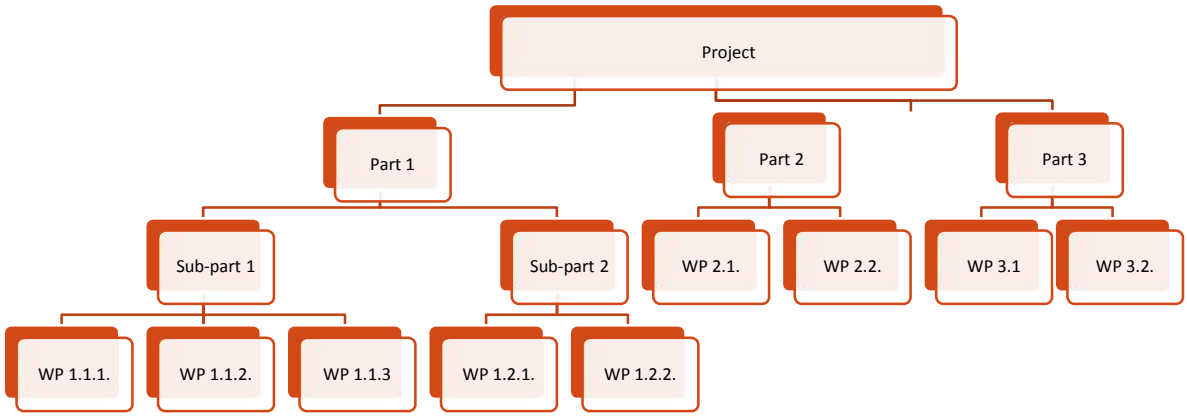
Planning the Scope

Project's scope is simply the **sum of the products and/or services to be delivered** by the project. For exact defining we can use the *product breakdown structure* (PBS). We can create it by asking question: What is the project result or product, and how should it look like, what are its parts? The PBS provides ''an exhaustive, hierarchical tree structure of deliverables (physical, functional or conceptual) that make up the project, arranged in whole-part relationship'' (Duncan, 2015). Simply - the PBS is a structured overview over the product and its parts that have to be created by the project.

The answers to question:



What work has to be done in order to create that project result or product and its parts? Then describe the *work breakdown structure* (WBS). WBS is a hierarchical and incremental **decomposition** of the project **into phases, deliverables and work packages**.



Do you want to know more – see the list of materials for further study.

Then it comes to ***Effort and Duration Estimation***. The work package experts (the particular work packages came out of the WBS) should do this work. They should know what resources they need, for what period of time. The more experienced people involved in this estimation, the better. Always try to avoid over- or under-estimation! In case you neglect this part of planning you risk certain project delays or cost overruns. The *critical chain method* can help in this phase.
Do you want to know more – see the list of materials for further study.

Planning the project schedule

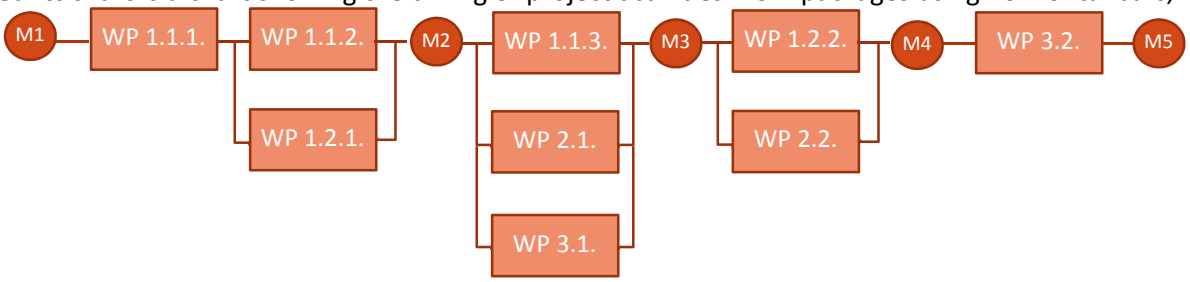
Planning the project schedule comprises three steps: planning the *milestones*, creating a *network diagram* of all the work packages, and setting up the *Gantt chart*.

Milestones focus on major progress points that must be reached to achieve success. They are special and most important points of our project time line.

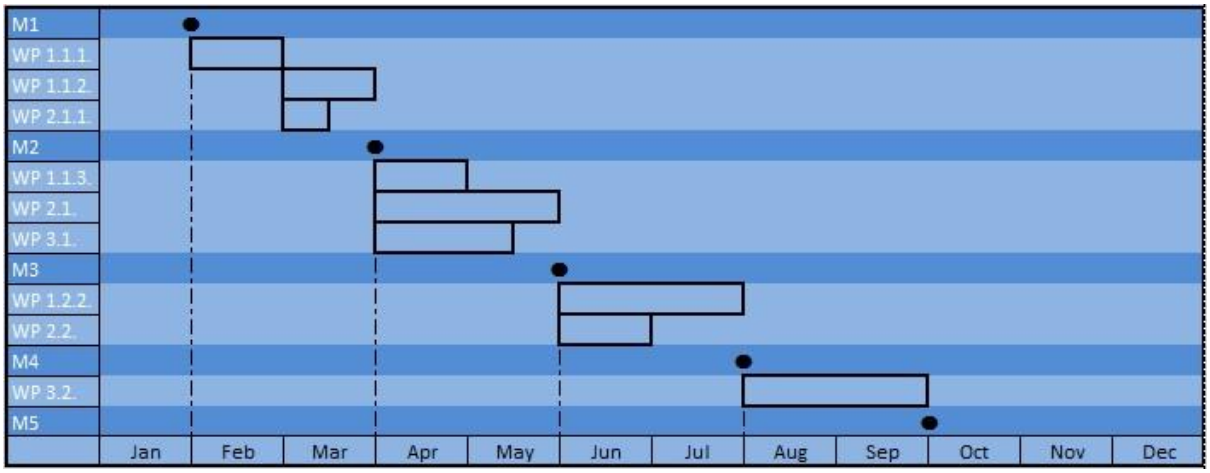
This picture is funny but very illustrative. You cannot skip or switch over any of the steps without risking failure of your project whether it is walking or big EU granted project.

Network diagram of all the work packages from our WBS basically shows which work package has to be finished before another one can be started. It is a graphical overview over the logical sequence of all the work packages that have to be done and the milestones that have to be accomplished. In the Implementation phase of the project management process it will enable us to control project implementation progress on the level of logical work sequence.

Gantt chart is a chart showing the timing of project activities-work packages using horizontal bars, it



depicts the frequency of work packages and determines the period of time for implementation. The time is represented on the horizontal axis, and work packages on the vertical axis. Bars are entered to indicate the time period allocated for each activity-work package. Simply, we draw a graphic with all the work packages as bars, each one located with reference to a common time line, and with each one's length corresponding to its duration.



Having the network diagram and Gantt chart and data resulting from effort estimation we can also find out the *critical path* and use the so called *Critical Path Method* (CPM) of planning.
Do you want to know more – see the list of materials for further study.

HINTS & TIPS: For *optimization of the project schedule* we should go through setting the Milestones, Network diagram and Gantt chart several times following a natural work logic and minimum overall project duration.

Now we should ***assign all the necessary resources*** to each work package. So guess, what do we usually need to have any kind of project done? People – the right people? Material, tools? Money – enough money? Yes, exactly. Now is the time for planning three different types of resources: *human resources*, *tools* and *machinery; and material*. This topic is at least partly described in other Modules of this Course, so we will go directly to next topic - money!

Do you want to know more – see the list of materials for further study.

HINTS & TIPS: The schedule should reflect the resources (labour, materials, overhead) needed to do the work, whether they will be available when needed, and any funding or time constraints.

HINTS & TIPS: For getting practise try to make up some more milestones, try to put the activities in logical relationships in Network diagram, try to add the matter of time and create a Gantt chart.

Planning the project budget

Picture by pictures of money on flickr

Resource plan - are costs of human resources, tools and material cost integrated with the project schedule on work package level
Accumulated on project level we get the *cost plan*.
Our financial plan will be finished by *planning the payments or sales*.
Do you want to know more – see the list of materials for further study.

We can close the core of the planning phase when we have all the plans we were writing about

- PBS and WBS
- milestone plan, network diagram, and Gantt chart
- resource plan, accumulated cost plan, and payment plan

1.2 Project Risk Management

Real life is unpredictable. That's why we need for our project not just plans for ideal circumstances, but also plans how to deal with problems. With these we are flexible enough to proceed the project successfully to end.

Project risk is defined by Project Management Institute as 'an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives'. Project risk is the possibility that project events will not occur as planned or that unplanned events will occur that will have a negative impact on the project.

Known risks are events that can be identified before they occur, they could be analysed and advanced planning is possible. The other risks are *unforeseen* and *unknown.*
Risk management process basically consists of identifying, evaluating and assessing the risks to the project and managing those risks to minimize or mitigate their impact on the project.

Unfortunately the risks could not be eliminated, there is an infinite number of events that can have a negative impact on our project. The objective of Risk Management is to predict those risks, assess their likelihood and impact, and to actively plan what should be done ahead of time to best deal with situations when they occur. Risk management could be, also depending on the size of the project, informal or very formal with defined processes and methods for *identification and evaluation of the risks* using tools as checklists, brainstorming, risk register, expert inputs or a risk breakdown structure (RBS) - following the work breakdown structure (WBS) to identify risk by activity.

Do you want to know more – see the list of materials for further study.

Risk mitigation is the development and deployment of a *Risk Management Plan* to avoid, transfer, share and reduce project risk. Our plan can consist of preventive and corrective actions

Preventive actions are for example security standards, technical solutions (as camera system, automatic locks), duplicating and sharing responsibilities within the project team etc.

Corrective actions are scenarios that react on risk materialization, that means: 'If event X happens then we follow plan A, if X does not happen then we follow plan B.'

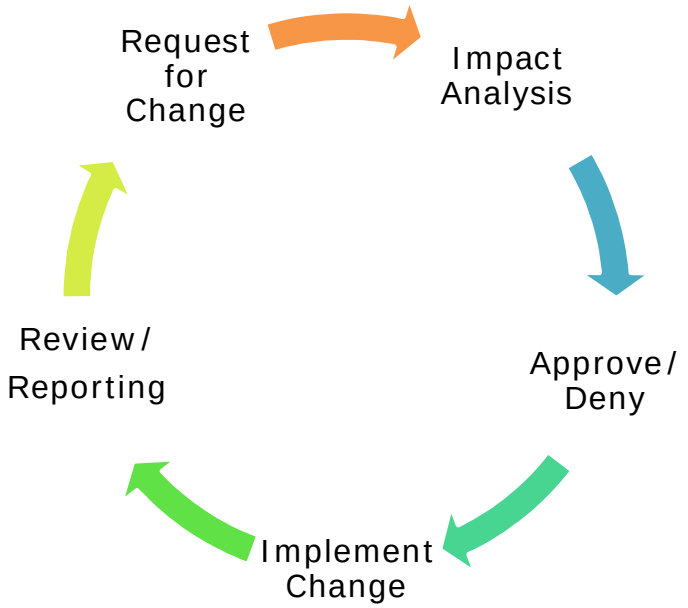
Both can be written as add-ons to some of the existing work package or in separate new work package (and should be integrated in all other planning documents). At least creating contingencies for corrective actions or budget reserves helps to flexibly react on foreseeable eventualities – that may occur throughout the project life cycle.
The Risk Management Plan helps assure satisfactory project results by specifying a process to follow during the implementation phase for detecting the occurrence of these factors and for responding to the resulting realized risks.

HINTS & TIPS: It is essential to start the risk management process early in project planning phase, e.g. combined with effort estimation, and depending on the size of the project, repeat the risk management steps 1 to 5 (as shown in the picture) after each step of planning.

Do you want to know more – see the list of materials for further study.

1.3 The change management process

The risk management can take care of foreseeable eventualities. But there are also things that happen very often, which we cannot foresee. These events can lead to problems which are not covered by our plans. Then, it is very useful to have at least a generic procedure planned, how to deal with unforeseeable events and their impact, that is, how *to manage project changes*. So, following part of our planning should be to create **Change management plan**. Depending on the project specifics, this plan should include the process of the change – means „who, what, when, how to manage change on the project", further also tools we want to use (SW, Templates,…) and change control activities, which are integrated throughout the whole project. These activities include review, analysing and approving change request promptly, managing the approved changes, maintaining baselines, coordinating changes across the project and documenting the whole impact of the change on the project.



HINTS & TIPS: by Kenneth Darter: When it comes to making changes on a project, make sure all changes are really indeed necessary and then fully communicated to both the team members and stakeholders. Document changes to keep the project documentation current and prevent poor decision making based on inaccurate data. Next, update the project schedule to reflect the impact of the changes. Finally, think about any lessons learned that could be usefully applied to future projects.

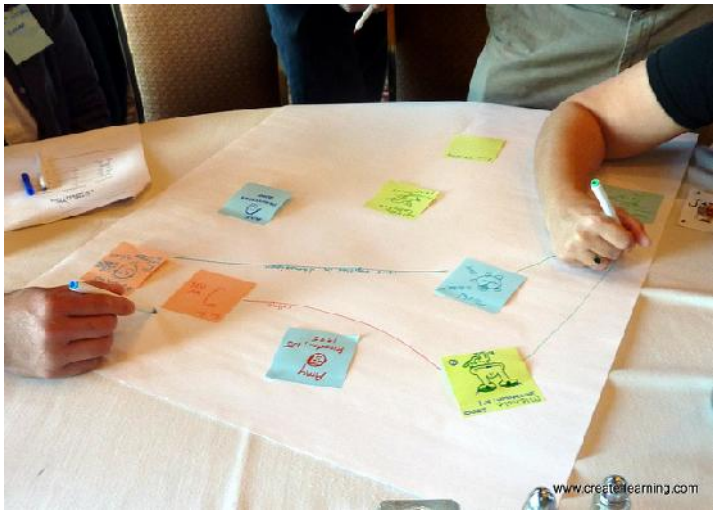
Do you want to know more – see the list of materials for further study.

1.4. Project Communication plan

For small projects, communication can be quite simple, but the bigger and more complicated the project is, the more complicated and more important communication becomes. By planning our approach for communication in advance, we can provide the right information to the right people, at the right time, in the right format, and with the right emphasis. Successful project management depends on successful communication. In order to make all project communications successful we need to prepare a *project communication plan*.

The communication plan lists the audiences for the project, the information we plan to communicate, how we will compile the information, and the communication methods we plan to use. But the heart of the communication plan is a matrix that shows how we plan to communicate information to each project audience.

Before creating the real plan, it is recommended to start with definition of *Purpose and Approach* of the communication plan - why it exists and a general idea of how you will implement the plan on your project. It is also recommended to define the *Communication Goals and Objectives* - what you expect to achieve by communicating - this could be any number of things and is dependent on what your project will accomplish. Generally, these should be focused on educating and updating anyone impacted by the project.



Then the first step to creating a communication plan is identifying ***Who*** *needs to know* something about the project. (project team, manager, stakeholders, project sponsor, *customer(s),* supporting groups, external audiences -vendors, suppliers, partners…) and define their roles and their corresponding communication responsibilities.

The second step is to find the answer to question: ***What*** *Do You Communicate* to Audiences? This section describes information you typically communicate in projects and then categorizes it by the groups that use it.

In the third step we define the ***Types of*** *Project* ***Information*** – the information we communicate varies depending on whether we are planning, executing or closing the project.

The next step to developing a communication plan is to determine the best ***tools and methods*** for getting each type of information to your audiences. Communication methods come in many guises and each one has its advantages and disadvantages. For example, face-to-face communication is best for delicate discussions or to brainstorm solutions. Conference calls and email come in handy for teams that are distributed geographically. Documents in paper or electronic format are ideal for communicating large amounts of information that require study.

Do you want to know more – see the list of materials for further study.

HINTS & TIPS: Methods that offer opportunities for people to ask questions or provide feedback can provide real value for your project.

As written above, the heart of the communication plan should be ***the matrix*** – includes following information: who (the audience), what (message, topic – usually some kind of *report*), from whom (Communicator), schedule or frequency (when / how often), delivery method (how).

WHO?	WHAT?	FROM WHOM? (Communicator)	WHEN/HOW OFTEN?	METHOD (HOW)?
Project team and Stakeholders	Status Report	Project manager	weekly	Email and hardcopy
Project team	Updated Action Register	Project manager	weekly	Face to face meeting
Senior management and project management	Milestone Report	Project office	bimonthly	Email and hardcopy
Project office, management, customer, staff	Accepted change request	Design department	anytime	Email and hardcopy

Tip: Adding columns Status and Comments – our matrix could be used as communication *action plan*, a working document that will change as our project communication needs change.

As mentioned above, there may be situations that imply change of the project. For these we should also prepare so called ‚**plan of escalation**', that explains how to communicate the need of change and the change itself (who to talk first to, second etc.).

1.5. Project Quality planning

Quality Planning is the process for "identifying which quality standards are relevant to the project and determining how to satisfy them". Quality planning means planning how to fulfil process and product (deliverable) quality requirements. Managers should consider quality planning in conjunction with the rest of the project planning because it influences costs, scheduling and other factors. Without strong quality planning, a project carries an increased risk that the client won't be satisfied with the results. The *Quality Management Plan* defines the acceptable level of quality, which is typically defined by the customer, and describes how the project will ensure this level of quality in its deliverables and work processes. It helps the project manager determine if deliverables are being produced to an acceptable quality level and if the project processes used to manage and create the deliverables are effective and properly applied.

In the implementation phase the quality management activities ensure that, the project outcomes are good enough to fulfil the project aims, that the project is efficient and all weak places are identified and that any problems were solved and taken care for.

Do you want to know more – see the list of materials for further study.

1.6. Planning the Controlling Tools

To show you the whole picture of planning, it is useful to plan also use of controlling tools in advance – so the metrics and procedures are unified and the data comparable. There is more information in a separate Course Module, but here you can see some examples of project management metrics, that can be tracked:

- Comparison of actual with planned quantities (e.g. "76 of 105 windows installed")
- 0 – 50 % – 100 % method (work on work package not started – ongoing – finished)
- Estimation of remaining effort and duration
- "Simple" tools, like work breakdown structure (WBS), network diagram and Gantt chart
- Milestone Trend Analysis
- Earned Value Analysis (including schedule variance and cost variance)

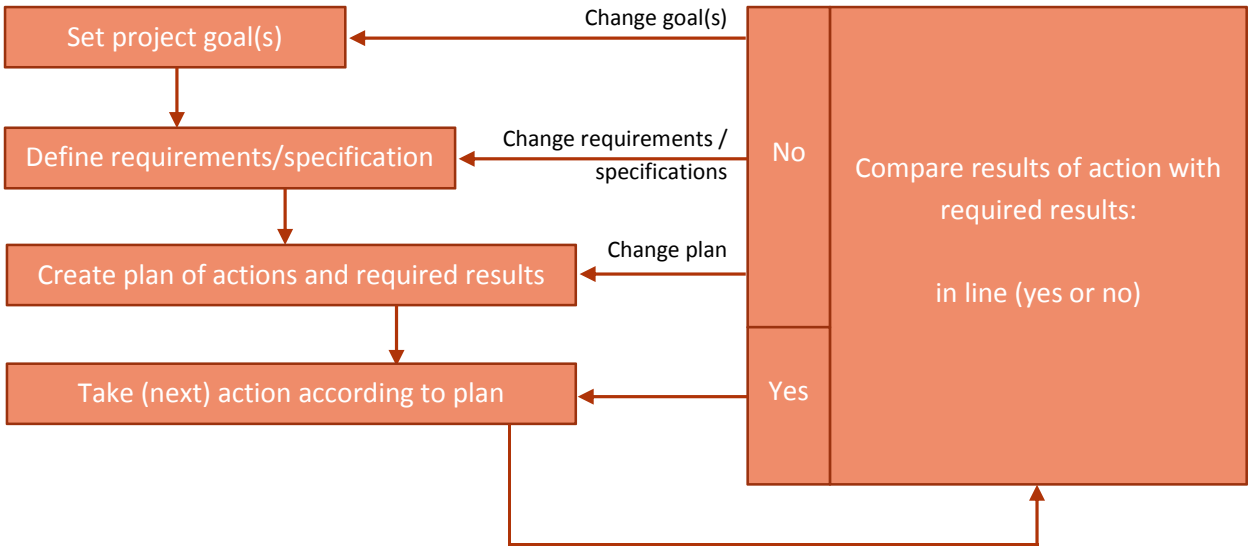
The reason why we are so much talking about planning within the Project Implementation Course Module is also fact that it is not just simple, one-shot process. As a good project manager you have to go your plans repeatedly through, and rethink them and react on actual state of the matter.

TIP: There are possibilities to use a project planning software, but even though it can be helpful it never can replace a joint effort of the whole project team. So we should always keep in mind that we should use the tools with regards to our project needs not to change the project management along the application software.

2. Implementation Phase

2.1 Project Control Cycle

When all our planning is done – we have detailed plan for scope, schedule and budget, our plan also include the risk analysis and the flexibility for changes, we have also a quality and communication plan and we decided what kind of controlling tools we will use, the Implementation phase can start. In project implementation or project execution, we put it all together. We follow the basic **project control cycle**, we apply the controlling tools while comparing results of action with required results as shown in picture.



1. At first we „*take action*“ according to our plans
2. We have to *record* and *document* just everything (work progress, work results, events, decisions and implementation of changes, additional work, occurred risks and

consequences…) In case everything runs according to plan we keep records of the achieved work progress for our timely updated analysis used for our project control. If something is not in line with our project plans, an unexpected event happens - we need to take all available records of that event, of its impact, of all possible solutions found, of the decisions made in order to solve the problem.

3. We should *analyse, report, communicate* and *document* the situations. We should check if they differ from what was planned. In case the project requires something different from the actual state, we need to decide what actions of change management plan we have to implement.
4. If there are any agreed changes we implement those – should be also according to our plan
5. We start this process again (we can take „next action" according to our plans now – as shown on the controlling process picture)

2.2. Project meetings and workshops

The face to face contact is always the most efficient tool for communication not only within the project team. That' s why we use the meetings and workshops for comparing, analysing and deciding work progress, next steps and applying planned project controlling tools. The most common general types of meeting follow.

Picture by John Benson on flickr

A project **Kick-off meeting** is a planning event being held at the beginning of the project (or its specific phase) to ensure that every person involved in delivering the project clearly understands the objectives, procedures and plans. The main purpose is to present the project planning status to the stakeholders, especially to all our team members, and to officially start project implementation phase.

Regular project status review meetings are held throughout project implementation and closure phases, so we are able to control the achieved results. These meetings are organized on a regular basis to exchange and analyse information on current progress of the project and its performance. During

such a meeting, the project manager distributes performance reports among the participants to allow the team and stakeholders to gain visibility into current performance levels and task progress.

Special project meetings – are held just in case of an event or arising problem in project implementation occurs and they focus only on that problem or event. In case of a serious problem (affecting the whole project or major parts) occurs we can hold also **Problem solving workshops**.
Risk management workshops-should be held regularly throughout all the project management process

2.3. Reports (Project status report)

The basis for all the kinds of project meetings and workshops are ***Reports*.** Well-structured and regular project management reports are indispensable for project controlling during the project implementation. Good reports also help to keep meetings and workshops short and efficient. The reports should follow your communication plan. There are many kinds of them and you can always use one of the templates available. More about report writing is included in another Course Module.

Picture by GotCredit on flickr

Anyway let's look at the Project status report closer, as it could serve us as a „project control centre". For successful project implementation we always need to know in what state the project activities are. We planned some controlling tools so now we need to collect the data and analyse and react on them.

The most important elements we would integrate into **Project status report**:

1) *Overall Project status report* in terms of scope, schedule and budget (very simply and clearly in green, red, yellow…like the project as whole is on track, off track or OK with minor issues…)

2) *Scope Status* – list of accomplished results, list of possible or necessary scope changes (not yet sent out as change requests or claims).
   In project implementation phase we should make sure that the actual work follows the WBS (Work Breakdown Structure). The *WBS* itself, could be a practical tool for controlling the project scope on work package level. As indicator of missing scope on project level we can also use the *MTA, EVA* or *problem solving techniques* for affected work packages.

3) *Schedule Status* – In general, in project implementation phase we have to also make sure that the actual work follows the planned project schedule and we make sure that we identify changes and additional time necessary as early as possible and quote them in form of a change request for extension of time (EOT). And again we check the status on more platforms prepared in planning phase - *network diagram* in order to identify individual work packages that are delayed with reference to their logical sequence, *Gantt chart* in order to identify individual work packages that are delayed and how much they are delayed, *MTA, EVA* etc.

4) *Budget Status* – Within the implementation phase we need to stay in control of the money, so we have to be able to check if we are not short about money, and identify possible problem as soon as possible. As a practical tool of project cost management on work package level, we can apply ***simple comparison of actual cost with planned cost.*** (For that, we need close co-ordination with our organization's accounting system.) This comparison does not yet show the full picture of our project's cost trend. To get the real cost trend we analyse actual cost vs. earned value – *we use EVA* as indicator of cost overruns or savings on project level. Other tools that might be used are *Predicted project profit* (on project level) or *Problem solving techniques* for affected work packages.
   Do you want to know more – see the list of materials for further study.

5) *Status of significant Issues and Risks* – here we describe the progress made toward resolving issues and managing risks during the last status period. We should identify issues that have been closed and risks that have been successfully resolved. Also, document the risks that were avoided by implementing plans to circumvent those risks or because the work packages that were at risk have been delivered without issue.

6) ***Change Requests*** - what change requests did we receive or send out, what is their current status, and what is their impact on the project in terms of scope, schedule, and budget.

Tools and analysis

Gantt chart as a tool for controlling the project schedule on work package level focuses on actual time used, compared with time planned, for each work package. Using the Gantt chart we created in our planning phase we have bars showing the time planned for each work package to be finished. During the implementation phase we use second colour or shading for each bar to indicate the state of progress at any particular point in time. Finished work packages we mark for example as checked.

Milestone trend analysis (MTA) enables us to visually check how we are doing about our milestones, and it tells us usually as first, if we are starting to have some delay or not.

The second type is the ***analysis of earned value vs. planned value (EVA)***, which is another important project controlling tool that helps to control schedule and also cost in larger projects. It is used as a tool for cost control as it is very helpful in determining how the project is going, in terms of cost, scope and time. That is, whether the cost is under control and if it will go over our planned budget or in how much time the project would be completed if we continue working at the same pace.

Thus Earned Value Analysis is helpful to plan and make changes in our plan depending on the current scenario and other internal and external factors which may influence the project later on. (Note that Earned Value Analysis calculations for any project can be done at any point of time, but if we are not using earned value management, we might not get accurate results.)

Do you want to know more – see the list of materials for further study.

Depending on the project and what we want to inspect the project status report might also include for example *Document lessons learned - b*y publicizing effective techniques or ill-advised approaches, other team members can be more productive; or ***Claims*** - what claims did we receive or send out, what is their current status in the claim settlement process, and what is their impact on the project in terms of scope, schedule, and budget.

HINTS & TIPS: Remember that reporting and using IT-based tools should be done in mutual trust in the team. The outcome of the reports and other tools will only be good as what we feed into them. There must be a high level of trust in each other in the team to obtain the truth about each one of the work packages. This high level of trust is the key to successful project controlling.

2.4. Conclusion of project implementation phase

Without monitoring and controlling the project, it is nearly impossible to complete it, to achieve the required results within the scope, time and cost. Compromising on one of these three factors leads to the over utilization of other(s), which is not desirable and may lead to contractual penalties. To complete a project in the given timeframe and within the given resources, it is necessary to plan for their judicious use, not only at the beginning of a project but also during its execution. This is essential to make the project adapt to external changes and absorb irregularities in the schedule. Applying our controlling tools and implementing agreed changes we follow the basic project control cycle repeatedly towards the end of project implementation phase, when the desired result of the project takes more and more shape. The end product or service is **essentially** put together. Then, we can declare the project result "ready for preliminary acceptance" and also create the List of Open Points that contains minor problems that are not yet in compliance with the specification requirements and must be resolved in closure phase.

2.5. Project Termination

All projects unfortunately do not end by successful completion of the effort. There are many reasons why project termination -project failure or premature abandonment- becomes necessary.

The most common are:

- Technical reasons
- Requirements or specifications of the project result are not clear or unrealistic
- Unanticipated loss or lack of human, funding and other valuable resources
- The project effort becomes counter-productive because initial goals and objectives are unmet
- Force majeure (e.g. earthquake, flooding, etc.)
- The parent organization does not longer exist or changes its strategy, and the project does not support the new strategy Project termination is one of the most serious decisions a project management team have to take and of course it causes frustration for everybody involved. So, it should be done consciously, at the right time, very carefully, based on clear and well

communicated criteria and profoundly discussed with the whole project management team, and finally decided mutually.

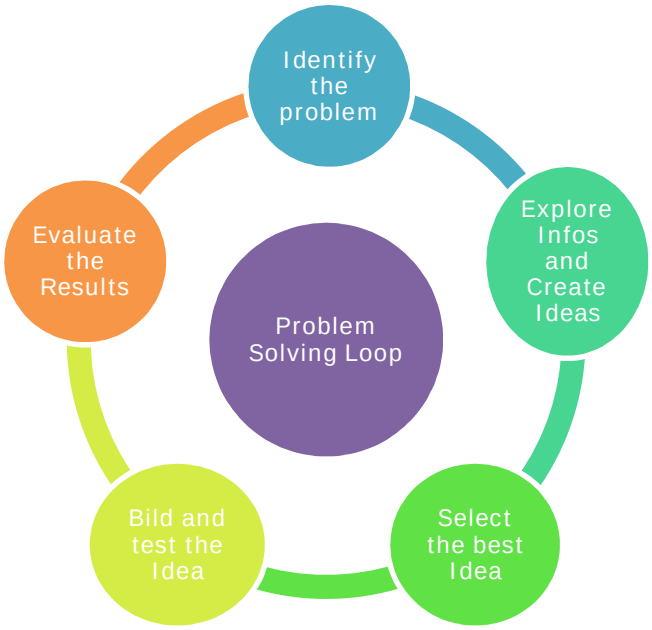
Picture by CollegeDegrees360 on flickr

Even though the things went wrong and the project is going to be unsuccessfully terminated, there are some new findings that are worth sharing. At least should be willing to share, what did not work and why, so we or anybody else is not repeating the same mistake again. From this reasons we should go through whole the evaluation, reporting and finalisation as if the project finished in normal conditions. Than we have materials to share, about the failures and positive achievements of the project.

3. Problem Solving

In the life cycle of any project, there will almost always be unexpected problems and issues. There are many types of problems we can face like knowledge problems, troubleshooting problems, resource problems, social problems, design or mathematical and so on. But we should be always ready to deal with these problems or they could potentially affect the project's outcome. Some problems are small and can be resolved quickly. Other problems are large and may require significant time and effort to solve. These larger problems are often tackled by turning them into formal projects.

Either the problem is small or large, it is always good to follow the **Problem solving process** to stay more effective. Process is the series of logical steps that followed to produce an optimum solution.



1) **Identify and understand the problem** - The most important of the *problem solving steps* is to define the problem correctly. The way you define the problem will determine how you attempt to solve it. Understand the problem by defining the input/outputs, known's/unknowns and sketch the problem.
2) **Determine causes** - This level of analysis is important to make sure your solutions address the actual causes of the problem instead of the symptoms of the problem.
3) **Generate, create ideas** - there are many approaches to solve the problem, examples are mind mapping, fishbone diagram, SWOT analysis and others.
4) **Select the best idea- the best solution** - we can use for example simple trade-off analysis. To perform the trade-off analysis, define the critical criteria for the problem that you can use to evaluate how each solution compares to each other. The evaluation can be done using a simple matrix. The highest ranking solution will be your best solution for this problem.
5) **Verify and test** – compare the solution with the problem statement, test the solution
6) **Take action- implement the solution** you determined

HINTS & TIPS: Computers might be to tools in problem solving but it is human who solves the problem! Problem solving is combination of experience, knowledge, process and art. The problem solving ability comes from doing it and need to pull many information and solutions to solve the problem.

Do you want to know more – see the list of materials for further study.

Now, test your knowledge answering to the issues proposed about the following situational scenarios.

Situational scenario

Imagine that you are part of project team that moves a leisure time children club to a better place. See the statements below and identify the right one:

a) *The only milestones in the project are: start of the project, moving of the furniture to a new place, end of the project.*
b) *There is no need to put these activities in network diagram: finding new place for children club, packing the furniture, moving the furniture, preparing welcome party at the new place etc.*
c) *These activities are worth being in a network diagram: finding new place for children club, packing the furniture, moving the furniture, preparing welcome party at the new place etc.*

(The answer can be found at the end of the Course)

Situational scenario 2

Imagine again, that you meet project team that moves a leisure time children club to better place.

See the stories below and identify, where the mistake is:

a) *'We decided to find suitable place, because the place we have now is too small. We looked in newspaper and online for new places and visited some of them, first 2 weeks we could not find something big enough with good public transport connections so we were desperate and wanted to give up, … .'*
b) *'We decided to find suitable place, because the place, we have now, is too small. We, as the project team decided in advance on criteria for the new place and wrote them in a document. This document with requirements was sent to broader public so all friends could help us to find the place. All the possible candidates we kept in special chart with contact info and space for commentaries, with columns about visit, status of negotiation, etc., so all the members of the team can see results. In the plan we estimated, that 3 weeks are enough, but we did not find the place so early. That´s why we called special meeting where we discussed and put lower the requirements (according to offer on the market) and decided to add another 3 weeks' time and shorten some of other phases of the project (for example packing and unpacking).'*

(The answer can be found at the end of the Course)

Materials for further study

1.1. - For more info about project scope go to: project scope, project scope definition, defining-the-project-scope-tips-amp-free-template
For more info about Effort and Duration Estimation go to: effort estimation or estimation, critical chain method, critical chain
For more info about *Critical Path Method* (CPM) of planning go to: critical path or see CPM video.)
For more info about resources go to: assigning resources, possibility of using SW tools
For more info about budget planning go to: project budget, 6-budget-planning-steps-to-professional-project-estimates, budget-planning-project-management

1.2.- For more info about Risk breakdown structure see RBS video, or go to: understanding-the-rbs, rbs
For more info about risk management you can also go to: risk management, risk analysis, risk management plan

1.3. - For more info about process of change management go for example here: project change management, Write-a-Change-Management-Plan, change management, how-to-make-changes-on-a-project.

1.4.- **For more info about project communication go to :** the-project-communication-plan**,** how-to-create-a-project-communication-plan

1.5.- For more info about project quality plan go to: quality-planning, quality-planning-important-project-management, project-quality

2.3 - For more info about budget status report go to: project cost management
For more info about project status analysis go to: milestone trend analysis, mta, MTA, earned value project management, value analysis

3 - For inspiration about generating problem solutions go to: fishbone-diagram, swot-analysis
For more info about problem solving go to : http://satheespractice.blogspot.cz/2012/05/problem-solving-skills.html
problem solving techniques