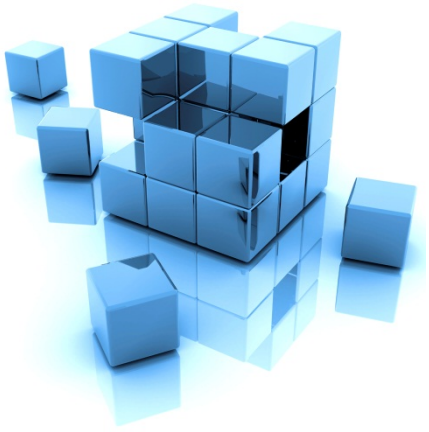
TOPSIM®
LEARNING BUSINESS BY DOING BUSINESS



P TOPSIM – Compliance Management

Participant Manual – Part II
Participant system & Reports

Version 3.0

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1. Project Optimization

After detailed internal planning and the project network plan development, however, it became clear that the originally offered services differ in some places from the now developed project plan. Please refer to this section for the most important details. Your customer expects delivery of a new realistic and binding calculation.

1.1. Starting situation

The duration and cost of the work packages, as they were discussed in the kick-off meeting, result in the following starting situation in phase 0:

Revenue (TCHF):	8.000,000
Cost (TCHF):	15.464,00
Profit margin (TCHF):	-7464
Duration (weeks):	48
Technology (Index):	100
Quality (Index):	100

Essentially, this results in the following challenges:

- With this duration and the current technology and quality indices, 15.464 TCHF costs will be incurred with 8.000 TCHF revenue. Your contribution margin is therefore negative and accounts for 15.464 – 8.000 = - 7464 CHF. This indicates a demand for optimization.

Optimization possibilities

For many of the project's work packages it is possible first to manipulate the planned duration and then other criteria as well.

- For work packages with a buffer of 0, it can be interesting to shorten the duration at an increased cost.
- Where the current buffer is enough, it can be examined if lengthening the duration will bring any advantages, e.g. in terms of cost.

1.2. Alternative courses of action

There are alternative courses of action for each work package in order to optimize the project. Each alternative can influence the following data of the respective work package.

- **Duration**: **+ / —**
- **Costs:** **+ / —**
- **Technology index:** **+ / —**
- **Quality index:** **+ / —**

Important Note: Unforeseen disturbances may occur in each work package during the execution of the project. These events may have negative or positive effects. These events can also influence the duration, costs, and indices of the various work packages. Again alternative courses of action and solutions can help you in achieving the project goals.

Approach to project and tender optimization

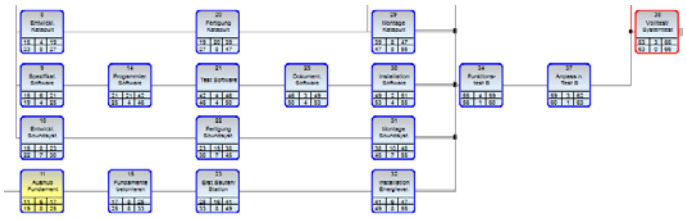
The optimization is possible through your PC-supported participants' system. Therewith the impacts of the various courses of action on the end date of the project, the total costs, the profit margin, and the technology and quality indices can be tested.

Selecting a course of action using the Network Diagram

The participants' system allows you to plan the project by using the network diagram:

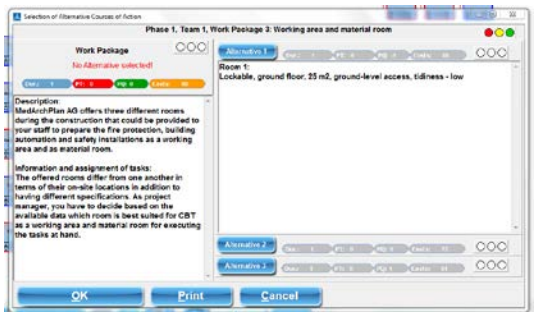
1. By clicking on the activity box in the network diagram all possible alternatives will be displayed.

2. The dialog box for selecting an alternative will appear. Make your choice with a click on the corresponding alternative 1/2/3 – button in order to see the content. (There are also work packages with only one alternative.)



3. Click on the displayed alternative **again** → it will turn **green to show that is has been selected.**

4. Confirm your choice by clicking on the OK button.



HINT: You can always choose the standard alternative (no-selection) of a work package.

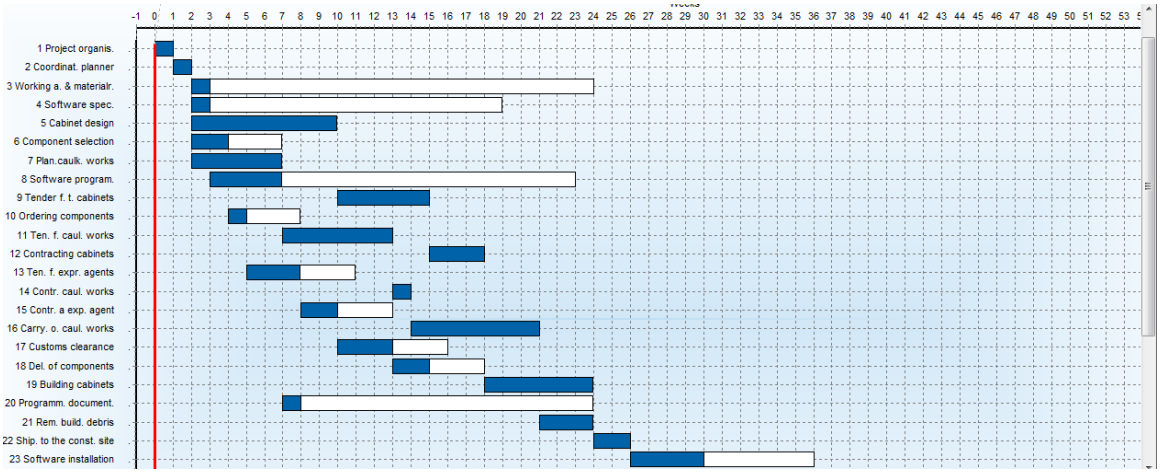
With each alternative selection the network diagram will be calculated anew so the effects of each decision are always apparent. You can cancel a previous selection by clicking on the green marked alternative again.

In this way, the network diagram is the most important tool for planning and optimizing your project.

As an alternative to the network diagram you also can see and edit the project with the help of a Gantt-diagram. You can switch to Gantt by clicking on the button "Gantt" on the bottom of the screen. By clicking on the button "Pert" you can go back to the network diagram.



The Gantt – diagram is particularly suitable for obtaining a quick overview of buffer times (white color) of various work packages. You can also view the status of the timing very quickly as the red vertical line will indicate the current week of your project.



Project Implementation and Controlling

After delivering the modified offer at the end of the optimizing phase, the project begins according to the conditions you have entered. You must monitor and coordinate the project's progress. The project is not expected to proceed undisturbed. As the project progresses, the respective updated network diagram along with the participant reports will provide you with relevant information for decision making.

2. Simulation Process

In the following section you get an overview of the most important correlations regarding the timing of the simulation process.

2.1. Project Process

The project process is divided into several phases which are activated by the instructor. Each phase is divided into several weeks. In order to determine the exact duration of a phase, **please contact your instructor.**

After you have completed the tasks of the work packages, the project will proceed according to your decisions, phase by phase. Once **a phase is activated by the instructor**, each week within the phase can be simulated.

If a week is activated, the participants are confronted with possible events that may occur during the process of the current work packages.

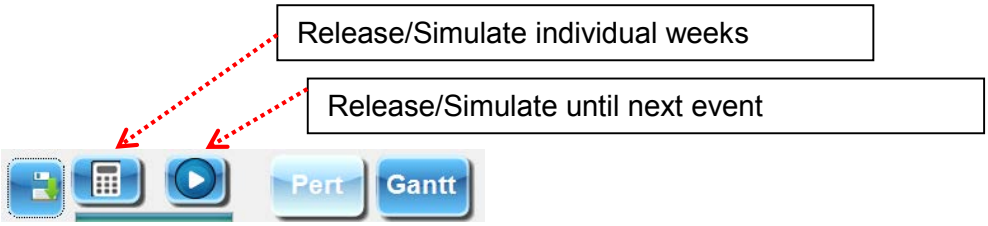
Planning optimization

Before a week is activated you can re-optimize your plan by testing and selecting alternative courses of action for not yet started work packages/ activities. Each time an alternative course of action is selected, the network diagram is computed anew so that you can see the effects of your decisions. **Accordingly, the cost for the change of alternatives must also be considered. (For the amount of the modification costs, contact your seminar instructor). (ARE NOT ACTIVATED IN THE CURRENT SCENARIO)** An alternative change is only binding after the week has been planned and activated.

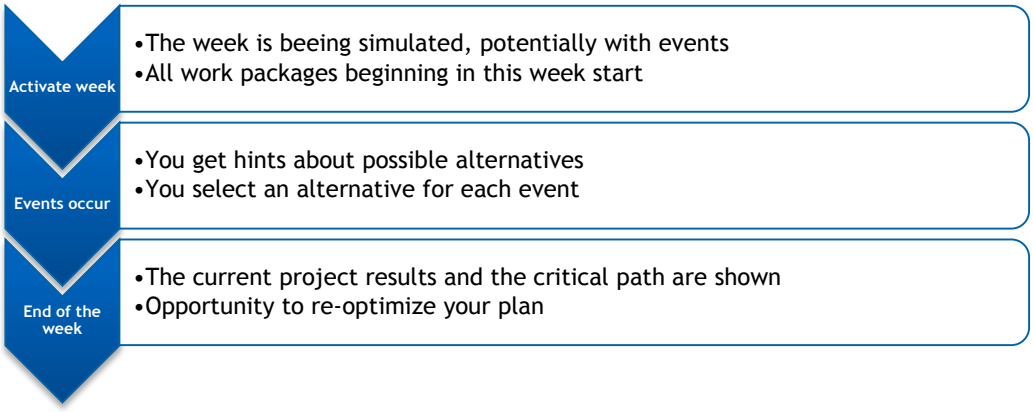
If the planning causes a new critical path, this will be immediately apparent. You can view the consequences of your decisions at any time based on the project status report.

Week activation and simulation

Once your optimization is complete, **activate the week** and the week with all potential events will be simulated. Consequently all work packages beginning during this week will be started. Should any unforeseen events arise, following your chosen work package, you will be notified and provided with information about potential alternatives.



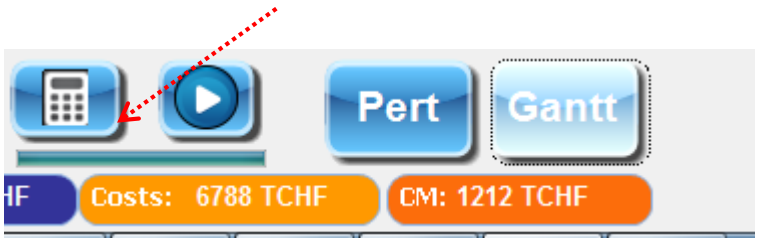
At the end of the simulated week, the current project results are shown in the bottom task bar of the network diagram and in the project status report. Furthermore, the network diagram also shows the critical path(s). This way you have the opportunity to re-optimize your plan before starting the next week.



End of a phase

After all weeks of the phase are simulated, give your decisions to the instructor. The instructor will combine the results of all groups, analyse them and then activate the next phase.
You will recognize the end of a phase by the fact that the icons in the lower area of the network plan or Gantt - diagram are disabled. Please inform the seminar instructor once you have reached this point.

Finished calculation phase



2.2. Decisions

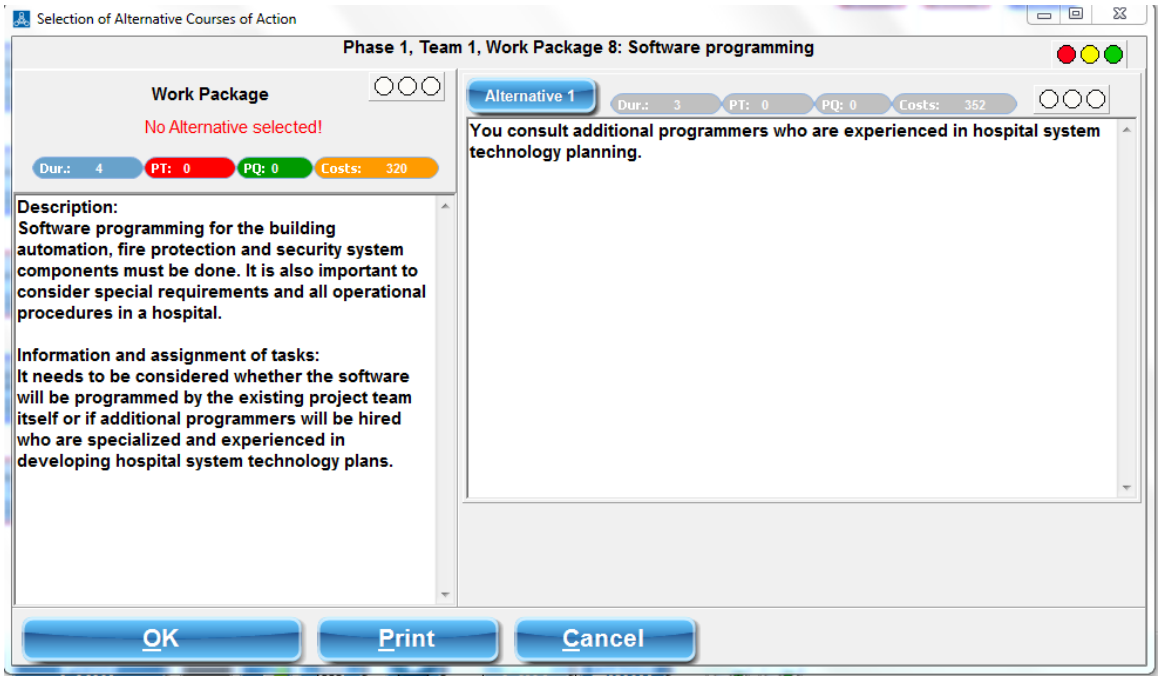
Planning optimization: Courses of action for future activities

You can select alternatives for the work packages using either the Network or the Gantt diagram.

Click on the respective work package and the possible alternative courses of action will be displayed in the dialog box.

Selection of alternative solutions in case of events/ disturbances

Should events regarding all work packages in progress in the current week arise, these will be sequentially displayed.
They are shown right away in a dialog box at the beginning of the respective activity. The event/ disturbance report also includes possible **alternative solutions**.



By clicking on the corresponding alternative you can access and see all the information about it. If you **click again** on this alternative it will **turn green**. This way the respective alternative has been selected. Confirm your choice by clicking OK at the end.
After you have edited all events, the respective weeks are calculated based on your decisions regarding the work packages up to the end of the project. The results are displayed in the project report and in the network diagram. Before you activate the next week you have the chance to re-optimize your planning given the new situation.

3. Reports

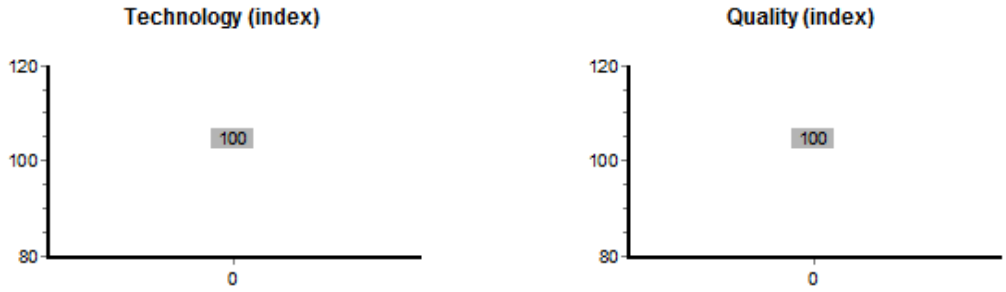
The participants' reports provide information on the status quo of your project to date. After each phase end these reports are generated by the system and provided to you for analyze purposes. The reporting system will help your team to understand the decisions regarding the project goals and maybe to derive optimizations.

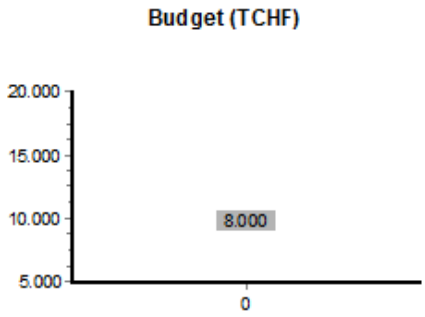
3.1. Participants' report Nr. 1: Project overview

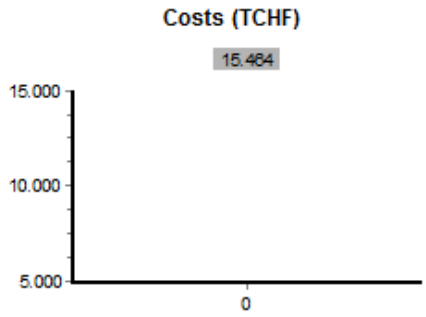
The project overview provides the participants with the key performance indicators as well as the reward and penalty criteria of the project aggregated on one report page.

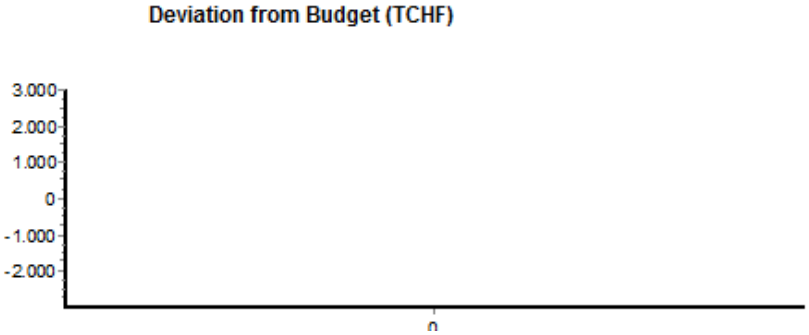
Participant Report No. 1: Project Summary **Team 1**

Phase	Budget (TCHF)	Costs (TCHF)	Dev. from Budget (TCHF)	Duration (weeks)	Technology (index)	Quality (index)
0	8.000,00	15.464,00	-7.464,00	48	100	100









3.2. Participants‘ report Nr. 2: Status of Work Packages

It shows the progress and the respective performance indicators and indices of each work package.

Nr.	Status	Description	Costs (TCHF)	Duration (weeks)	Delta Techn. (index)	Delta Qual. (index)
1	100 %	Project organisation	9000	1	0	0
2	100 %	Coordination planner	240	2	0	0
3	100 %	Working area and material room	80	1	0	0
4	100 %	Software specification	160	1	0	0
5	12 %	Cabinet design	80	8	0	0
6	50 %	Component selection	160	2	0	0
7	20 %	Planning caulking works	320	5	0	0
8	0 %	Software programming	320	4	0	0
9	0 %	Tender for the cabinets	80	5	0	0
10	0 %	Ordering components	80	1	0	0
11	0 %	Tender for caulking works	80	6	0	0
12	0 %	Contracting cabinets	80	3	0	0
13	0 %	Tenders for express agents	160	3	0	0
14	0 %	Contracting caulking works	80	1	0	0
15	0 %	Contracting a express agent	80	2	0	0
16	0 %	Carrying out caulking wokrs	640	7	0	0
17	0 %	Customs clearance	240	3	0	0
18	0 %	Delivery of componets	240	2	0	0
19	0 %	Building cabinets	400	6	0	0
20	0 %	Programming documentation	80	1	0	0
21	0 %	Removing building debris	240	3	0	0
22	0 %	Shipping to the construction site	80	2	0	0
23	0 %	Software installtation	240	4	0	0
24	0 %	Installation	144	10	0	0
25	0 %	Function test	640	4	0	0
26	0 %	Adjustment after testing	320	3	0	0
27	0 %	Documentation	240	3	0	0
28	0 %	Inspection and approval	640	2	0	0
29	0 %	Handover to the general contractor	80	1	0	0
30	0 %	Training	240	2	0	0

Costs of work packages (TCHF)	15.464,00			
Costs for change of alternative (TCHF)	0,00			
End date /Qual. / Techn. act. phase		48	100	100
Rewards / Penalties (TCHF)		0,00	0,00	0,00
Rewards / Penalties milestones (TCHF)	0,00			
Costs time shifting (TCHF)	0,00			
Budget (TCHF)	8.000,00	Sum Bonus / Penalties (TCHF)		0,00
Total costs (TCHF)	15.464,00			
Deviation from Budget (TCHF)	-7.464,00			

3.3. Participants‘ report Nr. 3: Summary Alternatives

It shows the selected as well as the available alternatives for each work package.

WP	Risk	Buffer	sel.Alt.	Available Alternatives													
				Alternative 1					Alternative 2					Alternative 3			
				Description	Co (TCHF)	Du (we.)	PT (index)	PQ	Description	Co (TCHF)	Du (we.)	PT (index)	PQ	Description	Co (TCHF)	Du (we.)	PT (index)	PQ
1		0	1	***Strategy for time: 1. Priority: Comply with scheduling 2. Priority: Comply with budget 3. Priority: Technology is average***	300	1	0	0	Strategy for costs: 1. Priority: Optimize budget 2. Priority: Scheduling flexible 3. Priority: Technology is not up to date	300	1	0	0	Strategy for technology: 1. Priority Technology meets the highest quality 2. Priority: Scheduling flexible 3. Priority: Comply with budget	300	1	0	0
2		0	1	***Contact the relevant employee at MedArch Plan AG immediately and clarify when and in what form this room will be available.***	264	1	0	0	Take note of this clarification point for the construction meeting next week.	192	3	0	0		0	0	0	0
3		21	3	Room 1:Lockable, ground floor, 25 m2, ground-level access, tidiness - low	88	1	0	-1	Room 2:Lockable, basement, 25 m2, access via lift, tidiness - neutral	72	1	0	0	***Room 3: Not lockable, ground floor, 25 m2, ground-level access, tidiness - good***	64	1	0	1
4		16	0	Prevent possible problems by elaborately coordinating meetings with all project participants.	176	3	2	1		0	0	0	0		0	0	0	0
5		0	1	***You threaten your employees with dismissal for their refusal to work.***	80	6	0	-1	You agree to pay for the overtime with additional labor costs.	96	6	0	-1	You hire new employees who will work these additional shifts.	72	8	0	-2
6		3	3	You speak directly to Justus Schnyder to clarify the facts.	160	3	0	0	You decline to install the extra elements in the private villa.	160	2	0	0	***You hand over the remaining 50 fire detectors to the subcontractor, who has to conduct the installation on a weekend.***	160	2	0	0

3.4. Participants‘ report Nr. 4: Events and solutions

The events for the selected alternatives and the chosen solutions are aggregated in this report.

TOPSIM® REPORTS

Management Simulation
TOPSIM - Compliance Management

Date: 28.11.2014
Actual phase / week: 1 / 4

Participant Report No. 4: Events and Soluions **Team 1**

WP	Risk	Incident according to workpackage Description	Selected alternative Description	Co (TCHF)	Du (we.)	PT (index)	PQ (index)
2		An employee of MedArchPlan AG who is responsible for the hospital project informs you that the golf club of which the prime contractor is a member will host a tournament in the coming weeks and that C	You accept the sponsorship of the golf tournament and issue a receipt.	216	3	0	0
3		Stock taking is done after the weekend by your foreman. He informs you that stock differences exist between the issued note from the last delivery and the current stock on the construction site.	You hire a security guard.	76	1	0	0
4		You have specified the software for the installation operation of the hospital based on past experience. However, many interface problems occur because you did not consider the essential processes and		208	5	-2	-2
6		A CBT employee reports sick and installs the extra elements "privately" in the villa of the general contractor. You obtain information regarding the incident.	You ignore the employee's action and do nothing.	160	3	0	0
9		A competitor who has heard about the contract to be commissioned for the cabinet files a formal complaint because the contract was directly awarded to Elschalt AG and was not written out in a tender.		128	9	0	0

3.5. Participants' report Nr. 5: Earned Value Analysis

The method of *Earned Value Analysis* is used to make the project's progress measurable and predictable at any point in time. In the game TOPSIM - Compliance Management these points in time are the end of each phase when you are provided with the relevant information in the form of the report shown below.
The target value used to determine the projected progress in the project is called the *Earned Value*. Using the determination of the completion values at different points in time deviations from the initial project planning can be identified during the actual progress of the project. Accordingly, measures are then taken by the project management.

Date of Report	Percentage of Completion (in %) *			Budgeted Cost of Work (in TCHF) **	Budgeted Cost of Work Scheduled (TCHF) ***	Actual Cost of Work Performed (TCHF) ****	Deviation
	Plan	Current	Deviation				
Phase 1 (Plan)	0	0	0	0	0	0	0
Phase 2	0	0	0	0	0	0	0
Phase 3	0	0	0	0	0	0	0
Phase 4	0	0	0	0	0	0	0
Phase 5 (Finish)	0	0	0	0	0 *****	0 ******	0

Explantation about this Earned Value Analysis:

* Percentage of Completion (POC): The calculation of the percentage of completion is based on time proportionality while considering costs per work package in relation to Budget at Completion (BAC). More precisely the POC is the weighted average of project completion at a certain point in time (end of a phase in this simulation). The current status of each work package (Participant Report No. 2 or Gantt chart) based on starting date, duration and current week, and taking into account costs which have already occurred, is considered in the calculation.

** Budgeted Cost of Work Performed (BCWP) or Earned Value: The Earned Value is calculated by the following formula: BCWP = POC x EAC

*** Budgeted Cost of Work Scheduled (BCWS): The budgeted costs are the result of the Project Planning Phase (Optimization Phase).

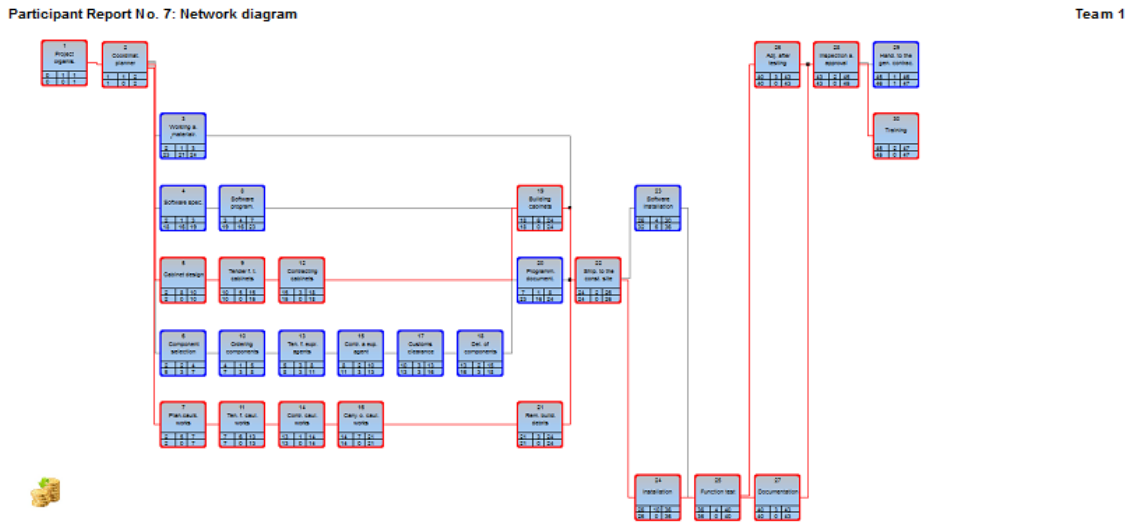
**** Actual Cost of Work Performed (ACWP): The actual costs are the costs that occured until the current phase.

***** Estimate at Completion (EAC): The estimated costs at completion are based on the linear prognose of the ACWP of phase 4. Formula: EAC = BAC x ACWP / POC

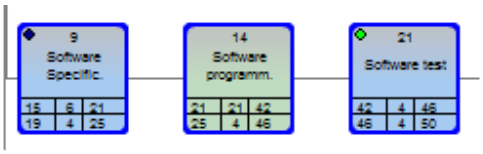
****** Budget at Completion (BAC): The budgeted costs at completion are the result of the Project Planning Phase (Optimization Phase).

3.6. Participants‘ report Nr. 6: Gantt Chart

A *Gantt chart* captures the timing of the work packages in a clear, graphic form. Furthermore, the current project week is displayed:



The *network diagram* is the second most important planning and control tool for the project. This will be distributed by the instructor once the project team has submitted their network plan manually. During the simulation the network diagram shows the current situation of your planning optimization.



The status of a work package can be quickly captured in the network diagram using the following graphical representations:

Critical Path:



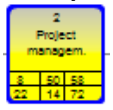
All work packages/ activities on the critical path and their order are indicated by a red border or line.

Not yet started work packages/ activities:



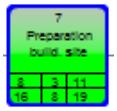
Not yet started work packages/ activities are bright blue.

Work packages/ activities in progress:



Work packages/ activities in progress are yellow with a diagonal line through them.

Finished work packages/ activities:



Finished work packages/ activities are green and are crossed out.

Predecessors and successors

For unambiguous identification of the predecessor and successor of a work package within the network diagram, the predecessor is marked with a **black dot**, the successor with a **bright green dot**, each in the upper left corner.