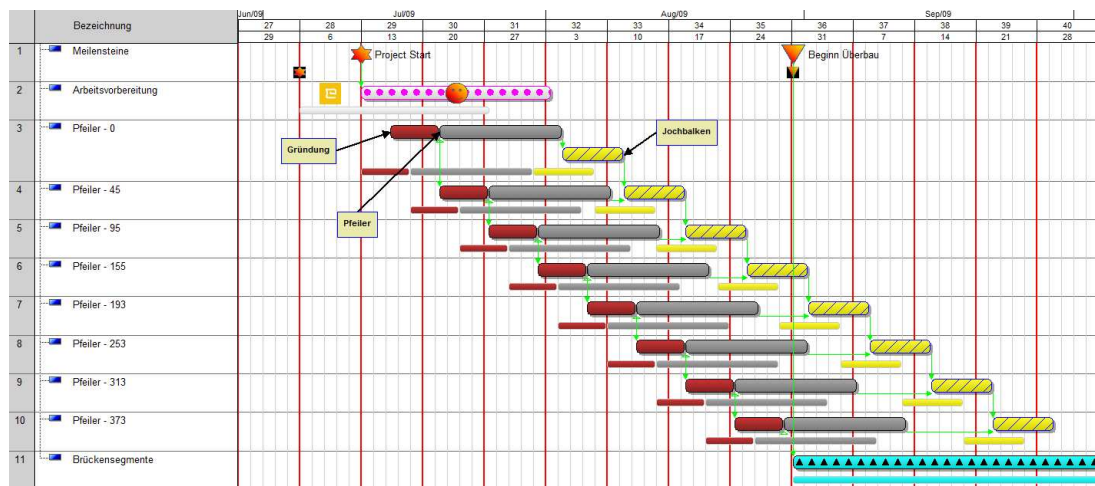# 1 TILOS 7 Improves the Gantt Chart

The TILOS 7 Gantt chart functions have been completely reprogrammed.

The Gantt chart can be displayed as a time or distance Gantt chart. The time based version (the common Gantt chart) displays the position and duration of the tasks. The distance based Gantt chart shows the position and length in relation to the distance coordinates. This shows what type of task is carried out in which area as well as monitoring their progress too.


Gantt chart with planned vs. actual progress. Each row contains numerous tasks that depict a bridge pier.

Grouping

Any number of tasks can be displayed in one row. This saves space and improves the overall view. The allocation of tasks by rows is done either manually by the user (manual grouping) or through task properties (all tasks with the same attribute are in one row). Multilevel grouping can be carried out by numerous attributes.

When manually grouping, any given number of tasks or rows can be moved using the mouse thus creating your own individual graphical sortation. This gives you all the freedom similar to that of drawing a Gantt chart by hand. In the event of overlapping, TILOS simply widens the row to enable a view of all tasks free of any overlaps.

Grouping allows you to create random views of your project i.e. by construction section, work crew, company or resource. Nearly every type of task attribute can used for grouping.
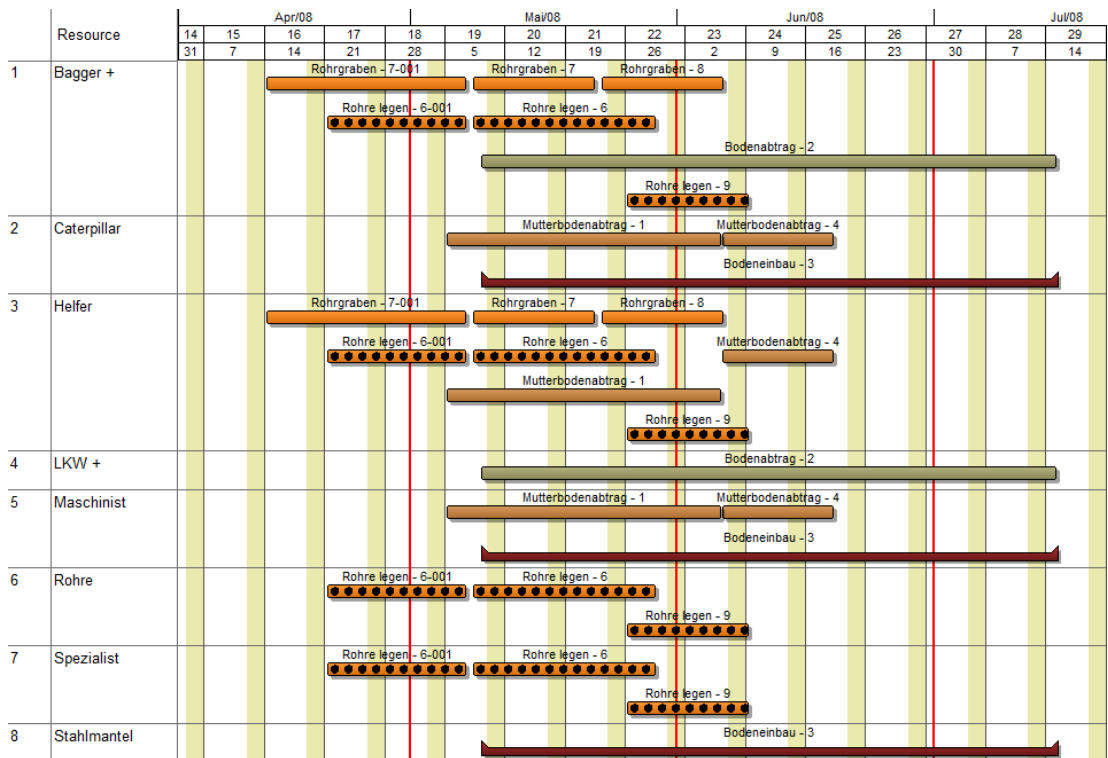
Resource chart: Grouped per resource in a row displaying all the tasks regardding the specific resource.

Labelling the Gantt Chart

The task information is displayed in the text panel. If there is more than one task in a row, the data belonging to each will be portrayed as a list, total sum or minimum or maximum value. Tabular values can also be calculated by applying formulas.

Text boxes or graphics can be openly placed anywhere in the chart or linked with tasks. The information density can be controlled in anyway whatsoever using the layer method.

Overview of further Gantt Chart functions

– Display of one or more sub-projects inside a single Gantt chart.

– Multiple Gantt charts can be opened at the same time. Links can be drawn across the different Gantt chart windows.

– Gantt charts can be printed with their own borders on one or more pages or can be directly imbedded in a cell of an existing view.

– 3D effects with image shading create charts with excellent visual appearance.

– Opening task groups in the time-distance view directly in the Gantt chart. All newly created tasks are automatically issued with distance coordinates of the summary tasks.

– Immediate graphical planning in the Gantt chart.
The usage of templates avoids the necessity of further processing of the task: Name, calculation model as well as display are carried over from the library.

– Numerous tasks and milestones can be placed in a single row and can also be moved between the rows.

– Colours and patterns for each row can be freely defined.

– The application of the layer technique allows to hide and unhide information.

– The red, amber and green (RAG) status function in the Gantt chart allows the quick identification of critical values and task states.

What are the benefits of these new functions?

You can create a schedule in TILOS for the entire project and not just for linear tasks. You can move back and forth between time-distance schedules and Gantt charts if necessary.

## *2   TILOS 7 for Rail Projects*

A number of new railway planning functions has been implemented:

Hindrances / Sectors

Sectors define a section of track which effects the operating speed (hindrances). Typical hindrances are: Crossings, bridges, platforms and tunnels. For different types of hindrances, the effect on the process speed can be modelled at task template level.

When creating a new project, a sector table containing the project hindrances is generated first. This can also be imported. All new tasks created from templates automatically take these hindrances into account and claculate the precise task line. Setup times can be entered for each task at the start and finish, but also at each hindrance. Each task section can be labelled and displays the respective performance, speed or setup time for this hindrance.

The section table can also be used to create girds, rulers and symbols in the distance graph.
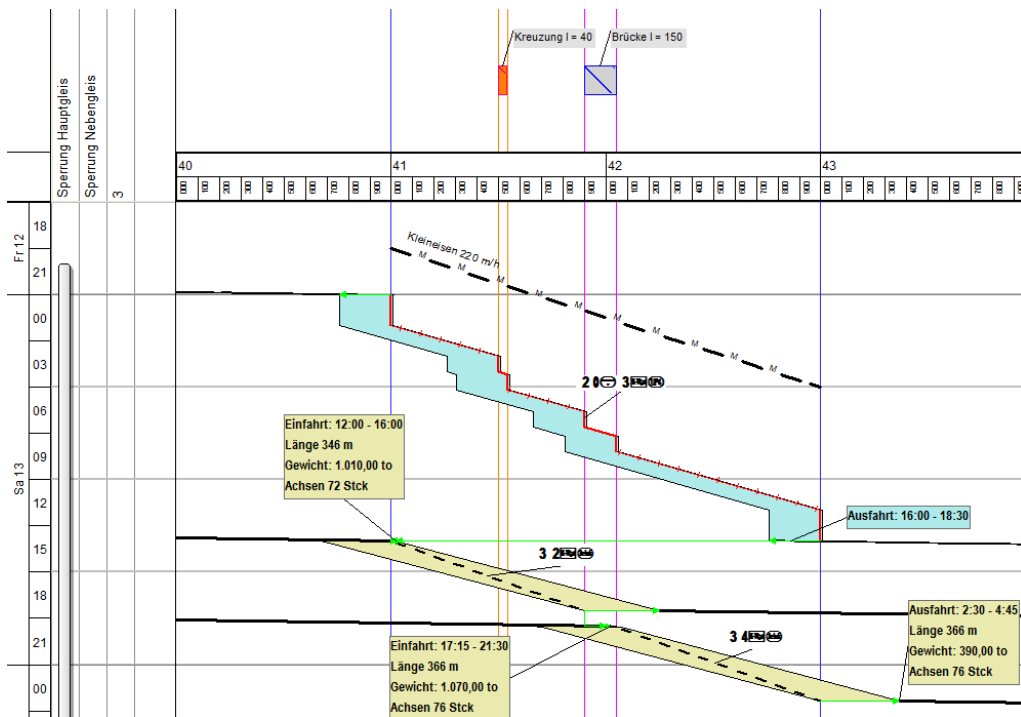
Train calculation: Ballast trains with drive in and drive out data.

Train Calculation

TILOS now calculates the train data for ballast trains and excavators directly and displays the data as a symbol next to the task. For a given waggon setup, TILOS can calculate the distance which that train can cover (e.g. ballasting) or how many waggons the train has to take in order to service a given distance area.

As the load capacities and further technical data is defined at resource level, TILOS can calculate the length of the train, the weight and the number of axles. The shape of the train is displayed as distance parallelogram with the exact contours of the train in the chart.

The drive in and drive out time slots can now be generated from the context of the work task. Based on a special template and the distance coordinates of the train station where the train starts, the drive in or out is displayed as a task. Upon each reschedule, the task is updated to reflect the changed train configuration of the work task or changed time and distance coordinates.

A special logistic plan showing trains and support train rides can be generated using TILOS filter technology.

Setup time calendar

The possession time can be entered as bars in a Gantt chart parallel to the main time location view. All "possession tasks" are on one bar row and show when the track is closed and work can be performed. The possession calendar can be created by a single mouse click from this bar line.

How do I benefit from these new functions?

Rail projects can be planned a lot quicker and more accurately due to the aligned railway functions. The cost of creating time-distance diagrams for tendering is reduced considerably.

The logistic plan and the project execution plan can be created simultaneously.

3   TILOS 7 Preciser Calculation

Distance of tasks among one another

A number of new and practical types of link have been created which will make the planning of linear projects easier by the inclusion of distance data:

The option: **Calculate lag by distance** keeps a minimum distance in distance units between two tasks along the whole task line and reflects the shape of the both tasks too. Delays can be based on distance and time data.

If there is a distance gap between predecessor and successor and both tasks require the same equipement, the mobilisation time can be calculated based on the driving speed of the equipment.

Synchronising distance information

Links ensure that all the tasks in a chain are automatically adjusted to the first task. By moving the first task, all other succeeding tasks will be moved. Adjustments to the distance and length of the tasks will result in the recalculation of quantities, the duration and resources as well as the costs.

More functions

The link wizard creates links for the entire chain of selected tasks. Depending on the position of the tasks to one another, TILOS will generate Start-Start or End-Start types of links.

When moving linked tasks manually and wishing to keep the same distance when rescheduling the task, simply click on the function: Get lag from chart. This will then set the current time gap as the link lag.

Different types of links also allow you to differentiate between colours and textures. Each type of link can be included in, or excluded from, the calculation. This will enable you to simulate and compare alternative project phases with one another.

For each selected task, a predecessor or successor diagram will list all tasks to, and from, this task to the project end.

4 TILOS Shows the Progress

Up until now, TILOS has always split tasks after entering the progress. In addition to this, a simple progress entry is now available. You just enter the progress as a % value or the performed quantity. This simplifies the exchange of data with external systems during import and export.
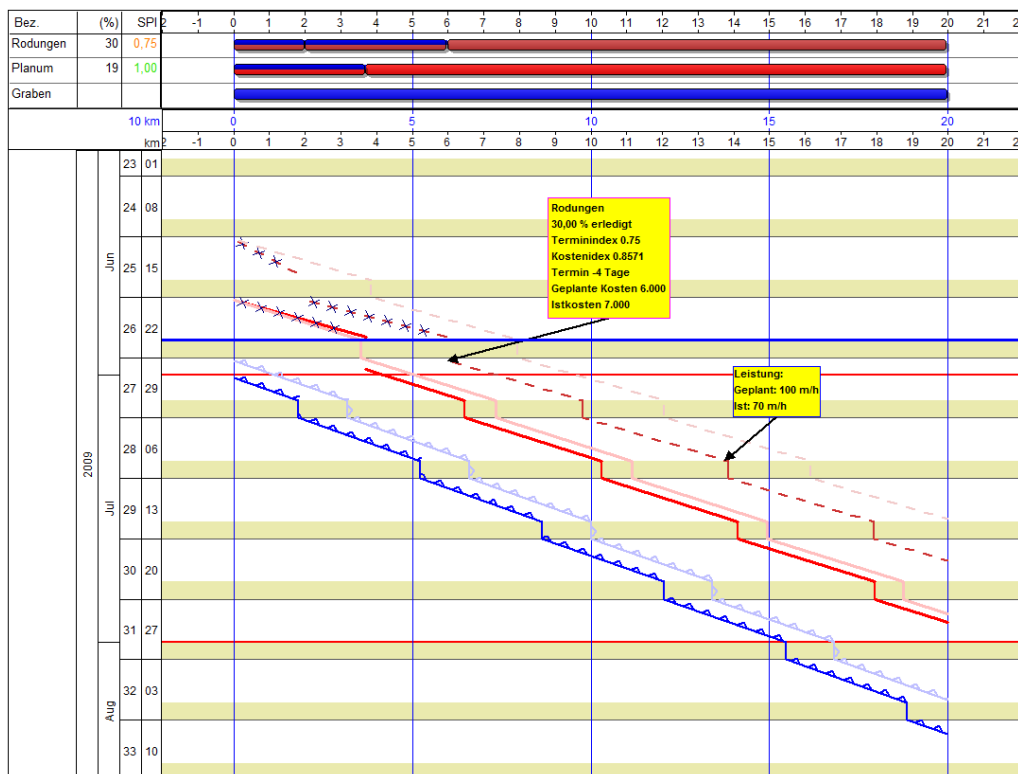
By entering progress information, an immediate update of the schedule takes place.

Based on the micro progress function, progress recording and evaluation is split into two steps. This allows the recording of progress and its import to TILOS along with the reporting

period without any change to the system. The progress can be inspected and checked for incompatibility with schedule at any given time.

By applying progress, the remaining schedule gets calculated along with the perfomance values. TILOS can now calculate the Schedule Perfomance Index, Cost Performance Index and also show deviations from the completion values.

The newly designed dashboard can show these figures at task, summary and project level.

5   *Import / Export*

The newly developed import-export interface concept works on a wizard basis.

Exchanging single data objects

The most important and relevant data objects for exchange are either imported via clipboard or imported / exported from an ASCII file. The scope of data and sequence are defined using the exchange manager. The exchange of libraries and work progress is new.

By selecting Excel as the exchange format, numerous data objects can be imported and exported at once, into a single worksheet.

XML

The exchange of data with other programs is controlled entirely using XML. This can be tailored at object level and inside each object the fields for exchange are deined using a profile. Predefined profiles are delivered, but can be changed using the profile editor.

A profile contains the rules on how the two applications (exporting and importing) communicate with one another. This enables the flexible exchange of data.

The biggest improvement to this exchange format is that the main library data including calendars are now exchanged.

For **MS Project**, a VBA macro will be delivered to read and write the TILOS XML files. TILOS category and template information is handled in MS Project as free text fields.

For **ASTA Powerproject**, a VBA macro will be delivered to read and write the TILOS XML files. TILOS category and template information is handled in ASTA Powerproject as code library assignments. Special TILOS data is stored in ASTA Powerprojects UDF fields.

For **Primavera**, the exchange is based on the Integration API in java programming language. TILOS category and template information is handled in P6 as code assignments.

Special attention was given to the update of task data via task ID. Each task for export can be issued with a unique ID that is retained by other systems. This enables the cross-system exchange of data.

This interface can also be used for the exchange of data with calculating programs. The main advantage here being that the scope of data can be adjusted as well as allowing the exchange of entire libraries.

6 Various Enhancements at a Glance

Annotations

The annotation of a schedule has become more flexible by the new and enhanced objects:

– Multiline, rotating text fields.

– Picture libraries: A picture can be used numerous times but is only stored once in a TILOS file.

– Milestones can be depicted by a graphic. A different symbol can be applied for different completion stages.

– Symbols can also include graphics.

– Milestone library.

Task Calculation

Up to ten values can be saved in a distance profile now (top soil stripping, soil filling and frost protection). The same distance profile can now supply numerous tasks with quantities. The value for task quantity data can now be chosen within the task itself. The quantity data for each section can be imported from the profiles.

Optionally, tasks can be rescheduled to begin the next day or next week.

Each task can be allocated with numerous work steps. Each work step can be allocated with a symbol. Four weeks before work commences i.e. deliver the drawings: One week upon completion: Raise the invoice. A worksheet including the individual work stages and responsibilities can be exported.